

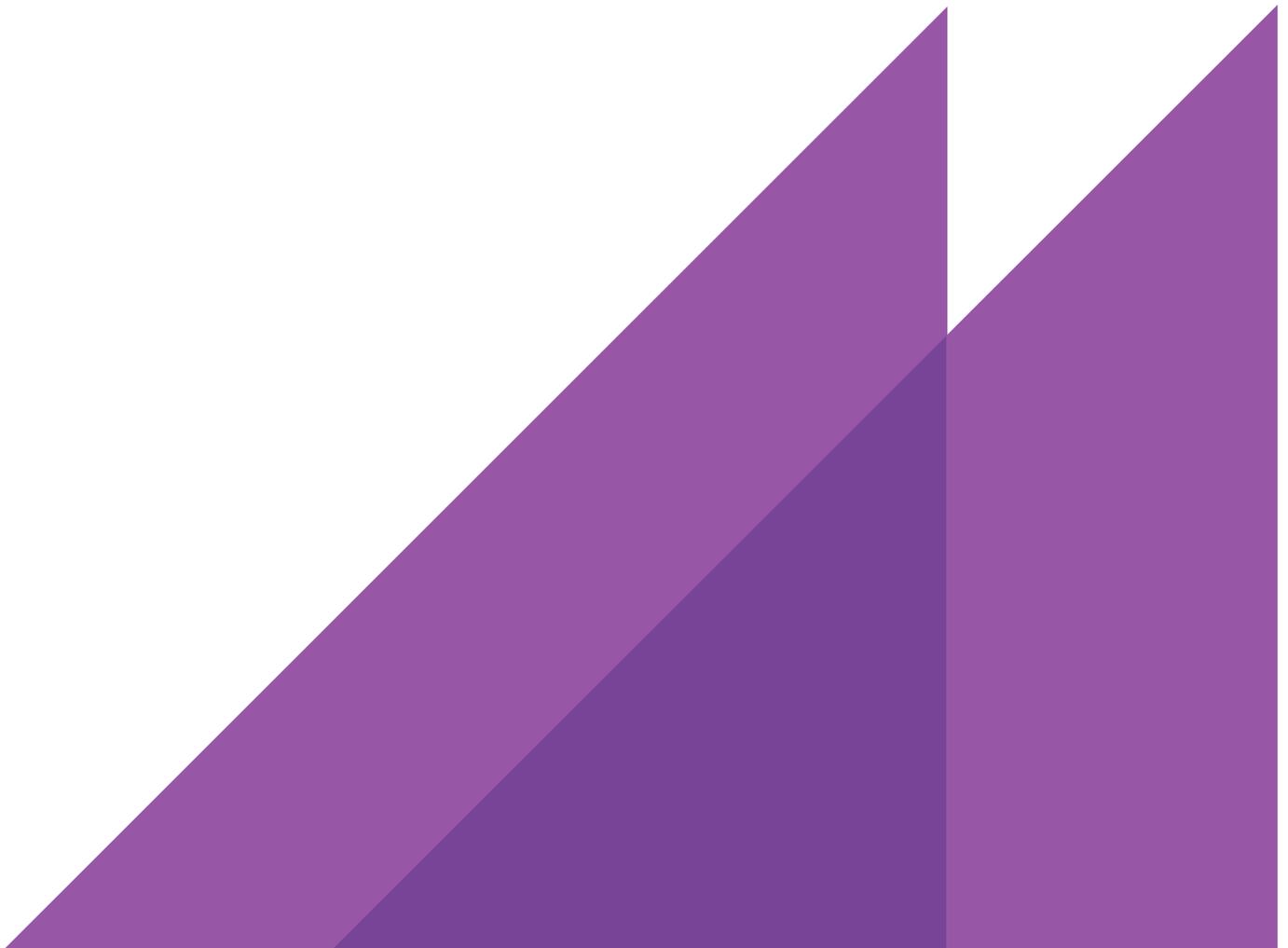
REPORT TO
INFRASTRUCTURE VICTORIA

22 JULY 2019

GIPPSLAND



INDUSTRY PROFILE
FINAL





ACIL ALLEN CONSULTING PTY LTD
ABN 68 102 652 148

LEVEL NINE
60 COLLINS STREET
MELBOURNE VIC 3000
AUSTRALIA
T+61 3 8650 6000
F+61 3 9654 6363

LEVEL ONE
50 PITT STREET
SYDNEY NSW 2000
AUSTRALIA
T+61 2 8272 5100
F+61 2 9247 2455

LEVEL FIFTEEN
127 CREEK STREET
BRISBANE QLD 4000
AUSTRALIA
T+61 7 3009 8700
F+61 7 3009 8799

LEVEL SIX
54 MARCUS CLARKE STREET
CANBERRA ACT 2601
AUSTRALIA
T+61 2 6103 8200
F+61 2 6103 8233

LEVEL TWELVE, BGC CENTRE
28 THE ESPLANADE
PERTH WA 6000
AUSTRALIA
T+61 8 9449 9600
F+61 8 9322 3955

167 FLINDERS STREET
ADELAIDE SA 5000
AUSTRALIA
T +61 8 8122 4965
ACILALLEN.COM.AU

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EXECUTIVE SUMMARY

Overview of region

The Gippsland region is situated in the southeast of Victoria. The region is bounded by Ovens Murray region and New South Wales to the north; the eastern Victorian coastline to the south; and metropolitan Melbourne to the west.

While Gippsland borders metropolitan Melbourne, many of the regional towns further east have vastly different characteristics to metropolitan Melbourne.

Being located in the peri-urban fringe, Gippsland has major road infrastructure that keeps the region well-connected to metropolitan Melbourne via the Princes Highway and South Gippsland Highway. These are supplemented with the Bairnsdale to Melbourne freight and passenger route that runs through Latrobe. The Gippsland region is also home to significant water storages such as the Thomson Dam which accounts for 60 per cent of Melbourne's drinking water.

The Gippsland region has traditionally relied on agriculture, with electricity generation and mining a key sector primarily for Latrobe. However, the Latrobe regional hub continues to show growth in the service industries, particularly around the provision of healthcare and social assistance.

Revealed comparative advantage (RCA) index methodology

Using the theories and approaches of revealed comparative advantage (RCA) outlined in the accompanying assessment framework report, an analysis of the comparative advantage of Gippsland is provided below.

A revealed comparative advantage index (CAI) assumes that the historical economic performance of a region can serve as a good indicator of the industries which have a comparative advantage in that region. The revealed CAI measures the concentration of industries in a particular region compared to the Victorian or Australian economy (that is, it compares the proportion of an industry's contribution to the region's gross value added (GVA), relative to the proportion at the State and National level). Specifically, industries with a CAI above 1 have a higher proportion of GVA in that region compared to the state or national economy and can indicate a potential strength and comparative advantage within the region.

Additional explanation about the RCA and CAI approach used in this profile (including the limitations of the approach) is provided in the body of the report at Chapter 2.

Top 20 highest RCA industries

Table ES1 summarises the highest revealed comparative advantage industries (Level 2 ANZSIC¹) for the local government areas (LGAs) within Gippsland, using the Victorian CAI comparison. The

¹ Australian and New Zealand Standard Industrial Classification

industries with the highest comparative advantage are mining and agriculture, forestry and fisheries and their secondary manufacturing sectors and services. While coal mining in the Latrobe Valley has the largest comparative advantage for Gippsland (60.1 Victorian CAI), the decline of the sector in the last decade reflects a downturn in the sector which peaked during the mining boom as well as the closure of Hazelwood Power Plant. Conversely, Oil and Gas Extraction (41.3 Victorian CAI) in Wellington has grown significantly (35 per cent) and represents a large proportion of the LGA's GVA (15.1 per cent). This reflects the growing demand for gas exports on the east coast in recent years.

The potential structural shift in the Gippsland mining and energy industries can potentially be offset by the buoyant agriculture sectors and enabling development of renewable energy sectors.

Agriculture for instance is the largest sector and has strong comparative advantage in South Gippsland (10.3 CAI, 32.2 per cent GVA), Baw Baw (6.1 CAI, 19.2 per cent) and Wellington (5.2 CAI, 16.2 per cent). Gippsland has a reputation for quality and reliable production for milk, beef and horticulture. These sectors also employ a significant number of the region's workers.

On the other hand, while forestry and logging demonstrate strong Victorian CAI's across East Gippsland (19.4), Latrobe (14.5), Wellington (6.9) and Baw Baw (6.3 CAI, 19.2 per cent GVA) and experienced strong growth in the last decade, it represents relatively minor proportions of their LGAs' GVA of between 0.6 and 1.9 per cent of each. Nonetheless, the supporting secondary industry for Pulp, Paper and Converted Paper Product Manufacturing in Latrobe (15.4 CAI) represents 3.7 per cent of local GVA and has demonstrated strong growth of 74 per cent over the past decade.

A similar story for other regions, the Agriculture, Forestry and Fisheries Support Services sector demonstrates strong CAI and growth over the last decade, although starting from a low base. Agricultural services are both a result of and driver of growth and importantly provide higher skilled job opportunities in rural LGAs.

TABLE ES 1 TOP 20 HIGHEST REVEALED COMPARATIVE ADVANTAGE BY LGA, GIPPSLAND

Industry (Level 2 ANZSIC)	LGA	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
6. Coal Mining	Latrobe (C)*	60.1	6.9	-42%	17.4%	Top left
7. Oil and Gas Extraction	Wellington (S)	41.3	7.6	35%	15.1%	Top right
3. Forestry and Logging	East Gippsland (S)	19.4	10.9	51%	1.9%	Top right
15. Pulp, Paper and Converted Paper Product Manufacturing	Latrobe (C)	15.4	17.3	74%	3.7%	Top right
3. Forestry and Logging	Latrobe (C)	14.5	8.3	59%	1.4%	Top right
4. Fishing, Hunting and Trapping	East Gippsland (S)	13.6	6.1	20%	0.7%	Top right
3. Forestry and Logging	Wellington (S)	13.1	7.6	75%	1.3%	Top right
1. Agriculture	South Gippsland (S)	10.3	13.3	41%	32.2%	Top right
9. Non-Metallic Mineral Mining and Quarrying	South Gippsland (S)	7.3	1.8	7%	0.4%	Top right
5. Agriculture, Forestry and Fishing Support Services	Wellington (S)	6.9	6.4	14%	1.5%	Top right
5. Agriculture, Forestry and Fishing Support Services	South Gippsland (S)	6.6	6.0	-31%	1.5%	Top left
3. Forestry and Logging	Baw Baw (S)	6.3	3.6	62%	0.6%	Top right
1. Agriculture	Baw Baw (S)	6.1	8.1	48%	19.2%	Top right
9. Non-Metallic Mineral Mining and Quarrying	East Gippsland (S)	5.4	1.3	80%	0.3%	Top right
5. Agriculture, Forestry and Fishing Support Services	East Gippsland (S)	5.3	4.7	-22%	1.2%	Top left
1. Agriculture	Wellington (S)	5.2	6.9	40%	16.2%	Top right

Industry (Level 2 ANZSIC)	LGA	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
7. Oil and Gas Extraction	South Gippsland (S)	4.8	0.9	-10%	1.8%	Top left
5. Agriculture, Forestry and Fishing Support Services	Baw Baw (S)	4.8	4.4	-30%	1.1%	Top left
44. Accommodation	Bass Coast (S)	4.5	3.1	33%	2.2%	Top right
9. Non-Metallic Mineral Mining and Quarrying	Baw Baw (S)	4.5	1.1	145%	0.2%	Top right

Note: *LGAs are classified as follows: (C) Cities, (S) Shires, (RC) Rural Cities.
 SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

SWOT and needs analysis

To help understand what the infrastructure investment opportunities and constraints look like for Gippsland, ACIL Allen undertook a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis, as well as a needs analysis. The information underpinning the SWOT and needs analysis was derived from a desktop research process which examined publicly available data and information. Table ES2 provides the results of this analysis for the industries identified in Table ES1. That is, Table ES2 provides the results of the SWOT and needs analysis for those industries identified in Table ES1 that are deemed to have a high CAI and high share of GVA for the LGA they operate in. It identifies the potential investment opportunities and constraints that are important considerations for meeting the future infrastructure requirements of revealed sectors and other sectors important to the region's economy.

Firstly, revealed industries identified in Table ES2 are assessed for their RCA comparison to Victoria, the contribution to LGA GVA and consideration of the past decade's performance. This approach identifies the most important industries to the region. This guides the initial SWOT analysis process. However, due to some of the limitations of the RCA (see Section 2.1), it is important to review available industry, sector and regional development literature as well as consult with relevant regional stakeholders to identify industries that the region considers as important for future economic development. In Gippsland's case, opportunities have been identified in Agriculture, Forestry and Fisheries; Manufacturing; Energy; Mining and Tourism.

Due to the categorisation of industries in the ANZSIC codes, tourism and the renewable energy industries do not have a demonstrated RCA. The data simply will not allow for this calculation to be undertaken. However, this sector demonstrates many economic development opportunities for Gippsland. A further assessment of the priority industries considers service industries that may contribute to the performance of a primary or secondary industry – for Tourism this may include Accommodation and Food and Beverage Services.

In order to include industries that could be considered emerging or have demonstrated growth but are starting from a low base, it is necessary to cross-check the opportunities identified in the literature with the emerging industries presented in Table ES1. Outside of Agriculture, Forestry and Fisheries, Manufacturing, and Energy and Mining (Renewables and research, development and training), there are no industries in the top 20 that are identified in the literature that either align with the small industries (<1% GVA) demonstrating high RCA or have demonstrated strong growth over the past decade. This may reflect the limitations of the revealed industry categorisation at the ANZSIC code 2-digit level, which presents a high-level industry descriptor.

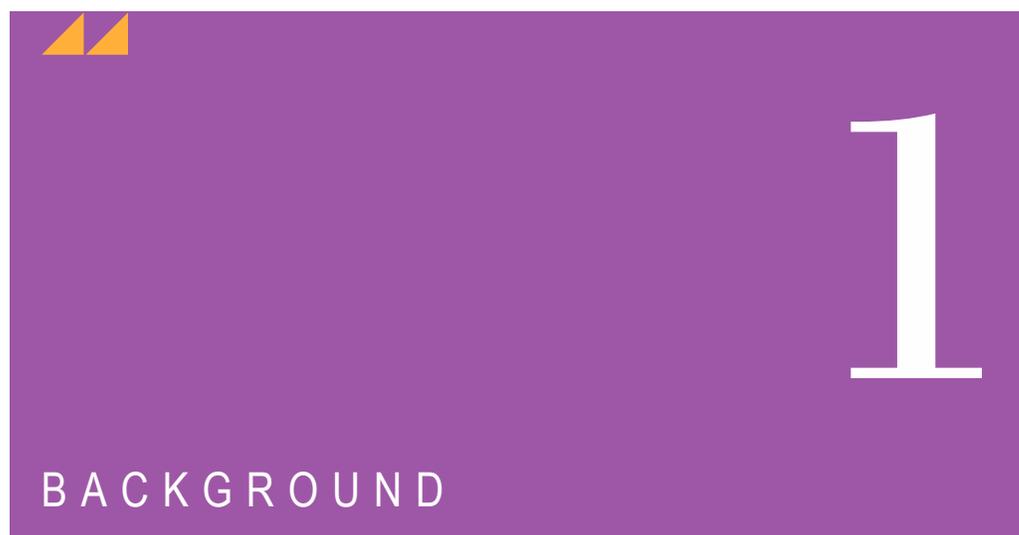
The SWOT analysis is then used to identify actionable or practical issues which are compared against the documented infrastructure needs of the region/industries. This comparison is then used to identify potential opportunities and constraints facing industries which could be addressed through future infrastructure investments.

TABLE ES 2 WHAT ARE THE INFRASTRUCTURE INVESTMENT OPPORTUNITIES AND CONSTRAINTS FOR GIPPSLAND?

