

