Industry	Revealed sectors	Relevant LGAs	Identified needs	Opportunities to address needs	Constraints to economic development of the sector
Agriculture, Forestry and Fisheries	Agriculture (Dairy, Beef and Horticulture)	East Gippsland Baw Baw Wellington South Gippsland	The horticulture and food processing industries need enhanced supply chain connectivity including road and rail freight corridors between Gippsland and Melbourne Airport and Port of Melbourne	Develop road and air freight infrastructure that links primary industries with domestic and international markets	Without optimal road and air freight infrastructure, access to new or existing market opportunities can be constrained
		All	The dairy and horticulture industries need ongoing maintenance and upgrade of the irrigation infrastructure	Continue to maintain strategic irrigation infrastructure such as the Macalister Irrigation District Scheme	Inefficient irrigation water technologies can waste irrigation water available
		All	The agriculture industry needs enhanced NBN connectivity to enable market expansion	Identify priority areas that require NBN or mobile phone tower access	Inadequate access to NBN or mobile broadband services on-farm
	Wild catch (abalone) and commercial fishing	East Gippsland Wellington Baw Baw	The commercial fishing, aquaculture and wild catch sectors need optimal road transport networks between ports and the Melbourne and interstate markets	Develop transport networks between commercial fishing and aquaculture centres on the coast and the Melbourne markets and airports	Inadequate port facilities and linking road infrastructure can constrain further development of the commercial fishing and aquaculture sectors
	Forestry and Logging	East Gippsland Wellington Latrobe Baw Baw	The timber industry needs enhanced road infrastructure linking Gippsland, New South Wales, regional Victoria, Geelong and the Port of Eden	Maintain and upgrade main arterial road freight networks linking Gippsland with Melbourne, regional Victoria and New South Wales	Inadequate road infrastructure linking forestry plantations, processors and markets can reduce sectors cost competitiveness
Manufacturing	Pulp, Paper and Converted Paper Product Manufacturing	East Gippsland Latrobe	The paper industry needs reliable and safe road infrastructure that connects Gippsland with Melbourne and other region centres	Maintain and upgrade main arterial road freight networks linking Gippsland with Melbourne, regional Victoria and New South Wales	Inadequate port facilities and linking road infrastructure can constrain further development of the paper industry
	Food Product Manufacturing	Baw Baw East Gippsland South Gippsland Latrobe Wellington	Food products manufacturing, particularly for dairy products, relies on road infrastructure that links manufacturers with domestic markets including Melbourne and regional Victoria	Maintain and upgrade main arterial road freight networks linking Gippsland with Melbourne, regional Victoria and New South Wales	Inadequate port facilities and linking road infrastructure can constrain further development of the dairy food processing industry
Mining and energy	Oil and Gas Extraction	Wellington	Enabling infrastructure for oil and gas extraction development	Opportunity to expand LNG production from existing and fields in Victoria (driven by export demand)	

Industry	Revealed sectors	Relevant LGAs	Identified needs	Opportunities to address needs	Constraints to economic development of the sector
	Research, development and training related to the industry (Identified as emerging industry, based on the future opportunities identified in the SWOT however, it does not have a RCA as such)	Latrobe	Electricity network reliability	Opportunities for the La Trobe Valley to be a centre for the research, manufacturing, and training related to the installation and maintenance of electricity network infrastructure and safety equipment (which is being considered in design of Gippsland Hi-tech Precinct)	
	Renewable energy (Identified as emerging industry, based on the future opportunities identified in the SWOT however, it does not have a RCA as such)	Latrobe Baw Baw South Gippsland	Utilities and network transition infrastructure to enable development of renewable energy sector	Consider supporting infrastructure to enable the scale-up of geothermal and wind energy (e.g. cost effective connection to the NEM)	Lack of energy transmission infrastructure available Land use competition with agriculture for wind farms
Tourism	Identified as emerging industry, based on the future opportunities identified in the SWOT however, it does not have a RCA as such	All	Improved amenities/facilities to support wilderness trails and walks	Invest in amenities/facilities to generate additional visitation	Remove access constraints (i.e. inadequate roads to mountain regions)

SOURCE: ACIL ALLEN



1.1 Overview of Gippsland

The Gippsland region is situated in the southeast of Victoria. The region is bounded by the Ovens Murray region and New South Wales to the north; the eastern Victorian coastline to the south; and metropolitan Melbourne to the west. The Gippsland region accounts for 18 per cent of Victoria's land area (covering an area of 41,737 km²). As at 2018, the region had an estimated resident population (ERP) of 282,966 or 4.4 per cent of Victoria's population. Population and land size by LGA are shown in Table 1.1 below.

TABLE 1.1 POPULATION AND AREA BY LGA, GIPPSLAND REGION, 2018

Local Government Area (and sub regions)	ERP	Share of region ERP	Area (km ²)	Share of region area
Bass Coast Shire (Western peri-urban fringe)	35,327	12%	866	9%
Baw Baw Shire (Western peri-urban fringe)	52,015	18%	4,028	42%
South Gippsland Shire (Western peri-urban fringe)	29,576	10%	3,296	34%
Latrobe City (Latrobe regional hub)	75,211	27%	1,426	15%
East Gippsland Shire (Eastern regional areas)	46,818	17%	20,940	66%
Wellington Shire (Eastern regional areas)	44,019	16%	10,817	34%
Gippsland⁽¹⁾	282,966	100%	41,373	100%

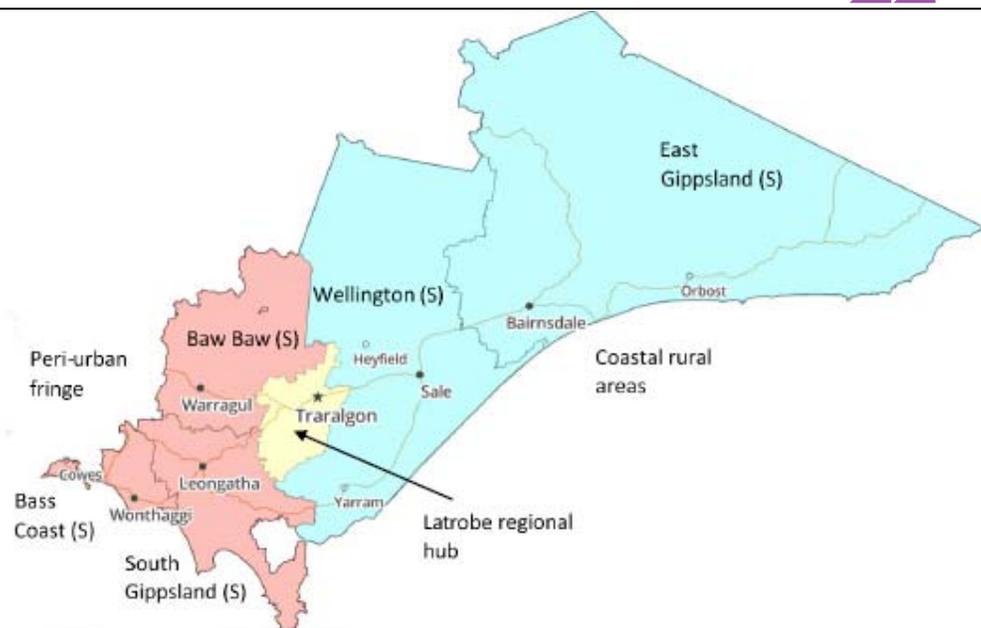
Notes: (1) totals may not sum to 100 per cent due to rounding.

SOURCE: ABS CAT NO. 3218.0, REGIONAL POPULATION GROWTH, AUSTRALIA.

The sub-regions of the Gippsland region are further aggregated into sub-regions based on economic and environmental characteristics (see Figure 1.1 for a map of sub-regions).

- the Latrobe regional hub (yellow)
- the south eastern peri-urban fringe (red)
- the coastal areas (blue).

FIGURE 1.1 SUB-REGION MAP, GIPPSLAND, 2019



SOURCE: GIPPSLANDAL PROFILE 2018

While the Gippsland region borders with metropolitan Melbourne, many of the regional towns further east have vastly different characteristics to metropolitan Melbourne. Historically, the region centred on mining (primarily coal and mainly located in Latrobe), which has since declined, and Agriculture, which has seen recent growth.

Further details of the key natural and environmental attributes, infrastructure and sub-regions are provided in the following sections.

1.1.1 Key natural and environmental attributes

Key attributes of the Gippsland region in terms of natural resources and environmental features are described below.

Natural resources include:

- Thomson Reservoir – up to 60 per cent of Melbourne’s total water storage capacity
- Renewable energy opportunities
- Water and soil supporting agriculture
- Timber
- Brown coal deposits.

Key environmental assets include:

- the Wilson’s Promontory National Park
- Gippsland Lakes
- Alpine areas
- Bass Coast
- Croajingolong National Park.

1.1.2 Key infrastructure

Being located in the peri-urban fringe, Gippsland has major road infrastructure that keeps the region well-connected to metropolitan Melbourne via the Princes Highway and South Gippsland Highway. These are supplemented with the Bairnsdale to Melbourne freight and passenger route that runs through Latrobe. The Gippsland region is also home to significant water storages such as the Thomson Dam which accounts for 60 per cent of Melbourne drinking water. A summary of the region's key infrastructure is outlined in Box 1.1.

BOX 1.1 KEY INFRASTRUCTURE, GIPPSLAND, 2019

Roads

- Princes Highway connecting Melbourne to Sydney via Latrobe
- Monaro Highway connecting Gippsland to Sydney and Brisbane via Canberra
- Great Alpine Road – key link from Gippsland to North East Victoria
- South Gippsland Highway connecting Melbourne to Longford via Leongatha
- Strzelecki Highway connecting Leongatha to Morwell
- Bass Highway connecting Lang Lang to Leongatha
- Philip Island Road connecting Cowes to Anderson

Rail

- Bairnsdale to Melbourne through Latrobe: freight and passenger route

Water

- 13 major water storage and supply infrastructure
- Thomson Dam, accounting for 60 per cent of Melbourne's drinking water
- S major desalination plant located at Wonthaggi.

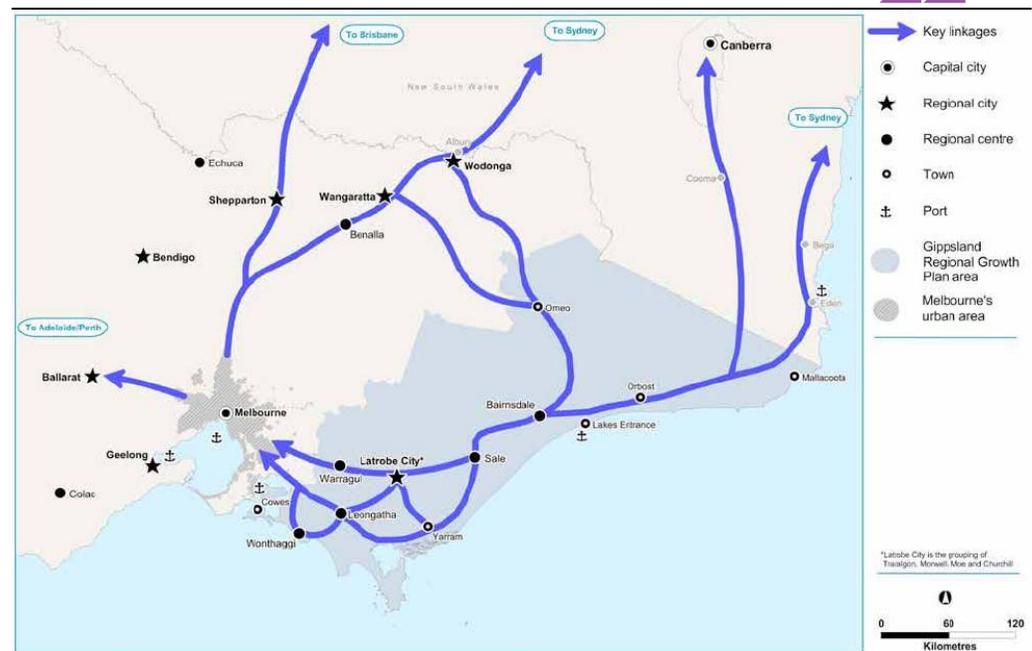
Other significant infrastructure

- Many smaller regional airports
- East Sale Royal Australian Air Force base
- Barry Beach Marine Terminal supports the offshore oil and gas industry in the Bass Strait
- many small ports catering to commercial fishing needs
- strong education infrastructure with the Federation University Australia's Gippsland campus and a number of TAFE institutes.
- Latrobe Regional Hospital

SOURCE: GIPPSLANDAL PROFILE 2018

Locations of major transport routes across Gippsland, and linkages to adjoining regions and airports, are shown in Figure 1.2.

FIGURE 1.2 TRANSPORT INFRASTRUCTURE, GIPPSLAND, 2019



SOURCE: GIPPSLANDAL PROFILE 2018

1.1.3 Other regional attributes

Gippsland has traditionally relied on agriculture and mining. However, the Latrobe regional hub continues to show development in the provision of healthcare and social assistance.

A summary of the region’s other key regional is presented in Box 1.2.

BOX 1.2 OTHER REGIONAL ATTRIBUTES, GIPPSLAND, 2019

The other key attributes of Gippsland include:

- A diverse economy based on agriculture, mining, construction, energy and healthcare. Strong growth in healthcare and social assistance should continue to show signs of development in the region.
- Strong population growth in most regional centres, particularly in Drouin, Inverloch and Cowes. There still appears strong growth in the 20-39 age group, contrary to the Victoria-wide trend of increased urbanisation of this demographic.
- Higher levels of self-reported wellbeing compared to the rest of Victoria.

SOURCE: GIPPSLAND PROFILE 2018

1.2 Sub-regions of Gippsland

There are differences across Gippsland relating to key attributes and infrastructure. A large share of the population lives in several major regional centres while agricultural activity is spread across rural communities. These sub-regional differences are discussed below.

Latrobe regional hub

Comprising the Latrobe LGA, the Latrobe regional hub shares the following characteristics:

- The region is heavily reliant on the energy industry and as the economy shifts away from coal, this region will continue to face challenges in managing unemployment.
- Population growth and significant state government investment in this region is likely to present opportunities in the construction industry.
- The region faces poor health outcomes with high rates of obesity and type two diabetes. Early childhood outcomes are also below the state-wide average, which may continue to present challenges in terms of health and wellbeing in the region.

Western peri-urban fringe

Comprising the Bass Coast, Baw Baw and South Gippsland LGAs, the peri-urban fringe of the Gippsland share the following characteristics:

- The region includes strong tourism attractions such as Wilson's Promontory National Park, Baw Baw National Park and Philip Island.
- Large commuter population to Melbourne.
- The region has a larger proportion of youth in work rather than pursuing further education. There is also a relatively high proportion of youth unemployment.

Eastern regional areas

Comprising the Wellington and East Gippsland LGAs, the eastern regional areas share the following characteristics:

- Agriculture is the largest industry for the region.
- Below average early childhood outcomes and less youth in further education and training.
- Have a number of distinct types of environments and land uses such as;
 - Regional rural areas dominated by dryland and irrigated agriculture
 - Coastal areas with important environmental assets such as Gippsland Lakes and Croajingolong National Park
 - Wilderness areas dominated by national parks and smaller established towns.
- Commercial fishing is also a significant industry given the wealth of coastal assets in the region, from estuaries mangroves and wetlands.
- The impact of climate change will continue to pose a risk to the region's many coastal assets, including water storage. The remote north eastern parts of the region are most susceptible to climate variability.

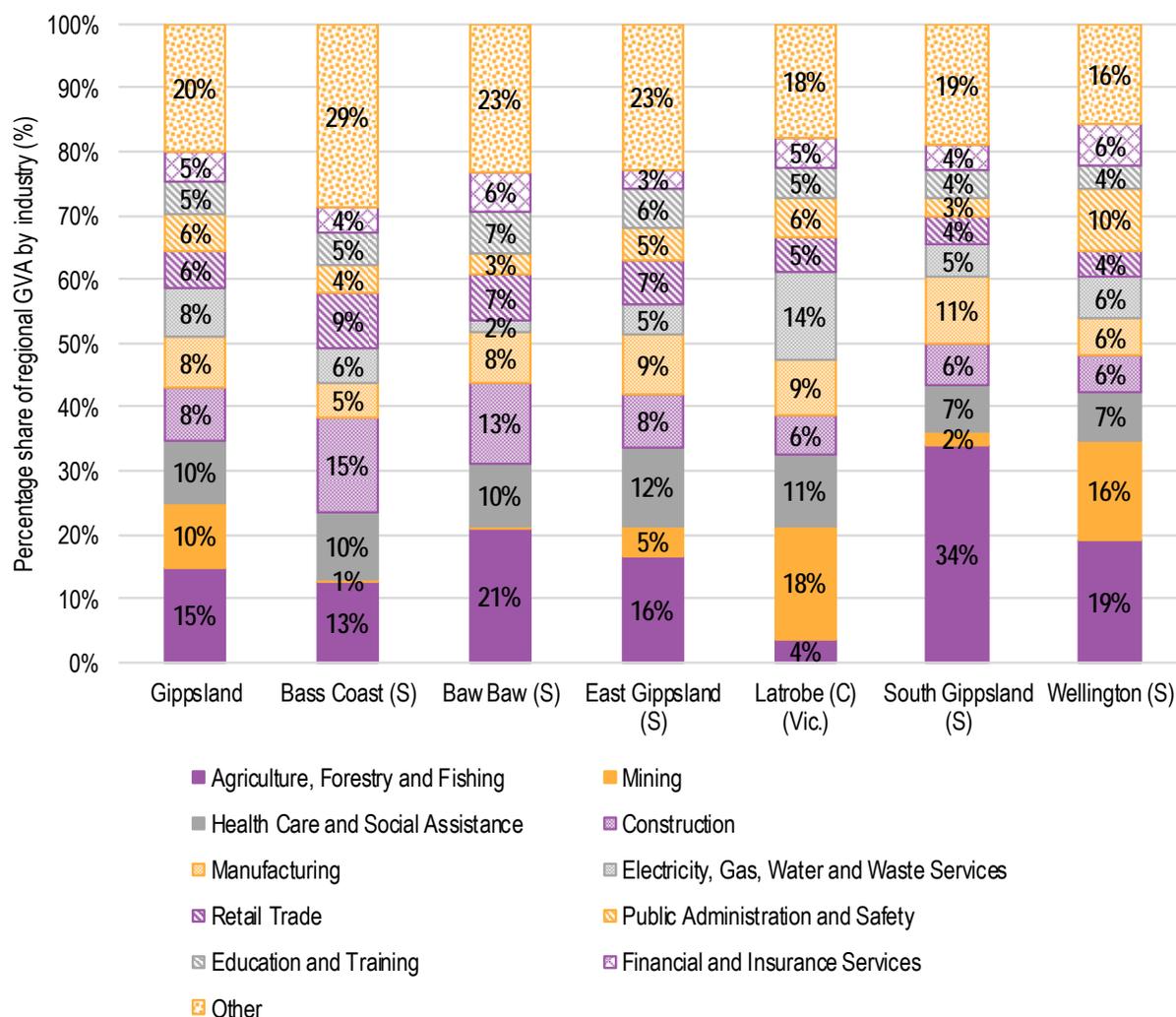
1.3 Industry composition

The Gippsland region's Gross Regional Product (GRP) is approximately the sum of industrial Gross Value Add (GVA).² Figure 1.3 shows the 2017-18 distribution of GVA across the largest industries for the Gippsland and its six LGAs. The biggest industries by GVA in the Gippsland region are: Agriculture, Forestry and Fishing (15.0 per cent), Mining (10.1 per cent), Health Care and Social Assistance (9.9 per cent), Construction (8.1 per cent), and Manufacturing (8.0 per cent). These five industries comprise half of Gippsland's GVA.

There is noticeable variation in the economic composition of Gippsland's LGAs with the key industries varying between LGAs. Some noticeable differences include South Gippsland LGA having a larger Agriculture, Forestry and Fishing industry (34 per cent) relative to Gippsland as a whole and Bass Coast and Baw Baw LGAs having relatively large Construction industries at 15 and 13 per cent respectively. Latrobe and Wellington both have relatively larger Mining Sectors at 18 and 16 per cent respectively.

² GRP is the sum of GVA at basic prices plus taxes less subsidies on products.

FIGURE 1.3 GVA SHARE OF KEY INDUSTRIES IN GIPPSLAND, 2017-18



Note: Other includes industries with less than 4 per cent of Gippsland GVA: Professional, Scientific and Technical Services; Transport, Postal and Warehousing; Accommodation and Food Services; Rental, Hiring and Real Estate Services; Wholesale Trade; Administrative and Support Services; Other Services; Information Media and Telecommunications and; Arts and Recreation Services. LGAs are classified as follows: (C) Cities, (S) Shires, (RC) Rural Cities.

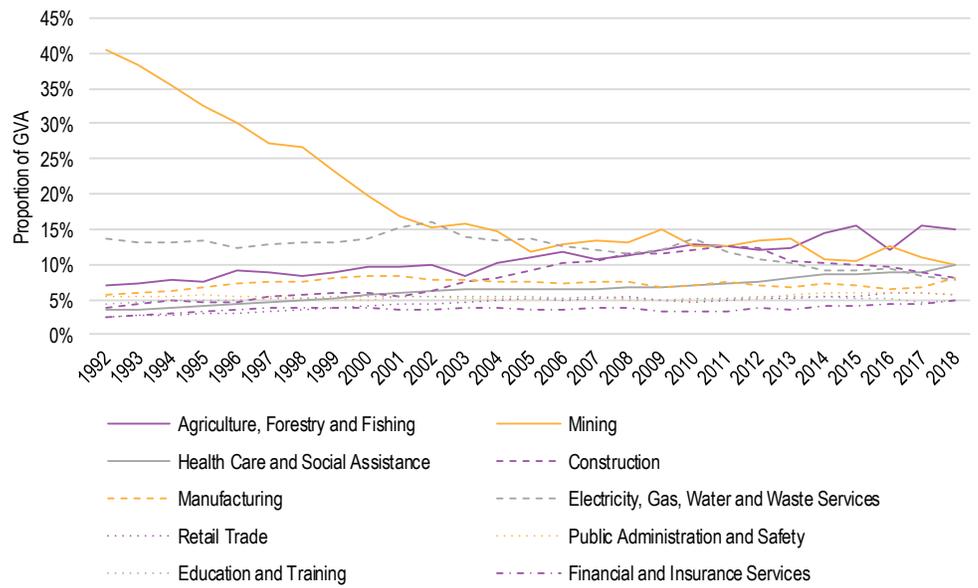
SOURCE: IV DATA 2019

Between 2007-08 and 2017-18, there was a sizable decline in the share of GVA from Electricity, Gas, Water and Waste Services, decreasing from 11.6 per cent to 7.7 per cent (34 per cent reduction), Construction declined from 11.4 per cent to 8.1 per cent (30 per cent reduction), and mining has declined from 13.2 per cent to 10.1 per cent (24 per cent decline).

Since 2007-08 there has been an increase in the share of GVA from Health Care and Social Assistance, increasing from 6.8 per cent to 9.9 per cent (46 per cent increase). Similarly, Agriculture, Forestry and Fishing has increased from 11.2 per cent to 15.0 per cent (33 per cent increase).

This is somewhat consistent with trends occurring across Victoria, such as a general decline in the manufacturing sectors and an increase in service-based industries, particularly health-related services associated with ageing populations.

FIGURE 1.4 GVA SHARE OF KEY INDUSTRIES IN THE GIPPSLAND REGION 1991-92 TO 2017-18



SOURCE: IV DATA 2019



2.1 Revealed comparative advantage index

Using the theories and approaches of revealed comparative advantage (RCA) outlined in the accompanying assessment framework report, an analysis of Gippsland's comparative advantage is provided below.

A revealed comparative advantage index (CAI) assumes that the historical economic performance of a region can serve as a good indicator of the industries which have a comparative advantage in that region. An RCA approach enables the identification of significant industries in each region while using a relatively simple and consistent methodology. In other words, with RCA, the results are truly comparative across regions because the results are derived in a consistent way. Specifically, industries with a CAI above 1 have a higher proportion of GVA in that region compared to the state or national economy and can indicate a potential strength of a region.

The revealed CAI measures the concentration of industries in a particular region compared to the Victorian or Australian economy (that is, it compares the proportion of an industry contribution to the regions GVA, relative to the proportion at the State and National level). The reasons why both comparators are important are outlined in Box 2.1 below.

While both comparisons have been used for this analysis and reported in the sections below, the analysis of the top revealed industries focuses on industries assessed against the Victorian CAI. This has been done for two reasons. First, it is consistent with the focus of this study, which is on Victoria's regions. Second, there were some minor gaps in the Level 2 ANZSIC data used to undertake the LGA-level analysis which would have impacted the consistency in which national CAI comparisons can be reported.

Furthermore, the analysis in this chapter reports on rates of industry growth as it provides insight into industries that have grown rapidly over the past decade and hence could be expected to continue to grow in the future. It also identifies industries that have declined over the past decade.

BOX 2.1 EXPLANATION UNDERPINNING ACIL ALLEN'S USE OF VICTORIAN AND NATIONAL CAI COMPARISONS

The RCA approach was developed initially to calculate relative advantage or disadvantage of a country in certain goods and services as evidenced by trade flows. In recent years, the concept has been adopted to assess the comparative advantage of industries in a region.

When assessing regional RCA, there was a question of which denominator to use in the index.

A key reason for using a national denominator (in addition to a Victorian denominator) to calculate the CAI for various industries is that while a particular industry may be significant compared to the Victorian average, it may not be significant compared to the broader Australian economy. When the CAI for a particular industry, within a particular region, shows a similar strength compared to both the Victorian and the national averages, this is likely to indicate a stronger comparative advantage than one in which the two CAI's conflict.

Therefore, under this framework, two comparisons (Victorian and national) have been provided to assist in understanding a region's/industry's comparative advantage from multiple perspectives.

For example, the CAI of a mining commodity may be very strong in a particular region compared to Victoria because there happens to be an economic deposit within that region that is not available elsewhere in Victoria. When compared to Australia as a whole, however, a low CAI would indicate that there are more competitive mining provinces elsewhere in Australia. In contrast, a high CAI using both the Victorian and national denominators is likely to indicate that not only is there an economic deposit present, but that it is potentially a world class deposit.

SOURCE: ACIL ALLEN

Limitations of CAI

The RCA approach tells us how regions compare to that of the broader economy in terms of size. Where there is variation in size relative to the broader economy RCA can be an indicator of strength and 'importance' to the future of the economy. However, it is only one indicator and further analysis is needed to determine if the industry warrants future investment and attention by government. Furthermore, the RCA approach does not tell us if a high CAI industry is a driver or a consequence of growth. This is important because an industry may only exist as a consequence of government funding (as is the case for correctional facilities/prisons) and not because of the private market's demand for its goods and services. While there may be policy or other reasons to support these industries, these reasons may not be overtly economic in nature.

2.2 Gippsland (Level 1 ANZSIC analysis)

Figure 2.1 shows the CAI index and industry growth for Level 1 ANZSIC industries in Gippsland. The size of the bubbles indicates the relative size of the industries. As noted above, the CAI can be used as an indicator of possible regional strength, particularly when combined with a growing share of regional GVA. The quadrant framework can assist in mapping the growth potential of an industry with a RCA.

Top right, comparative advantage and growth: These are the industry sectors that should be looked upon as most likely to drive regional growth and development. These are sectors for which a region most likely has comparative advantage in, and have experienced growth over the past decade. Government policy should seek to *facilitate* growth in these sectors and attempt to leverage them by focussing on the economic linkages these sectors have to the region and the Victorian economy. Industries in Gippsland which appear to have comparative advantage and potential growth characteristics include Agriculture, Forestry and Fishing; Public Administration and Safety; and Health Care and Social Assistance.

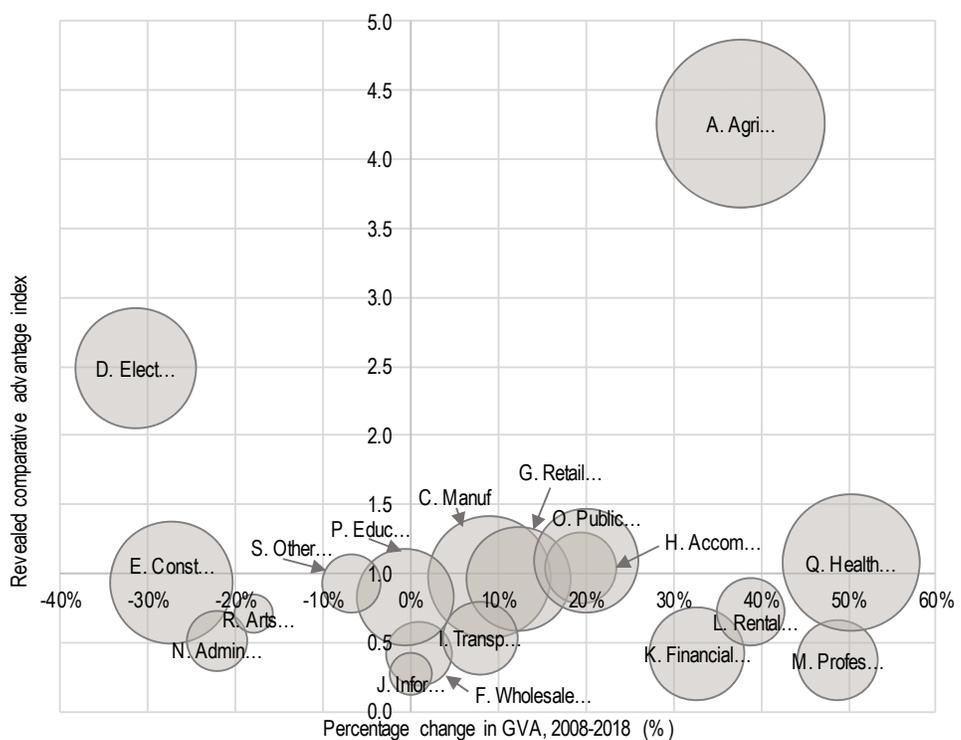
Top Left, comparative advantage with no growth: These are the industry sectors which have a comparative advantage but have been in decline over the past decade. For the Gippsland region, these include the Mining; Electricity, and Gas, Water and Waste Services industries. Government

policy should seek to *identify and overcome constraints* to the growth of these industries caused by infrastructure provision.

Bottom right, growth but not yet comparative advantage: These are the industry sectors that have experienced growth over the past decade but do not have comparative advantage. Our analysis shows that these include the Financial and Insurance Services; Rental, Hiring and Real Estate Services; and Professional, Scientific and Technical Services industries. Government policy should look at this quadrant as identifying *potential emerging industries*.

Bottom left, no growth and no comparative advantage: These are the industry sectors for which there are no comparative advantage or growth – namely, the Administrative and Support Services and Arts and Recreation Services industries. Government policy might be warranted here to *manage decline* or assist regions to transition out of these industries. Government support for these industries may have less to do with infrastructure provision and other forms (i.e. welfare) of industry support or structural adjustment.

FIGURE 2.1 REVEALED COMPARATIVE ADVANTAGE INDEX – GIPPSLAND 2017-18, LEVEL 1 ANZSIC



Note: This includes the revealed comparative advantage index of Gippsland relative to the Victorian economy. The chart excludes Mining to focus the chart on the key industries.

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

Table 2.1 summarises the highest revealed comparative advantage industries (Level 1 ANZSIC) for the Gippsland. The revealed industries in the table relate to those which have the highest CAI using the Victorian comparison, not the national comparison. The Victorian comparisons have been selected because they are consistent with the regional focus of this study, and because there were some limitations in the ANZSIC data which meant there would have been gaps in the presentation of high-ranking national CAI industries in some LGAs.

TABLE 2.1 TOP 10 REVEALED COMPARATIVE ADVANTAGE INDUSTRIES FOR GIPPSLAND, LEVEL 1 ANZSIC

Industry (Level 1 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
B. Mining	12.4	1.1	-21%	10.1%	Top left
A. Agriculture, Forestry and Fishing	4.3	5.1	38%	15.0%	Top right
D. Electricity, Gas, Water and Waste Services	2.5	2.7	-31%	7.7%	Top left
O. Public Administration and Safety	1.1	1.0	20%	5.8%	Top right
Q. Health Care and Social Assistance	1.1	1.2	50%	9.9%	Top right
H. Accommodation and Food Services	1.0	1.0	19%	2.8%	Top right
C. Manufacturing	1.0	1.2	9%	8.0%	Bottom right
G. Retail Trade	1.0	1.1	12%	5.8%	Bottom right
E. Construction	0.9	0.9	-27%	8.1%	Bottom left
S. Other Services	0.9	0.9	-7%	1.9%	Bottom left

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

2.3 Gippsland LGA analysis (Level 2 ANZSIC analysis)

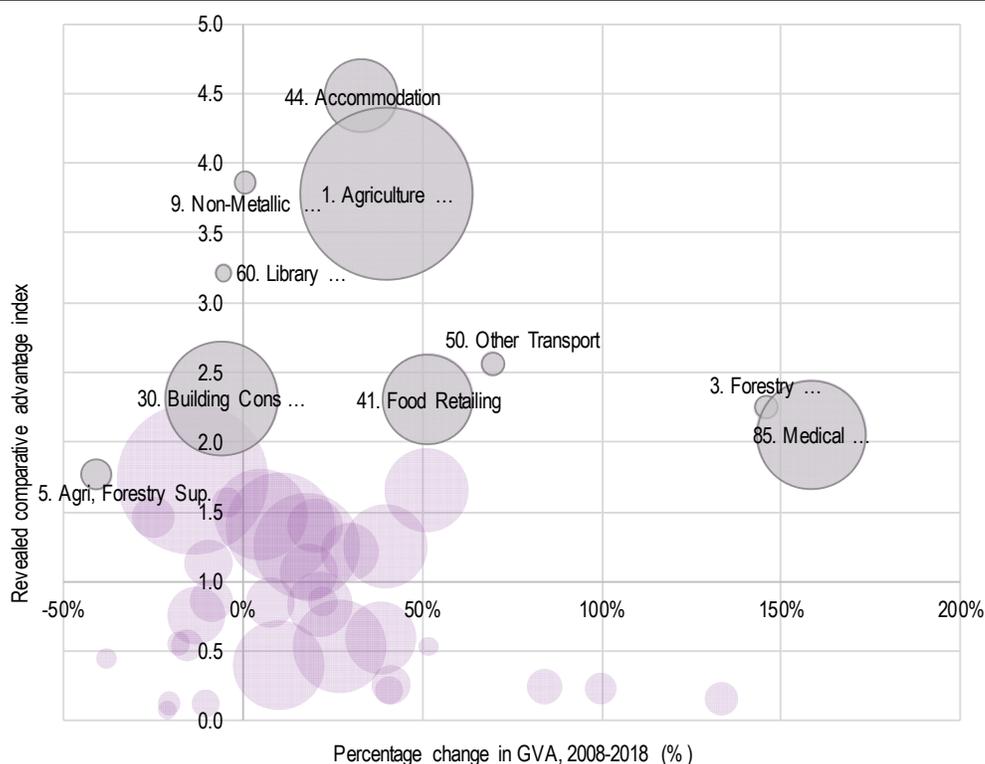
The following section includes revealed comparative advantage analysis by Level 2 ANZSIC industries for Gippsland's six LGAs: Bass Coast, Baw Baw, East Gippsland, Latrobe, South Gippsland, and Wellington.

The analysis focuses on identifying the key Level 2 ANZSIC industries which fall in the 'top right' and are found to have a likely comparative advantage and growth.

2.3.1 Bass Coast

Figure 2.2 shows RCA analysis by ANZSIC Level 2 industries for the Bass Coast LGA. Key industries of interest with a high CAI in the Bass Coast LGA include Accommodation; Non-Metallic Mineral Mining and Quarrying; Agriculture; Library and Other Information Services and Other Transport (see Figure 2.2).

FIGURE 2.2 COMPARATIVE ADVANTAGE INDEX FOR BASS COAST, 2017-18, LEVEL 2 ANZSIC



Note: This includes the revealed comparative advantage relative to the Victorian economy.

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

Table 2.2 summarises the highest comparative advantage industries (Level 2 ANZSIC) for the Bass Coast LGA, using the Victorian CAI comparison. Important industries include Accommodation; Agriculture; Building Construction; Food Retailing; and Medical and Other Health Care Services which each have large CAI, have undergone notable growth over the past 10 years and constitute a relatively large proportion of the LGA's GVA.

Various other industries have high CAI, but have either had low/negative growth or are a small proportion of the economy. These industries include: Non-Metallic Mineral Mining and Quarrying; Library and Other Information Services; Other Transport, and Forestry and Logging.

TABLE 2.2 TOP 10 REVEALED COMPARATIVE ADVANTAGE INDUSTRIES FOR BASS COAST

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
44. Accommodation	4.5	3.1	33%	2.2%	Top right
9. Non-Metallic Mineral Mining and Quarrying	3.9	1.0	1%	0.2%	Top right
1. Agriculture	3.8	4.9	40%	11.8%	Top right
60. Library and Other Information Services	3.2	17.7	-5%	0.1%	Top left
50. Other Transport	2.6	0.8	70%	0.2%	Top right
30. Building Construction	2.3	2.1	-6%	5.2%	Top left
41. Food Retailing	2.3	1.7	52%	3.3%	Top right
3. Forestry and Logging	2.2	1.3	146%	0.2%	Top right

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
85. Medical and Other Health Care Services	2.1	1.4	158%	4.8%	Top right
5. Agriculture, Forestry and Fishing Support Services	1.8	1.6	-41%	0.4%	Top left

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

Table 2.3 summarises the largest industries (Level 2 ANZSIC) for the Bass Coast LGA.

TABLE 2.3 TOP 10 LARGEST INDUSTRIES FOR BASS COAST

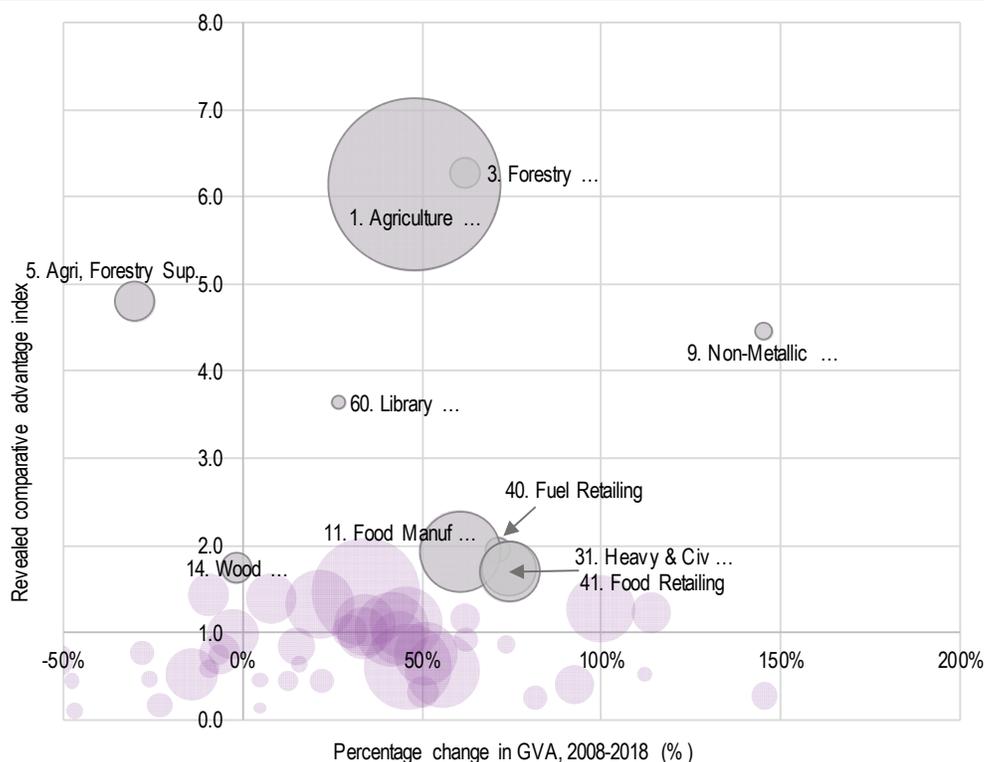
Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
1. Agriculture	3.8	4.9	40%	11.8%	Top right
32. Construction Services	1.7	1.5	-14%	9.0%	Top left
30. Building Construction	2.3	2.1	-6%	5.2%	Top left
85. Medical and Other Health Care Services	2.1	1.4	158%	4.8%	Top right
67. Property Operators and Real Estate Services	1.4	0.8	11%	4.8%	Top right
42. Other Store-Based Retailing	1.3	1.4	18%	4.4%	Top right
69. Professional, Scientific and Technical Services	0.5	0.5	27%	3.4%	Bottom right
45. Food and Beverage Services	1.5	1.2	5%	3.3%	Top right
41. Food Retailing	2.3	1.7	52%	3.3%	Top right
62. Finance	0.4	-	10%	3.2%	Bottom right

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

2.3.2 Baw Baw

Figure 2.3 shows RCA analysis by ANZSIC Level 2 industries for the Baw Baw LGA. Key industries of interest with a high CAI in the Baw Baw LGA include Forestry and Logging; Agriculture; Agriculture, Forestry and Fishing Support Services; Non-Metallic Mineral Mining and Quarrying; and Library and Other Information Services (see Table 2.4).

FIGURE 2.3 COMPARATIVE ADVANTAGE INDEX FOR BAW BAW, 2017-18, LEVEL 2 ANZSIC



Note: This includes the revealed comparative advantage relative to the Victorian economy.
 SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

Table 2.4 summarises the highest comparative advantage industries (Level 2 ANZSIC) for the Baw Baw LGA, using the Victorian CAI comparison. Important industries include Agriculture; Food Product Manufacturing; and Heavy and Civil Engineering Construction – each of which have a large CAI, undergone notable growth over the past 10 years and constitute a relatively large proportion of the LGA’s GVA.

While Agriculture, Forestry and Fishing Support Services has a high CAI and is a significant proportion of Baw Baw’s GVA, the industry has had negative growth over the past 10 years.

Both Forestry and Logging and Non-Metallic Mineral Mining and Quarrying have high CAI and have seen large growth over the past decade but represent a small proportion of Baw Baw’s GVA.

TABLE 2.4 TOP 10 REVEALED COMPARATIVE ADVANTAGE INDUSTRIES FOR BAW BAW

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
3. Forestry and Logging	6.3	3.6	62%	0.6%	Top right
1. Agriculture	6.1	8.1	48%	19.2%	Top right
5. Agriculture, Forestry and Fishing Support Services	4.8	4.4	-30%	1.1%	Top left
9. Non-Metallic Mineral Mining and Quarrying	4.5	1.1	145%	0.2%	Top right
60. Library and Other Information Services	3.6	20.4	27%	0.1%	Top right
40. Fuel Retailing	2.0	1.8	71%	0.4%	Top right

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
11. Food Product Manufacturing	1.9	2.6	61%	4.3%	Top right
31. Heavy and Civil Engineering Construction	1.7	1.3	74%	2.0%	Top right
14. Wood Product Manufacturing	1.7	1.9	-2%	0.7%	Top left
41. Food Retailing	1.7	1.3	74%	2.4%	Top right

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

Table 2.5 summarises the largest industries (Level 2 ANZSIC) for the Baw Baw LGA.

TABLE 2.5 TOP 10 LARGEST INDUSTRIES FOR BAW BAW

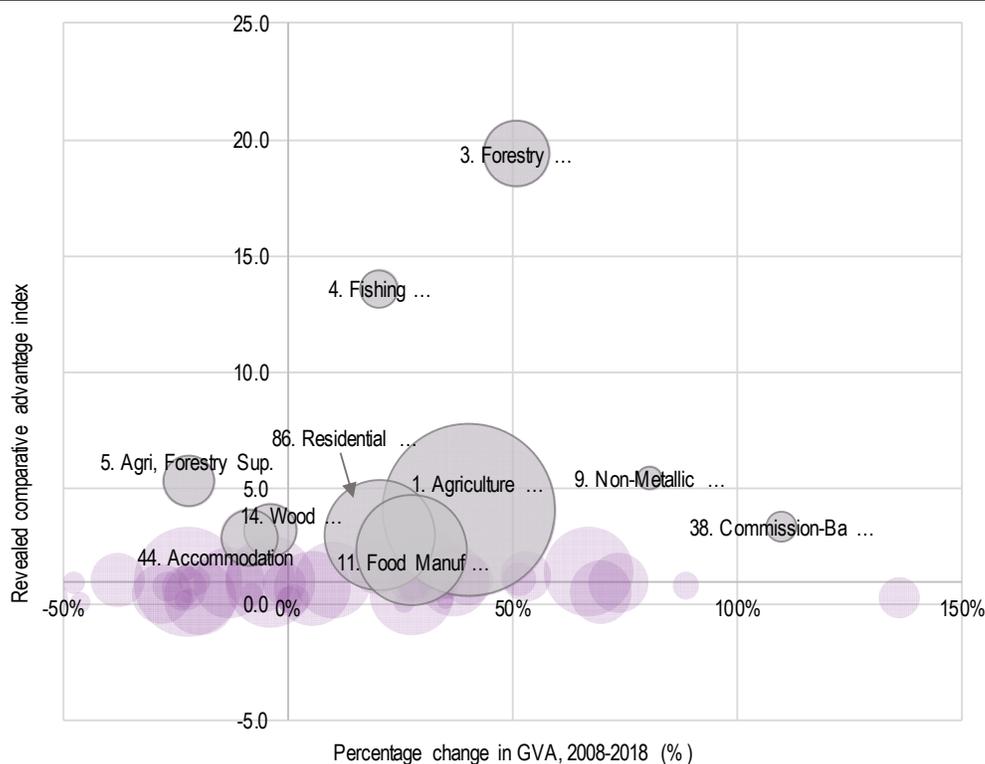
Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
1. Agriculture	6.1	8.1	48%	19.2%	Top right
32. Construction Services	1.5	1.3	34%	7.6%	Top right
62. Finance	0.6	-	46%	4.8%	Bottom right
11. Food Product Manufacturing	1.9	2.6	61%	4.3%	Top right
42. Other Store-Based Retailing	1.0	1.2	42%	3.6%	Top right
69. Professional, Scientific and Technical Services	0.6	0.5	56%	3.6%	Bottom right
84. Hospitals	1.1	3.9	46%	3.4%	Top right
85. Medical and Other Health Care Services	1.3	0.9	100%	3.0%	Top right
30. Building Construction	1.3	1.3	22%	3.0%	Top right
67. Property Operators and Real Estate Services	0.8	0.5	51%	2.6%	Bottom right

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

2.3.3 East Gippsland

Figure 2.4 shows revealed comparative advantage analysis by Level 2 ANZSIC industries for the East Gippsland LGA. Key industries of interest with a high CAI in the East Gippsland LGA include Forestry and Logging; Fishing, Hunting and Trapping; Non-Metallic Mineral Mining and Quarrying; Agriculture, Forestry and Fishing Support Services; and Agriculture (See Table 2.6).

FIGURE 2.4 COMPARATIVE ADVANTAGE INDEX FOR EAST GIPPSLAND, 2017-18, LEVEL 2 ANZSIC



Note: This includes the revealed comparative advantage relative to the Victorian economy.

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

Table 2.6 summarises the highest comparative advantage industries (Level 2 ANZSIC) for East Gippsland LGA using the Victorian CAI comparison. Important industries include Forestry and Logging; Fishing, Hunting and Trapping; Agriculture; Residential Care Services; and Food Product Manufacturing – which each have a large CAI, undergone notable growth over the past 10 years and constitute a relatively large proportion of the LGA's GVA. Agriculture, Forestry and Fishing Support Services and Wood Product Manufacturing industries each have high CAI and form a reasonable part of the LGAs GVA but have had no growth over the past 10 years.

TABLE 2.6 TOP 10 REVEALED COMPARATIVE ADVANTAGE INDUSTRIES FOR EAST GIPPSLAND

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
3. Forestry and Logging	19.4	10.9	51%	1.9%	Top right
4. Fishing, Hunting and Trapping	13.6	6.1	20%	0.7%	Top right
9. Non-Metallic Mineral Mining and Quarrying	5.4	1.3	80%	0.3%	Top right
5. Agriculture, Forestry and Fishing Support Services	5.3	4.7	-22%	1.2%	Top left
1. Agriculture	4.0	5.1	40%	12.6%	Top right
38. Commission-Based Wholesaling	3.3	1.9	110%	0.4%	Top right
14. Wood Product Manufacturing	3.2	3.5	-4%	1.2%	Top left
86. Residential Care Services	3.0	3.6	21%	5.2%	Top right
44. Accommodation	2.9	2.0	-9%	1.4%	Top left

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
11. Food Product Manufacturing	2.4	3.1	27%	5.3%	Top right

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

Table 2.7 summarises the largest industries (Level 2 ANZSIC) for the East Gippsland LGA.

TABLE 2.7 TOP 10 LARGEST INDUSTRIES FOR EAST GIPPSLAND

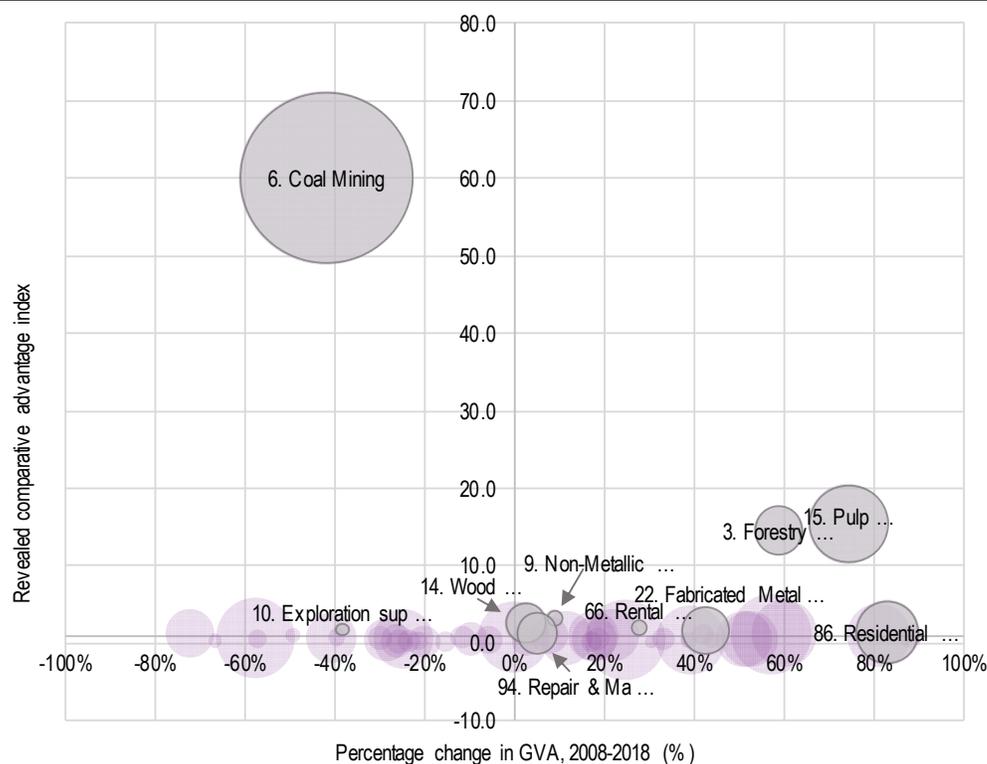
Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10-year growth	% of LGA GVA	Quadrant
1. Agriculture	4.0	5.1	40%	12.6%	Top right
11. Food Product Manufacturing	2.4	3.1	27%	5.3%	Top right
86. Residential Care Services	3.0	3.6	21%	5.2%	Top right
32. Construction Services	1.0	0.8	-22%	5.0%	Bottom left
42. Other Store-Based Retailing	1.0	1.1	-4%	3.5%	Bottom left
85. Medical and Other Health Care Services	1.4	1.0	67%	3.4%	Top right
69. Professional, Scientific and Technical Services	0.4	0.4	28%	2.9%	Bottom right
45. Food and Beverage Services	1.1	0.9	10%	2.5%	Top right
67. Property Operators and Real Estate Services	0.7	0.4	5%	2.4%	Bottom right
41. Food Retailing	1.6	1.2	31%	2.3%	Top right

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

2.3.4 Latrobe

Figure 2.5 shows revealed comparative advantage analysis by Level 2 ANZSIC industries for the Latrobe LGA. Key industries of interest with a high CAI in the Latrobe LGA include Coal Mining; Pulp, Paper and Converted Paper Product Manufacturing; Forestry and Logging; Non-Metallic Mineral Mining and Quarrying; and Wood Product Manufacturing (see Table 2.8).

FIGURE 2.5 COMPARATIVE ADVANTAGE INDEX FOR LATROBE, 2017-18, LEVEL 2 ANZSIC



Note: This includes the revealed comparative advantage relative to the Victorian economy.

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

Table 2.8 summarises the highest comparative advantage industries (Level 2 ANZSIC) for the Latrobe LGA, using the Victorian CAI comparison. Important industries include Pulp, Paper and Converted Paper Product Manufacturing; Forestry and Logging; Fabricated Metal Product Manufacturing; and Residential Care Services which each have a large CAI, undergone notable growth over the past 10 years and constitute a relatively large proportion of Latrobe's GVA. While Coal Mining has a very large CAI and constitutes a relatively large proportion of the LGAs GVA, the industry has been in decline for the past 10 years.

TABLE 2.8 TOP 10 REVEALED COMPARATIVE ADVANTAGE INDUSTRIES FOR LATROBE

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10-year growth	% of LGA GVA	Quadrant
6. Coal Mining	60.1	6.9	-42%	17.4%	Top left
15. Pulp, Paper and Converted Paper Product Manufacturing	15.4	17.3	74%	3.7%	Top right
3. Forestry and Logging	14.5	8.3	59%	1.4%	Top right
9. Non-Metallic Mineral Mining and Quarrying	3.3	0.8	9%	0.2%	Top right
14. Wood Product Manufacturing	2.6	2.9	3%	1.0%	Top right
66. Rental and Hiring Services (except Real Estate)	2.0	0.1	28%	0.2%	Top right
10. Exploration and Other Mining Support Services	1.8	0.3	-38%	0.1%	Top left

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10-year growth	% of LGA GVA	Quadrant
22. Fabricated Metal Product Manufacturing	1.6	1.7	42%	1.4%	Top right
86. Residential Care Services	1.4	1.7	83%	2.4%	Top right
94. Repair and Maintenance	1.3	0.9	5%	1.0%	Top right

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

Table 2.9 summarises the largest industries (Level 2 ANZSIC) for the Latrobe LGA.

TABLE 2.9 TOP 10 LARGEST INDUSTRIES FOR LATROBE

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10-year growth	% of LGA GVA	Quadrant
6. Coal Mining	60.1	6.9	-42%	17.4%	Top left
62. Finance	0.5	-	25%	3.8%	Bottom right
84. Hospitals	1.2	4.2	57%	3.8%	Top right
15. Pulp, Paper and Converted Paper Product Manufacturing	15.4	17.3	74%	3.7%	Top right
32. Construction Services	0.7	0.6	-58%	3.6%	Bottom left
69. Professional, Scientific and Technical Services	0.4	0.4	39%	2.8%	Bottom right
42. Other Store-Based Retailing	0.8	0.9	0%	2.8%	Bottom left
87. Social Assistance Services	1.3	1.8	60%	2.6%	Top right
86. Residential Care Services	1.4	1.7	83%	2.4%	Top right
85. Medical and Other Health Care Services	1.0	0.7	81%	2.3%	Bottom right

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

2.3.5 South Gippsland

Figure 2.6 shows revealed comparative advantage analysis by Level 2 ANZSIC industries for the South Gippsland LGA. Key industries of interest with a high CAI in the South Gippsland LGA include Agriculture; Non-Metallic Mineral Mining and Quarrying; Agriculture, Forestry and Fishing Support Services; Oil and Gas Extraction; and Food Product Manufacturing (see Table 2.10).

FIGURE 2.6 COMPARATIVE ADVANTAGE INDEX FOR SOUTH GIPPSLAND, 2017-18, LEVEL 2 ANZSIC



Note: This includes the revealed comparative advantage relative to the Victorian economy.

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

Table 2.10 summarises the highest comparative advantage industries (Level 2 ANZSIC) for the South Gippsland LGA, using the Victorian CAI comparison. Important industries include Agriculture; Food Product Manufacturing; Road Transport; and Fabricated Metal Product Manufacturing – each having a large CAI, undergone notable growth over the past 10 years and constituting a relatively large proportion of the South Gippsland’s GVA. While Non-Metallic Mineral Mining and Quarrying; Agriculture, Forestry and Fishing Support Services; and Oil and Gas Extraction sectors have a high CAI, these sectors have seen little or negative growth over the past 10 years.

TABLE 2.10 TOP 10 REVEALED COMPARATIVE ADVANTAGE INDUSTRIES FOR SOUTH GIPPSLAND

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10-year growth	% of LGA GVA	Quadrant
1. Agriculture	10.3	13.3	41%	32.2%	Top right
9. Non-Metallic Mineral Mining and Quarrying	7.3	1.8	7%	0.4%	Top right
5. Agriculture, Forestry and Fishing Support Services	6.6	6.0	-31%	1.5%	Top left
7. Oil and Gas Extraction	4.8	0.9	-10%	1.8%	Top left
11. Food Product Manufacturing	3.2	4.2	10%	7.2%	Top right
46. Road Transport	1.8	1.5	28%	3.1%	Top right
22. Fabricated Metal Product Manufacturing	1.8	1.8	148%	1.5%	Top right
38. Commission-Based Wholesaling	1.7	0.9	-55%	0.2%	Top left

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10-year growth	% of LGA GVA	Quadrant
33. Basic Material Wholesaling	1.5	1.5	28%	1.6%	Top right
94. Repair and Maintenance	1.3	0.8	-11%	1.0%	Top left

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

Table 2.11 summarises the largest industries (Level 2 ANZSIC) for the South Gippsland LGA.

TABLE 2.11 TOP 10 LARGEST INDUSTRIES FOR SOUTH GIPPSLAND

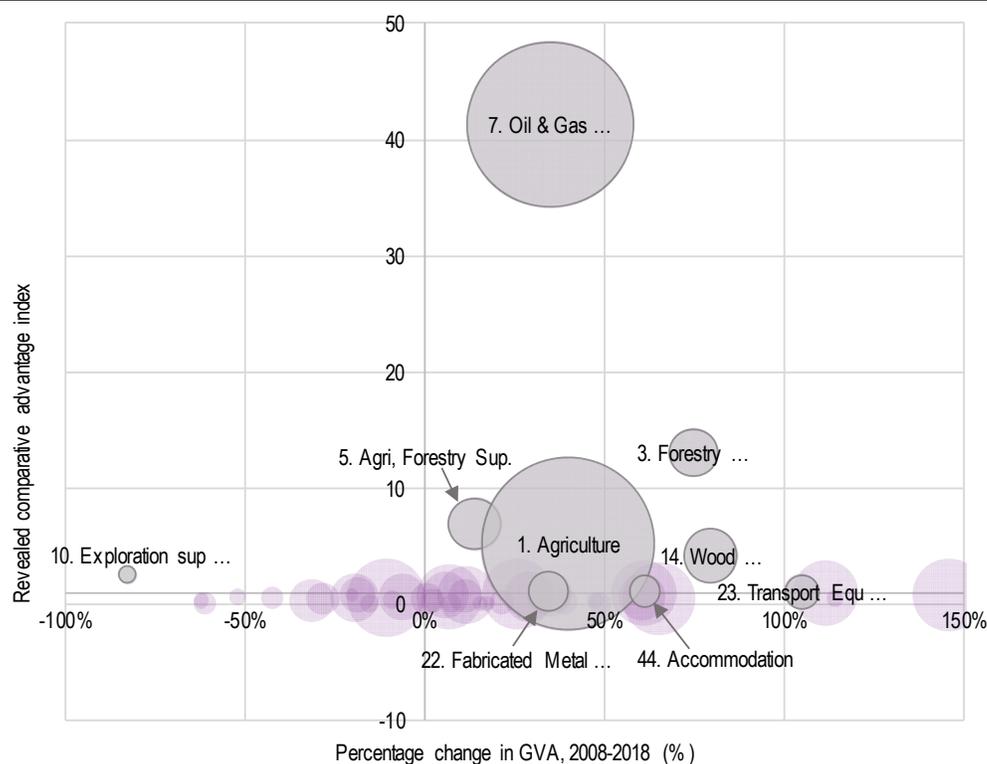
Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
1. Agriculture	10.3	13.3	41%	32.2%	Top right
11. Food Product Manufacturing	3.2	4.2	10%	7.2%	Top right
32. Construction Services	0.7	0.7	-8%	3.9%	Bottom left
62. Finance	0.4	-	-6%	3.2%	Bottom left
46. Road Transport	1.8	1.5	28%	3.1%	Top right
69. Professional, Scientific and Technical Services	0.4	0.4	21%	2.7%	Bottom right
84. Hospitals	0.7	2.3	12%	2.1%	Bottom right
85. Medical and Other Health Care Services	0.8	0.6	60%	2.0%	Bottom right
42. Other Store-Based Retailing	0.5	0.6	-21%	1.9%	Bottom left
67. Property Operators and Real Estate Services	0.5	0.3	-4%	1.8%	Bottom left

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

2.3.6 Wellington

Figure 2.7 shows revealed comparative advantage analysis by ANZSIC level 2 industries for the Wellington LGA. Key industries of interest with a high CAI in the Wellington LGA include Oil and Gas Extraction; Forestry and Logging; Agriculture, Forestry and Fishing Support Services; Agriculture; and Wood Product Manufacturing (see Table 2.12).

FIGURE 2.7 COMPARATIVE ADVANTAGE INDEX FOR WELLINGTON, 2017-18, LEVEL 2 ANZSIC



Note: This includes the revealed comparative advantage relative to the Victorian economy. The chart excludes Coal Mining to focus the chart on the key industries.

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

Table 2.12 summarises the highest comparative advantage industries (Level 2 ANZSIC) for the Wellington LGA, using the Victorian CAI comparison. Important industries include Oil and Gas Extraction; Forestry and Logging; Agriculture, Forestry and Fishing Support Services; Agriculture; Wood Product Manufacturing – each having a large CAI, undergone notable growth over the past 10 years and constitute a relatively large proportion of the LGAs GVA.

TABLE 2.12 TOP 10 REVEALED COMPARATIVE ADVANTAGE INDUSTRIES FOR WELLINGTON

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10-year growth	% of LGA GVA	Quadrant
7. Oil and Gas Extraction	41.3	7.6	35%	15.1%	Top right
3. Forestry and Logging	13.1	7.6	75%	1.3%	Top right
5. Agriculture, Forestry and Fishing Support Services	6.9	6.4	14%	1.5%	Top right
1. Agriculture	5.2	6.9	40%	16.2%	Top right
14. Wood Product Manufacturing	4.2	4.7	80%	1.6%	Top right
10. Exploration and Other Mining Support Services	2.6	0.5	-83%	0.2%	Top left
6. Coal Mining	1.5	0.2	434%	0.4%	Top right
44. Accommodation	1.2	0.8	61%	0.6%	Top right
23. Transport Equipment Manufacturing	1.1	1.0	105%	0.7%	Top right

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10-year growth	% of LGA GVA	Quadrant
22. Fabricated Metal Product Manufacturing	1.1	1.2	35%	0.9%	Top right

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

Table 2.13 summarises the largest industries (Level 2 ANZSIC) for the Wellington LGA.

TABLE 2.13 TOP 10 LARGEST INDUSTRIES FOR WELLINGTON

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10-year growth	% of LGA GVA	Quadrant
1. Agriculture	5.2	6.9	40%	16.2%	Top right
7. Oil and Gas Extraction	41.3	7.6	35%	15.1%	Top right
62. Finance	0.7	-	193%	5.9%	Bottom right
32. Construction Services	0.6	0.6	-11%	3.3%	Bottom left
69. Professional, Scientific and Technical Services	0.4	0.4	65%	2.8%	Bottom right
67. Property Operators and Real Estate Services	0.8	0.5	146%	2.8%	Bottom right
84. Hospitals	0.9	3.1	26%	2.7%	Bottom right
85. Medical and Other Health Care Services	1.0	0.7	112%	2.3%	Bottom right
42. Other Store-Based Retailing	0.6	0.7	7%	2.3%	Bottom right
45. Food and Beverage Services	1.0	0.8	61%	2.2%	Bottom right

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

2.4 Summary (Level 2 ANZSIC analysis)

Table 2.14 summarises the highest revealed comparative advantage industries (Level 2 ANZSIC) for the LGAs within Gippsland using the Victorian CAI comparison. The industries with the highest comparative advantage are mining and agriculture, forestry and fisheries industries and their secondary manufacturing sectors and services.

While coal mining in the Latrobe Valley has the largest comparative advantage for Gippsland (60.1 Victorian comparison), the decline of the sector in the last decade reflects the downturn in the sector which peaked during the mining boom as well as the closure of Hazelwood Power Plant. Conversely, Oil and Gas Extraction (41.3 Victorian CAI) in Wellington has grown significantly (35 per cent) and represents a large proportion of the LGA's GVA (15.1 per cent). This reflects the growing demand for gas exports on the east coast in recent years.

The potential structural shift in Gippsland's mining and energy industries can potentially be offset by buoyant agriculture sectors and enabling development of renewable energy sectors.

Agriculture, for instance, is the largest sector and has strong comparative advantage in South Gippsland (10.3 Victorian CAI, 32.2 per cent GVA), Baw Baw (6.1 Victorian CAI, 19.2 per cent) and Wellington (5.2 Victorian CAI, 16.2 per cent). Gippsland has a reputation for quality and reliable production for milk, beef and horticulture. These sectors also employ a significant number of the region's workers.

On the other hand, while forestry and logging demonstrate strong Victorian CAI's across East Gippsland (19.4), Latrobe (14.5), Wellington (6.9) and Baw Baw (6.3 Victorian CAI, 19.2 per cent GVA) and experienced strong growth in the last decade, these sectors represent relatively minor proportions of their respective LGA's GVA of between 0.6 and 1.9 per cent. Nonetheless, the supporting secondary industry for Pulp, Paper and Converted Paper Product Manufacturing in Latrobe

(15.4 CAI) represents 3.7 per cent of local GVA and has demonstrated strong growth of 74 per cent over the past decade.

A similar story for other regions, the emergence of Agriculture, Forestry and Fisheries Support Services sector demonstrates strong Victorian CAI and growth over the last decade, although starting from a low base. Agricultural services are both a result of and driver of growth and importantly provide higher skilled job opportunities in rural LGAs.

TABLE 2.14 TOP 20 HIGHEST REVEALED COMPARATIVE ADVANTAGE BY LGA, GIPPSLAND

Industry (Level 2 ANZSIC)	LGA	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
6. Coal Mining	Latrobe (C)*	60.1	6.9	-42%	17.4%	Top left
7. Oil and Gas Extraction	Wellington (S)	41.3	7.6	35%	15.1%	Top right
3. Forestry and Logging	East Gippsland (S)	19.4	10.9	51%	1.9%	Top right
15. Pulp, Paper and Converted Paper Product Manufacturing	Latrobe (C)	15.4	17.3	74%	3.7%	Top right
3. Forestry and Logging	Latrobe (C)	14.5	8.3	59%	1.4%	Top right
4. Fishing, Hunting and Trapping	East Gippsland (S)	13.6	6.1	20%	0.7%	Top right
3. Forestry and Logging	Wellington (S)	13.1	7.6	75%	1.3%	Top right
1. Agriculture	South Gippsland (S)	10.3	13.3	41%	32.2%	Top right
9. Non-Metallic Mineral Mining and Quarrying	South Gippsland (S)	7.3	1.8	7%	0.4%	Top right
5. Agriculture, Forestry and Fishing Support Services	Wellington (S)	6.9	6.4	14%	1.5%	Top right
5. Agriculture, Forestry and Fishing Support Services	South Gippsland (S)	6.6	6.0	-31%	1.5%	Top left
3. Forestry and Logging	Baw Baw (S)	6.3	3.6	62%	0.6%	Top right
1. Agriculture	Baw Baw (S)	6.1	8.1	48%	19.2%	Top right
9. Non-Metallic Mineral Mining and Quarrying	East Gippsland (S)	5.4	1.3	80%	0.3%	Top right
5. Agriculture, Forestry and Fishing Support Services	East Gippsland (S)	5.3	4.7	-22%	1.2%	Top left
1. Agriculture	Wellington (S)	5.2	6.9	40%	16.2%	Top right
7. Oil and Gas Extraction	South Gippsland (S)	4.8	0.9	-10%	1.8%	Top left
5. Agriculture, Forestry and Fishing Support Services	Baw Baw (S)	4.8	4.4	-30%	1.1%	Top left
44. Accommodation	Bass Coast (S)	4.5	3.1	33%	2.2%	Top right
9. Non-Metallic Mineral Mining and Quarrying	Baw Baw (S)	4.5	1.1	145%	0.2%	Top right

Note: *LGAs are classified as follows: (C) Cities, (S) Shires, (RC) Rural Cities.

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

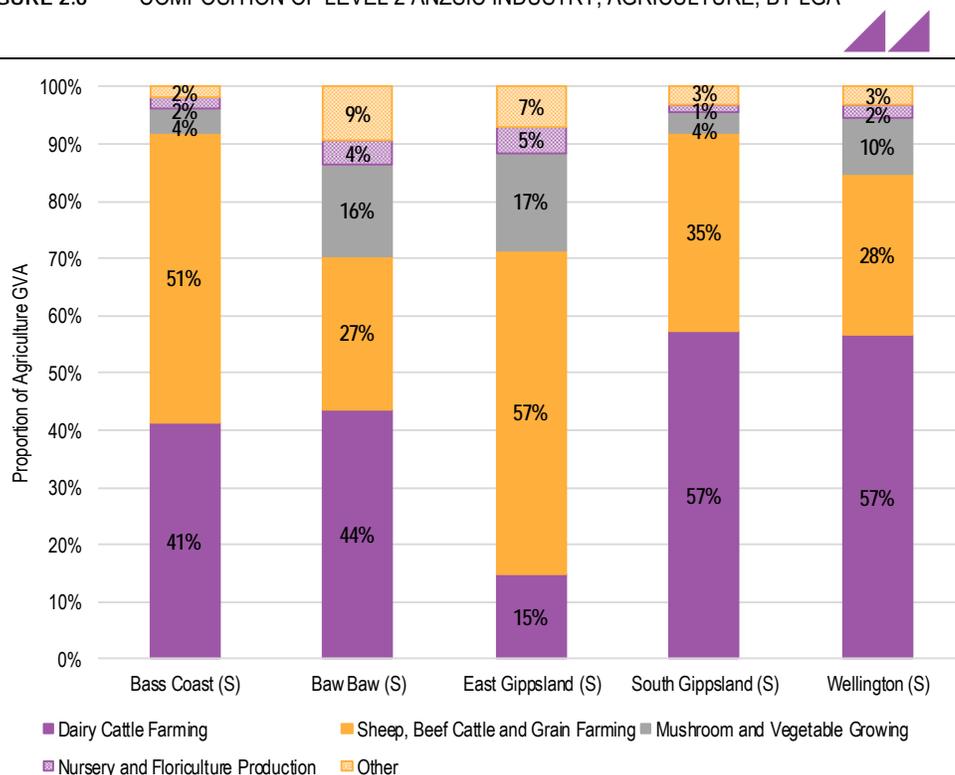
2.4.1 Agricultural production by sector

The Level 2 ANZSIC industry, Agriculture, forms a large component of GVA for the majority of LGAs in Gippsland. Figure 2.8 shows the estimated GVA of each of the sub industries which form Agriculture, for each LGA with a significant Agricultural industry.

Across Gippsland, Agriculture is primarily made up of Dairy Cattle Farming; and Sheep, Beef Cattle and Grain Farming, with selected LGAs having a sizable Mushroom and Vegetable Growing industry.

Across Bass Coast, Baw Baw, South Gippsland and Wellington Dairy Cattle farming accounts for 41 to 57 per cent of the region's GVA. East Gippsland has a smaller Dairy Cattle Farming industry and a large Sheep, Beef Cattle and Grain Farming industry. The remaining LGAs in Figure 2.8 also have a significant Sheep, Beef Cattle and Grain Farming industry. Baw Baw and East Gippsland each have sizable Mushroom and Vegetable Growing industries at 16 and 17 per cent respectively.

FIGURE 2.8 COMPOSITION OF LEVEL 2 ANZSIC INDUSTRY, AGRICULTURE, BY LGA



Note: Other includes: Fruit and Tree Nut Growing; Other Crop Growing; Poultry Farming; Deer Farming; and Other Livestock Farming. LGAs are classified as follows: (C) Cities, (S) Shires and (RC) Rural Cities.

SOURCE: ACIL ALLEN CONSULTING SHARES OF EMPLOYMENT BY INDUSTRY



3

ANALYSIS OF REVEALED INDUSTRIES

This section outlines the SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis and need assessment processes undertaken by ACIL Allen for Gippsland. The analysis follows the process outlined in assessment framework report which accompanies this profile. A SWOT examines the RCA industries identified in Chapter 2. The justification for inclusion of specific revealed industries in the SWOT is based on assessment of several factors.

First, revealed industries identified in Table 2.14 are assessed for their RCA comparison to Victoria, the contribution to LGA GVA and consideration of the past decade's performance. This approach identifies the most important industries to the region. This guides the initial SWOT analysis process. However, due to some of the limitations of the RCA (see Section 2.1), it is important to review available industry, sector and regional development literature as well as consult with relevant regional stakeholders to identify industries that the region considers as important for future economic development. In Gippsland's case, opportunities have been identified in Agriculture, Forestry and Fisheries, Manufacturing, Energy and Mining and Tourism.

Due to the categorisation of industries in the ANZSIC codes, tourism and some aspects of the energy industries do not have a demonstrated RCA. The data simply will not allow for this calculation to be undertaken. However, this sector demonstrates many economic development opportunities for the region. A further assessment of the priority industries considers service industries that may contribute to the performance of a primary or secondary industry – for Tourism, this may include Accommodation Food and Beverage Services.

In order to include industries that could be considered emerging or have demonstrated growth but are starting from a low base, it is necessary to cross-check the opportunities identified in the literature with the emerging industries presented in Table 2.14. Outside of Agriculture, Forestry and Fisheries, Manufacturing, Energy and Mining and Tourism, there are no industries in the top 20 that are identified in the literature that either align with the small industries (<1% GVA) demonstrating high RCA or have demonstrated strong growth over the past decade. This may reflect the limitations of the revealed industry categorisation at the ANZSIC code 2-digit level, which presents a high-level industry descriptor. The SWOT analysis is then used to identify actionable or practical issues which are compared against the documented infrastructure needs of the region/industries. This comparison is then used to identify potential opportunities and constraints facing industries which could be addressed through future infrastructure investments.

3.1 SWOT analysis of the region and revealed industries

A summary of the SWOT for the revealed industries of Gippsland is provided in Table 3.1 below. Information for the SWOT has been derived from multiple sources (which are largely publicly available) including data held by IV, regional plans, stakeholder consultations and industry and sectoral strategies.

TABLE 3.1 SWOT ANALYSIS FOR THE REVEALED INDUSTRIES OF GIPPSLAND

Category	Strengths	Weaknesses	Opportunities	Threats
Cross sector	<ul style="list-style-type: none"> Natural resource endowment <ul style="list-style-type: none"> Grazing land suitable for dairy, beef cattle, sheep Intensive horticulture Brown coal and natural gas resources Skilled workforce in agricultural, energy production and manufacturing sectors Proximity to Melbourne markets and international markets through road, rail, air and sea supply chains Local ports service commercial fishing and Bass Strait oil and gas fields (Port of Corner Inlet). Port of Gippsland Lakes enable commercial and recreational vessel movements into Bass Strait 	<ul style="list-style-type: none"> Mobile and digital connectivity is inadequate and constrains productivity and business competitiveness Industries highly export focused vulnerable to exchange rate, international commodity prices, low-cost competitors (e.g. seafood, horticulture) Decline of emission intensive industries could reduce employment opportunities in Gippsland Electricity generation dominated mainly by brown coal has exposed the region to broader structural changes in the industrial sector The continued decline in the working age population will be a challenge. No scheduled regional aviation passenger services to Gippsland, even though there are airports and aerodromes available 	<ul style="list-style-type: none"> Introduction of NBN will enable business to expand online sales and broaden customer base to access national and international markets Victoria's Climate Change Act 2017 establishes a long-term target of net zero greenhouse gas emissions by 2050, creating opportunities for low/zero emission sectors across the economy Transition to low carbon economy could present growth opportunities for clean coal technologies, renewable energy, energy efficiency, forestry and agriculture. Improved market access from Gippsland to Melbourne Airport, Port of Melbourne is critical for all sectors Expected increase in food exports to Asia and value-added brown coal could significantly increase demand for freight services Road and rail improvements that enable increased freight access to Melbourne's distribution and export hubs will enhance competitiveness of value-added food and coal export opportunities Improve digital connectivity through the Connecting Regional Communities Program and Mobile Blackspots Program 	<ul style="list-style-type: none"> Agriculture, mining, energy and manufacturing sectors likely to be impacted by: <ul style="list-style-type: none"> Climate change Deindustrialisation Structural adjustment policies and support do not effectively transition energy industry workers to emerging industries (such as the services industries). This could result in higher unemployment across the region Critical water infrastructure susceptible to extreme weather, bushfire, erosion and algal bloom
Agriculture, Forestry and Fisheries	<ul style="list-style-type: none"> Stable climate, high and reliable rainfall particularly suited to livestock production Agricultural production of \$2 billion per annum, made up of beef, dairy and vegetable products which accounts for 80% of agricultural GVP Opportunities to leverage LVA Smart Specialisation project with food and fibre as lead sector New Gippsland Tech School focus on food and fibre careers Gippsland has a strong global value-added food brand, with reputation for quality (fresh and specialised products) Extensive agricultural services support the industry (agronomists and nutritionists) Proximity to domestic and international markets through Melbourne, Melbourne Airport and Port of Melbourne Well established road and rail freight networks Strong RD&E capabilities, particularly in Dairy (National Centre for Dairy in Ellinbank) Macalister Irrigation Scheme supplies pasture and horticulture production for the region (mitigates climate variability risks) <ul style="list-style-type: none"> This allows producers to transition from Dairy 	<ul style="list-style-type: none"> Employment in agriculture expected to continue to decline Population expected to decline and workforce to age in rural areas 	<ul style="list-style-type: none"> Opportunities to leverage LVA Smart Specialisation project with food and fibre as lead sector New Gippsland Tech School focus on food and fibre careers Primary producers and processors develop direct distribution channels, such as online direct to customers, and need infrastructure to get products to market in a timely way Alternative crops <ul style="list-style-type: none"> Opportunities to develop medicinal cannabis in Gippsland and in intensive controlled environment systems such as hydroponics Agritourism <ul style="list-style-type: none"> Investment in agritourism including farm, meal, winery (food trail) experiences. This can also facilitate market development for produce and value-added products Biofuel and biomass <ul style="list-style-type: none"> Opportunities to develop biomass and biofuel industries in Gippsland to leverage agriculture and forestry bio-products or alternative use of current resources 	<ul style="list-style-type: none"> Potential reduction in water availability/ water security for agriculture due to climate change. Central and East Gippsland are experiencing unusually dry seasonal conditions Biosecurity risks associated with climate change: changed distribution of pests and diseases Increased bushfire risk from climate change to impact farm businesses Reduction in water security as a potential climate change impact Increasing frequency of drought due to climate change Communities attitude to intensive agriculture investment can limit ability of Gippsland to expand agricultural production Land use conflicts: Agriculture, especially dairy farming in the peri-urban municipalities is being threatened by urban expansion as productive farmland is sold for rural residential or low density residential land (urban encroachment)

Category	Strengths	Weaknesses	Opportunities	Threats
	<ul style="list-style-type: none"> to Horticulture which is more profitable Highly skilled workforce (40% agriculture and processing workforce tertiary educated) 			
Dairy	<ul style="list-style-type: none"> Strong competitive advantage due to productive soils and reliable rainfall, significant investment in irrigation infrastructure, dairy processing plants and food manufacturing and value-adding within the region. 	<ul style="list-style-type: none"> Industry's capital stock (i.e. on-farm production facilities) is ageing and requires significant upgrade and renewal. This further reduces the industry's ability to generate profits and attract the investment required to remain nationally and internationally competitive 	<ul style="list-style-type: none"> Opportunity for further growth in sector due to growth in herd size, spare capacity within processing plants, additional water available due to efficiencies for modernisation of infrastructure Improved freight networks connecting major dairy processing centres of Leongatha, Korumburra and Maffra to distribution and export hubs in Melbourne. 	<ul style="list-style-type: none"> Ongoing price pressure in national and international dairy markets makes industry unprofitable and therefore unsustainable
Horticulture	<ul style="list-style-type: none"> Gippsland produces leafy vegetables, potatoes, beans, sweet corn and broccoli and higher value products such as asparagus, snow peas and glasshouse tomatoes <p>Baw Baw</p> <ul style="list-style-type: none"> Horticulture production focused in Thorpdale and Lindenow which feature highly versatile soils <p>Wellington</p> <ul style="list-style-type: none"> Important vegetable growing and packing South of Longford 	<ul style="list-style-type: none"> Costs of production (on and off-farm) make the industry internationally uncompetitive and restricts export earning opportunities 	<ul style="list-style-type: none"> Investment in intensive controlled environment-controlled systems such as hydroponics for vegetable production including tomatoes Gippsland Food Plan identifies opportunities to better utilise the regions food production capabilities and support higher skilled jobs Opportunities to produce bioenergy or fuel from fruit and vegetable by-products 	<ul style="list-style-type: none"> Temperature fluctuations caused by climate change impacts ability of horticulture to produce the quality demanded by other Australian markets and export markets
Commercial fishing and aquaculture	<ul style="list-style-type: none"> Important wild catch sector, species include rock lobster, abalone, snapper, southern calamari, Gould's squid, King George whiting and mussels. Abalone is most important species economically (based in Mallacoota) Gippsland is a centre for both commercial and recreational fishing Lakes Entrance fishing fleet is the largest in Victoria, supplies fresh seafood to Melbourne 	<ul style="list-style-type: none"> High production costs relative to overseas competitors 	<ul style="list-style-type: none"> Opportunities to increase commercial and recreational fisheries in Gippsland as a result of climate change. Changes to fish habitat, ranges and distribution may create commercial and recreational fishing opportunities for species such as yellow fin tuna and marlin Opportunities to protect and enhance fishing ports and their transport networks to transport fish and seafood products to markets in Melbourne and interstate Sustainable management of fisheries, boating and recreational fishing facilities is important to enhance industry value 	<ul style="list-style-type: none"> Changes to international, national and state-based fishing quotas impact ability of industries to meet growing demand for region's seafood Biosecurity (i.e. pest and disease outbreaks) issues constrain industry growth
Timber	<ul style="list-style-type: none"> Gippsland native forestry and plantations produce softwood and hardwood species for manufacturing, building materials and quality paper production. Major timber processing industries located at Maryvale, Nowa Nowa and Yarram <p>East Gippsland</p> <ul style="list-style-type: none"> Eastern part of Gippsland possesses significant timber resources, pulp and paper manufacturing sector Significant industries for communities of Orbost and Heyfield for job opportunities 	<ul style="list-style-type: none"> VicForests have released Timber Release Plan which reduces overall area available for harvesting by 5,000 hectares 	<ul style="list-style-type: none"> Opportunity for diversification into a broader range of wood products and better utilise residues through new processes such as renewable biomass energy, which could support regions transition to low carbon economy. <p>East Gippsland</p> <ul style="list-style-type: none"> Timber industry is heavily reliant on good transport networks across Victoria and New South Wales. Including wood chip products that are transported to Geelong and the Port of Eden for export. 	<ul style="list-style-type: none"> Enhanced national and state-based environmental protection could limit the ability of industry to grow
Manufacturing	<p>Food product manufacturing</p> <ul style="list-style-type: none"> Major dairy processing assets include (Lion in Morwell, Fonterra in Darnum, Burra Foods at 	<ul style="list-style-type: none"> Employment in manufacturing expected to continue to decline Manufacturing industry likely to be 	<p>Food product manufacturing</p> <ul style="list-style-type: none"> Opportunities to further develop Asia's emerging markets for high value, premium, quality assured meat and dairy products 	<ul style="list-style-type: none"> Competition with low-cost producers Consumer expectations for low-carbon emission

Category	Strengths	Weaknesses	Opportunities	Threats
	<p>Korumburra and Saputo Dairy Australia in Leongatha and Maffra).</p> <p>Paper manufacturing</p> <ul style="list-style-type: none"> – Significant paper manufacturing industry which complements the plantation forestry industry and related transport and logistics services in Gippsland. <p>Aerospace manufacturing</p> <ul style="list-style-type: none"> – Aerospace is third highest manufacturing export sector, example, Mahindra Aerospace (GippsAero) based at Latrobe regional airport and manufacturers only aircraft of its kind of Australia. 	<p>impacted by the deindustrialisation and structural changes with an expected further decline of the industry in future</p> <ul style="list-style-type: none"> – The diversity of the region will also be challenged as the state-wide trend away from manufacturing and towards automation continues <p>Paper manufacturing</p> <ul style="list-style-type: none"> – Industry has competitive challenges such as cost competitiveness, community expectation to reduce waste and carbon footprint of sector 	<ul style="list-style-type: none"> – To expand local food manufacturing there is a requirement to extend capability of local supply chain and improve connectivity to ports and other key domestic markets – Expansion of food processing (dairy and vegetable) to capitalise on strong value-adding reputation in global markets <p>Energy related manufacturing</p> <ul style="list-style-type: none"> – Opportunities to manufacture high value wind and solar infrastructure components – There is currently no supply chain in Australia with capacity or expertise to develop and operate offshore wind farms <ul style="list-style-type: none"> – If proposed offshore solar farms proceed there could be potential opportunity for a local plastics producer to manufacturer floats to hold up solar panels <p>Coal to products manufacturing</p> <ul style="list-style-type: none"> – Processing brown coal as potential source of gas, diesel and fertiliser for domestic and export markets 	
Mining and energy	<ul style="list-style-type: none"> – Gippsland has extensive brown coal resources, oil and gas fields in Bass Strait. These resources are supported by infrastructure such as transmission network and expertise in energy production. – 85% of Victoria's electricity is produced in Gippsland and 97% of Victoria's natural gas (2015) – Electricity network underpins local job creation – Gippsland Hi-Tech Precinct enables alignment between universities, TAFEs and other educational and training institutions with energy-related vocational courses – Gippsland is a major provider of sand to the construction industry, sand resources at Grantville-Nyora area near Trafalgar. 	<ul style="list-style-type: none"> – Being heavily reliant on the energy industry has exposed the region to broader structural changes in the industrial sector – The continued decline in the working age population anticipated in the future – Closure of the Hazelwood power station has reduced job opportunities <p>Gas and electricity</p> <ul style="list-style-type: none"> – Constraints in the electricity supply network, especially supply to areas east of Bairnsdale 	<ul style="list-style-type: none"> – If the Energy from Waste Facility at Australian Paper's mill at its Maryvale Mill is developed this could enable technology development and job opportunities in the region – Opportunity for Gippsland to leverage local skills and capability in energy production into a leader in new low emissions energy technologies such as renewables – Opportunity to expand LNG production from existing and fields in Victoria (driven by export demand) <p>Renewable energy</p> <ul style="list-style-type: none"> – Victoria's Climate Change Act 2017 establishes a long-term target of net zero greenhouse gas emissions by 2050. This increases viability of renewable energy investments into the future. – Release of new planning guidelines for large-scale solar farms – Potential to tap into Centre for New Energy Technologies, which will support and capitalise on the energy transformation, building skills, capabilities and instilling innovation in Victoria's new energy technologies sector – Opportunities for the Latrobe Valley to be a centre for manufacture, research and training on installation and maintenance of network infrastructure and safety equipment (which is being considered in design of Gippsland Hi-tech Precinct) – Likely opportunities associated with Hydrogen Energy Supply Chain (HESC) - a world first pilot project to safely and efficiently produce and transport clean hydrogen from Latrobe Valley to Japan (Victoria and Federal Government provided \$50m for a coal-to-hydrogen pilot project) – Opportunities to harness bioenergy with significant biomass produced by Gippsland's agriculture industries – Opportunity for large scale wind projects along Gippsland Coast – Opportunity for renewable energy projects to leverage existing distribution network linked to the eastern Australian Grid <p>Mineral extraction</p> <ul style="list-style-type: none"> – Opportunities associated with activation of two mining operations in East 	<ul style="list-style-type: none"> – Change in demand for base load power from brown coal to lower carbon emission can have significant impact on Gippsland, which is a large producer of electricity from brown coal – Community apprehension about large-scale energy developments could undermine the confidence of future investors in the industry – Uncertainty regarding government policy could undermine the confidence of future investors in the industry

Category	Strengths	Weaknesses	Opportunities	Threats
			Gippsland: copper/zinc mine and mineral sands mine	
Tourism (services including accommodation)	<ul style="list-style-type: none"> Nature based tourist attractions (10.8m domestic and international visitors per annum) <ul style="list-style-type: none"> Gippsland Lakes, Ninety Mile Beach, Wilson's Promontory, Philip Island Nature Parks, Mt Baw Baw, Croajingalong and Tarra Bulga National Parks Gippsland has highest proportion of public land in Victoria Gippsland's natural tourism is focused around food and wine related experiences aligned to agricultural production Boating and coastal tourism are also visitor favourites 	<ul style="list-style-type: none"> Mobile and digital connectivity is inadequate and constrains productivity and business competitiveness <p>Bass Coast</p> <ul style="list-style-type: none"> Low level economic output which could be related to low level dwelling occupancy could be related to holiday rental homes (tourism) 	<ul style="list-style-type: none"> Opportunities to develop new experiences that leverage Gippsland's natural environment, its food and wine offerings Investment in infrastructure that improves local amenity including recreational facilities, accommodation, transport services, recreational fishing and boating and fishing, priority road upgrades such as the South Face Road, to improve tourism experience accessibility Re-development of the Croajingalong Coastal Wilderness Walk Additional development for South Face Road to enhance access to Mt Baw Baw Additional development under the Gippsland Destination Management Plan Further development of a Gippsland Trails Strategy 	<p>Bass coast</p> <ul style="list-style-type: none"> Climate change could drive degradation of environment (coastal inundation and erosion) which could impact on nature-based tourism sites

SOURCE: VARIOUS SOURCES

ABARES (2019) ABOUT MY REGION PROFILE: LATROBE GIPPSLAND. ACCESSED 28 MAY 2019 ([HTTP://WWW.AGRICULTURE.GOV.AU/ABARES/RESEARCH-TOPICS/ABOUTMYREGION/VIC-LATROBE](http://www.agriculture.gov.au/abares/research-topics/aboutmyregion/vic-latrobe))

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LATROBE VALLEY AUTHORITY (2018) LA TROBE VALLEY NEW ENERGY JOBS AND INVESTMENT PROSPECTUS. ACCESSED 27 MAY 2019 ([HTTPS://LVA.VIC.GOV.AU/WP-CONTENT/UPLOADS/2018/06/LATROBE-VALLEY-NEW-ENERGY-JOBS-AND-INVESTMENT-PROSPECTUS-DIGITAL.PDF](https://lva.vic.gov.au/wp-content/uploads/2018/06/LATROBE-VALLEY-NEW-ENERGY-JOBS-AND-INVESTMENT-PROSPECTUS-DIGITAL.PDF))

VICTORIAN GOVERNMENT (2015) GIPPSLANDAL GROWTH PLAN 2015-2020. ACCESSED 27 MAY 2019 ([HTTPS://WWW.PLANNING.VIC.GOV.AU/POLICY-AND-STRATEGY/REGIONAL-GROWTH-PLANS/GIPPSLAND-REGIONAL-GROWTH-PLAN](https://www.planning.vic.gov.au/policy-and-strategy/regional-growth-plans/gippsland-regional-growth-plan))

VARIOUS OTHER SOURCES INC: ([HTTPS://WWW.RDV.VIC.GOV.AU/_DATA/ASSETS/PDF_FILE/0003/1733250/GIPPSLAND-OUTCOMES-ROADMAP_MAY-2019.PDF](https://www.rdv.vic.gov.au/_data/assets/pdf_file/0003/1733250/GIPPSLAND-OUTCOMES-ROADMAP_MAY-2019.PDF)); ([HTTP://AGRICULTURE.VIC.GOV.AU/_DATA/ASSETS/PDF_FILE/0005/466844/DROUGHT-SUPPORT-GIPPSLAND-BOOKLET.PD](http://agriculture.vic.gov.au/_data/assets/pdf_file/0005/466844/DROUGHT-SUPPORT-GIPPSLAND-BOOKLET.PD)); ([HTTPS://WWW.ABC.NET.AU/NEWS/2019-02-14/LATROBE-VALLEY-COAL-TO-HYDROGEN-PROJECT-APPROVED/10812464](https://www.abc.net.au/news/2019-02-14/LATROBE-VALLEY-COAL-TO-HYDROGEN-PROJECT-APPROVED/10812464)); ([HTTPS://WWW.CLIMATECHANGE.VIC.GOV.AU/_DATA/ASSETS/PDF_FILE/0026/392921/D18-001.REGCCASNAPSHOTREPORTS_GIPPSLAND_FALR.PDF](https://www.climatechange.vic.gov.au/_data/assets/pdf_file/0026/392921/D18-001.REGCCASNAPSHOTREPORTS_GIPPSLAND_FALR.PDF)); ([HTTPS://WWW.CLIMATECHANGE.VIC.GOV.AU/REDUCING-EMISSIONS/EMISSIONS-TARGETS](https://www.climatechange.vic.gov.au/reducing-emissions/emissions-targets)); ([HTTPS://WWW.PREMIER.VIC.GOV.AU/NEW-LARGE-SCALE-SOLAR-GUIDELINES-BOOST-SECTOR-CONFIDENCE](https://www.premier.vic.gov.au/new-large-scale-solar-guidelines-boost-sector-confidence)) ALSO ([HTTPS://WWW.INVESTGIPPSLAND.COM.AU/THE-OPPORTUNITIES/MINING-ENERGY](https://www.investgippsland.com.au/the-opportunities/mining-energy))

To ensure the SWOT can be translated into actionable strategies, ACIL Allen has used a technique which applies four fundamental questions to the information provided above. These questions are derived from combining elements of the SWOT. They help to identify the region's 'opportunities' and 'constraints' that could be progressed/addressed through future infrastructure investment.

3.1.1 Strengths – Opportunities assessment

This part of the SWOT considers: Which of the region's/sector's strengths can be used to maximise the opportunities identified?

Agriculture (Beef, Dairy and Horticulture), Forestry (Timber) and Fishery

Beef, dairy products and horticultural goods produced in Gippsland have a reputation in domestic and export markets for being of high quality, readily available and sustainably produced. Gippsland's success is a function of the availability of productive soils, mild climatic conditions, irrigation water availability, the region's access to research, development and extension infrastructure and skills, proximity to markets such as Melbourne and export terminals Port of Melbourne and Melbourne Airport for example. The region is also supported by a highly skilled and specialised service provision such as agronomy and livestock nutrition. These foundational strengths position Gippsland as a modern, diverse and resilient agricultural region, which can further build on the current period of economic growth and leverage Gippsland's inherent comparative advantage.

Put simply, increasing herd size and increasing the availability of water through innovation in irrigation technologies are low hanging fruit. Further diversification of the region's economy and development of industries that require high skilled workers and can access high value domestic and international markets could generate significant benefits for Gippsland. This may require improved access or availability of NBN internet services for businesses to sell direct to online customers.

In horticulture, investment in intensive controlled environment / controlled systems such as hydroponics for vegetable production including tomatoes could unlock annual supply opportunities. Establishing Gippsland as a safe and reliable producer of medicinal cannabis could be a new opportunity to further diversify the region's economy. Finally, better utilisation of waste products including fruit, vegetables and forestry residues for biomass and biofuel energy production could encourage investment in the burgeoning renewable energy sector.

Commercial fishing, wild catch and aquaculture (abalone, rock lobster, snapper, southern calamari, Gould's squid, King George whiting and mussels)

Gippsland's fisheries can leverage similar strengths to agriculture. The region's reputation for quality and reliability, proximity to Melbourne and international markets encourage further exploration of investment opportunities. Abalone caught in Mallacoota is the most important wild catch sector to Gippsland. To further develop the fisheries and aquaculture industries, opportunities to protect and enhance fishing ports and their transport networks to ensure fish and seafood products reach markets in Melbourne and interstate could be explored.

Manufacturing (Food Product Manufacturing)

Gippsland has an established food processing sector, particularly dairy products with major dairy processing assets such as Lion in Morwell, Fonterra in Darnum, Burra Foods at Korumburra and Saputo Dairy Australia in Leongatha and Maffra. Opportunities exist to leverage this cluster of infrastructure, skills and Gippsland brand to further expand into Asia's emerging markets for high value, premium, quality assured meat and dairy products. This can be facilitated in part by enhancing and extending the local supply chain and improving connectivity to ports and other key domestic markets. Extra capacity currently exists in the processing sector which could be utilised if markets into Asia in particular are captured. Horticultural products, although on a smaller scale, have significant opportunity to be processed in Gippsland and traded in fresh and non-fresh domestic and international markets.

These opportunities are dependent on improved market access from Gippsland to Melbourne Airport and Port of Melbourne through road and rail freight networks. This will improve Gippsland's competitiveness with domestic and international competitors.

Pulp, Paper and Converted Paper Product

The strong comparative advantage of paper manufacturing in Gippsland is a function of the region's endowment with soft (radiata pine) and hard wood (blue gum) species, access to markets and availability of skilled workforce. The industry and supporting sectors such as forestry, logging, support services, timber wholesaling and transport and logistics can build on Gippsland's comparative advantage through road freight logistics improvements connecting plantations, processors and Melbourne markets.

Mining and energy

Gippsland is endowed with significant brown coal resources in the Latrobe valley and offshore oil and gas resources in the Bass Strait. The region produces 85 per cent of Victoria's electricity and 97 per cent and 97 per cent natural gas (2015). These resource sectors are supported by transmission networks and technical expertise in energy production. Additionally, Gippsland's workforce will be supported by the Gippsland Hi-Tech Precinct, which will enable alignment between universities undertaking research (such as the Coal to Hydrogen project), TAFEs and other educational and training institutions with energy-related vocational courses.

These attributes can be leveraged by the mining and energy sectors to mitigate the risks facing the region as energy generation shifts from fossil fuel industries (mainly coal) to renewable and low emission technologies in Victoria.

Through the *Climate Change Act 2017*, the Victorian Government has set a long-term target of net zero emissions by 2050. This is a key opportunity for the renewable energy sector across the state.

Potential opportunities exist in the development of a wind and geothermal sector will present opportunities for construction and manufacturing sectors in Gippsland. The development of the sector can enable transition of low and high skilled workers into the renewable sector and the subsidiary sectors that could emerge from such opportunities.

Opportunities exist to utilise current resources including manufacturing brown coal as a potential source of gas, hydrogen, diesel and fertiliser for domestic and export markets. Further expansion of the liquid natural gas fields new and existing is another opportunity that could generate significant benefits for Gippsland.

Tourism

Gippsland's tourism sector is centred on the natural assets of the region, coastline, countryside and food related experiences that align with the agricultural production in the region. Opportunities exist to further leverage these sectors through agritourism experiences including farm and food and wine (food trail) type activities. These opportunities can be realised through investment in infrastructure that improves local amenity including recreational facilities, accommodation, transport services, recreational fishing and boating and fishing as well as priority road upgrades such as the South Face Road to improve accessibility of the region's key nature-based tourism sites.

3.1.2 Strengths – Threats assessment

This part of the SWOT considers: How can the region's/sector's strengths be used to minimise the threats identified?

Climate change will have demonstrable impacts on primary production in Gippsland. Climate change is expected to impact air temperature, rainfall and water availability and occurrence of extreme weather events. Fortunately, Gippsland's Agriculture, Forestry and Fisheries sectors are highly developed industries which rely on and respond to changing future predictions of the changing climates impacts on their sector. The key strength Gippsland's primary industries possess is the availability and access to the latest research, development and extension. Commodity sector aligned Commonwealth Research and Development Corporations in particular, invest in innovation and practices which support dairy, beef, horticulture, forestry and fisheries adapt to climate change.

Secondly, the ongoing structural adjustments occurring the mining and resource, energy generation and manufacturing sectors will continue to disrupt the labour market into future. However, whilst the adjustment in the short to medium term generates uncertainty, the region's endowment of renewable

energy potential (wind and geothermal) presents opportunities for renewed investment in the mining, energy and resources sectors and to generate low, medium and high skilled job opportunities for those effected by the changes.

3.1.3 Weaknesses – Opportunities assessment

This part of the SWOT considers: Which of the region's/sector's strengths can be used to maximise the opportunities identified?

Gippsland's economic activity is highly resource (agriculture and mining) focused which is vulnerable to economic downturns or prolonged depressed commodity prices. Agricultural industries have the added burden that their productivity is highly dependent on seasonal and climatic conditions. As a result, there is significant fluctuation in the economic performance of the region's agricultural industries.

In the mining and energy sector, the main opportunities to mitigate these risks appear in further development of existing liquid natural gas resources, investing in new renewable technologies (wind and geothermal focused) and using current brown coal resources to manufacture other goods such as fuel and fertilisers. These opportunities can increase the diversity of industries that generate economic output but also create new opportunities that are less dependent on global commodity markets.

In the agriculture sector, the main approach traditionally has been to continue to exploit incremental productivity gains through research and development, but more recently, placing a greater emphasis on value-adding agricultural goods to move out of commodity-based markets into high value, price inelastic markets.

In the manufacturing industries, similar issues emerge, with increased consumer pressure to deliver lower emission and sustainably produced products, which add to the cost of production and reduce the competitiveness of industries. For local manufacturers to stay competitive, lowering their cost of production through increased labour productivity and increased supply chain efficiencies will be important. How infrastructure can support this is a complex question (that is difficult to answer) at a regional level.

3.1.4 Weaknesses – Threats assessment

This part of the SWOT considers: How can the region's/sector's strengths be used to minimise the threats identified?

The primary weakness for Gippsland is the declining employment and workforce requirements for the energy, agriculture and manufacturing sectors. Although these sectors have experienced growth, their continued productivity gains due to technology adoption are placing downward pressure on the jobs market. This pressure can be minimised through the re-training and education of workers, as well as support for emergent sectors that have demand for transferrable skills, which are more likely to be matters of social policy than of economic infrastructure provision.

3.2 Needs analysis of the region and relevant industries

This section identifies the needs for industry sectors and at a two-digit ANZSIC level for the Gippsland and within the Bass Coast, Baw Baw, East Gippsland, La Trobe, South Gippsland and Wellington LGAs. These needs have been developed based on the SWOT analytical processes.

3.2.1 What is important to the region?

Agriculture, Forestry and Fisheries

The agriculture, forestry and fisheries industries are the largest source of GVA, demonstrate strong CAI and source of growth for the region in the last decade (South Gippsland LGA, Baw Baw LGA and Wellington LGA). Dairy, beef, horticulture and lamb production are the main production sectors for the

region. Future growth of these sectors can depend on either productivity gains on-farm or developing existing or new markets to capture greater value.

What needs could be addressed by government?

There are several needs which have been identified by ACIL Allen for this industry. They are as follows:

- The timber industry needs enhanced road infrastructure linking Gippsland, New South Wales, regional Victoria, Geelong and the Port of Eden.
- The horticulture and food processing industries need enhanced supply chain connectivity including road and rail freight corridors between Gippsland, Melbourne Airport and Port of Melbourne.
- The dairy industry needs ongoing maintenance and upgrade of the irrigation infrastructure.
- The agriculture industry needs enhanced NBN connectivity to enable market expansion.
- The commercial fishing, aquaculture and wild catch sectors need optimal road transport networks between ports and the Melbourne and interstate markets.

Manufacturing

Pulp, Paper and Converted Paper Product Manufacturing is an important sector for Gippsland. It is a source of comparative advantage, has experienced growth over the past decade but represents a proportionately small amount of economic activity (3.7 per cent GVA, Latrobe).

Food product manufacturing is an important sector to Baw Baw (1.9 Victorian CAI, 63 per cent growth and 4.3 per cent GVA) and East Gippsland (2.4 Victorian CAI, 27 per cent growth and 5.3 per cent GVA). The processing of dairy products in particular is essential to Gippsland.

What needs could be addressed by government?

There are several needs which have been identified by ACIL Allen for this industry. They are as follows:

- The paper industry needs reliable and safe road infrastructure that connects Gippsland with Melbourne and other region centres.
- Food product manufacturing, particularly for dairy products, relies on road infrastructure that links manufacturers with domestic markets including Melbourne and regional Victoria.

Mining and energy

Oil and Gas Extraction industry is an important sector for Gippsland. In Wellington, the industry has a strong comparative advantage (41.3 CAI), has experienced 35 per cent growth in the past decade and represents 15.1 per cent of GVA in the LGA.

Through the *Climate Change Act 2017*, the Victorian Government has set a long-term target of net zero emissions by 2050. This is a key opportunity for the renewable energy sector across the state.³ The potential for renewable energy development has been identified as a significant opportunity for Gippsland. For this sector to emerge, enabling infrastructure and government support will be necessary.

What needs could be addressed by government?

There are several needs which have been identified by ACIL Allen for this industry. They are as follows:

- Enabling infrastructure for the oil and gas extraction industry
- The electricity generation and burgeoning renewable energy sector need reliable electricity transmission networks
- Develop supporting infrastructure to enable development of geothermal and wind energy generation.

³ <https://www.climatechange.vic.gov.au/reducing-emissions/emissions-targets>

Tourism

The Tourism sector is anecdotally a strong performer in Gippsland. Although no specific CAI exists due to the way data is captured, Gippsland's natural assets presents an opportunity for further growth in domestic and international tourism.

What needs could be addressed by government?

The tourism and supporting service sectors need public amenities for nature based or rural tourism sites, which include infrastructure that encourages accommodation and retail industries to develop in rural tourist areas of the region.

Some of these key initiatives would include infrastructure investments towards redevelopment of the Croajingolong Coastal Wilderness Walk and the development of a business case for South Face Road to enhance access to Mt Baw Baw.

Tourism will benefit greatly from region-wide reliable internet access, particularly in key tourist sites.

3.2.2 What opportunities and constraints does Government face in addressing these needs?

Table 3.2 summarises the opportunities and constraints government could consider in addressing the infrastructure needs of the revealed industries of Gippsland which have a high comparative advantage.

TABLE 3.2 WHAT ARE THE INFRASTRUCTURE INVESTMENT OPPORTUNITIES AND CONSTRAINTS FOR GIPPSLAND?

Industry	Revealed sectors	Relevant LGAs	Identified needs	Opportunities to address needs	Constraints to economic development of the sector
Agriculture, Forestry and Fisheries	Agriculture (Dairy, Beef and Horticulture)	East Gippsland Baw Baw Wellington South Gippsland	The horticulture and food processing industries need enhanced supply chain connectivity including road and rail freight corridors between Gippsland and Melbourne Airport and Port of Melbourne	Develop road and air freight infrastructure that links primary industries with domestic and international markets	Without optimal road and air freight infrastructure, access to new or existing market opportunities can be constrained
		All	The dairy and horticulture industries need ongoing maintenance and upgrade of the irrigation infrastructure	Continue to maintain strategic irrigation infrastructure such as the Macalister Irrigation District Scheme	Inefficient irrigation water technologies can waste irrigation water available
		All	The agriculture industry needs enhanced NBN connectivity to enable market expansion	Identify priority areas that require NBN or mobile phone tower access	Inadequate access to NBN or mobile broadband services on-farm
	Wild catch (abalone) and commercial fishing	East Gippsland Wellington Baw Baw	The commercial fishing, aquaculture and wild catch sectors need optimal road transport networks between ports and the Melbourne and interstate markets	Develop transport networks between commercial fishing and aquaculture centres on the coast and the Melbourne markets and airports	Inadequate port facilities and linking road infrastructure can constrain further development of the commercial fishing and aquaculture sectors
	Forestry and Logging	East Gippsland Wellington Latrobe	The timber industry needs enhanced road infrastructure linking Gippsland, New South	Maintain and upgrade main arterial road freight networks linking Gippsland with Melbourne, regional Victoria and New South Wales	Inadequate road infrastructure linking forestry plantations, processors and

Industry	Revealed sectors	Relevant LGAs	Identified needs	Opportunities to address needs	Constraints to economic development of the sector
		Baw Baw	Wales, regional Victoria, Geelong and the Port of Eden		markets can reduce sectors cost competitiveness
Manufacturing	Pulp, Paper and Converted Paper Product Manufacturing	East Gippsland Latrobe	The paper industry needs reliable and safe road infrastructure that connects Gippsland with Melbourne and other region centres	Maintain and upgrade main arterial road freight networks linking Gippsland with Melbourne, regional Victoria and New South Wales	Inadequate port facilities and linking road infrastructure can constrain further development of the paper industry
	Food Product Manufacturing	Baw Baw East Gippsland South Gippsland Latrobe Wellington	Food products manufacturing, particularly for dairy products, relies on road infrastructure that links manufacturers with domestic markets including Melbourne and regional Victoria	Maintain and upgrade main arterial road freight networks linking Gippsland with Melbourne, regional Victoria and New South Wales	Inadequate port facilities and linking road infrastructure can constrain further development of the dairy food processing industry
Mining and energy	Oil and Gas Extraction	Wellington	Enabling infrastructure for oil and gas extraction development	Opportunity to expand LNG production from existing and fields in Victoria (driven by export demand)	
	Research, development and training related to the industry (Identified as emerging industry, based on the future opportunities identified in the SWOT however, it does not have a RCA as such)	Latrobe	Electricity network reliability	Opportunities for the La Trobe Valley to be a centre for the research, manufacturing, and training related to the installation and maintenance of electricity network infrastructure and safety equipment (which is being considered in design of Gippsland Hi-tech Precinct)	
	Renewable energy (Identified as emerging industry, based on the future opportunities identified in the SWOT however, it does not have a RCA as such)	Latrobe Baw Baw South Gippsland	Utilities and network transition infrastructure to enable development of renewable energy sector	Consider supporting infrastructure to enable the scale-up of geothermal and wind energy (e.g. cost effective connection to the NEM)	Lack of energy transmission infrastructure available Land use competition with agriculture for wind farms
Tourism	Identified as emerging industry, based on the future opportunities identified in the SWOT however, it does not have a RCA as such	All	Improved amenities/facilities to support wilderness trails and walks	Invest in amenities/facilities to generate additional visitation	Remove access constraints (i.e. inadequate roads to mountain regions)

SOURCE: ACIL ALLEN

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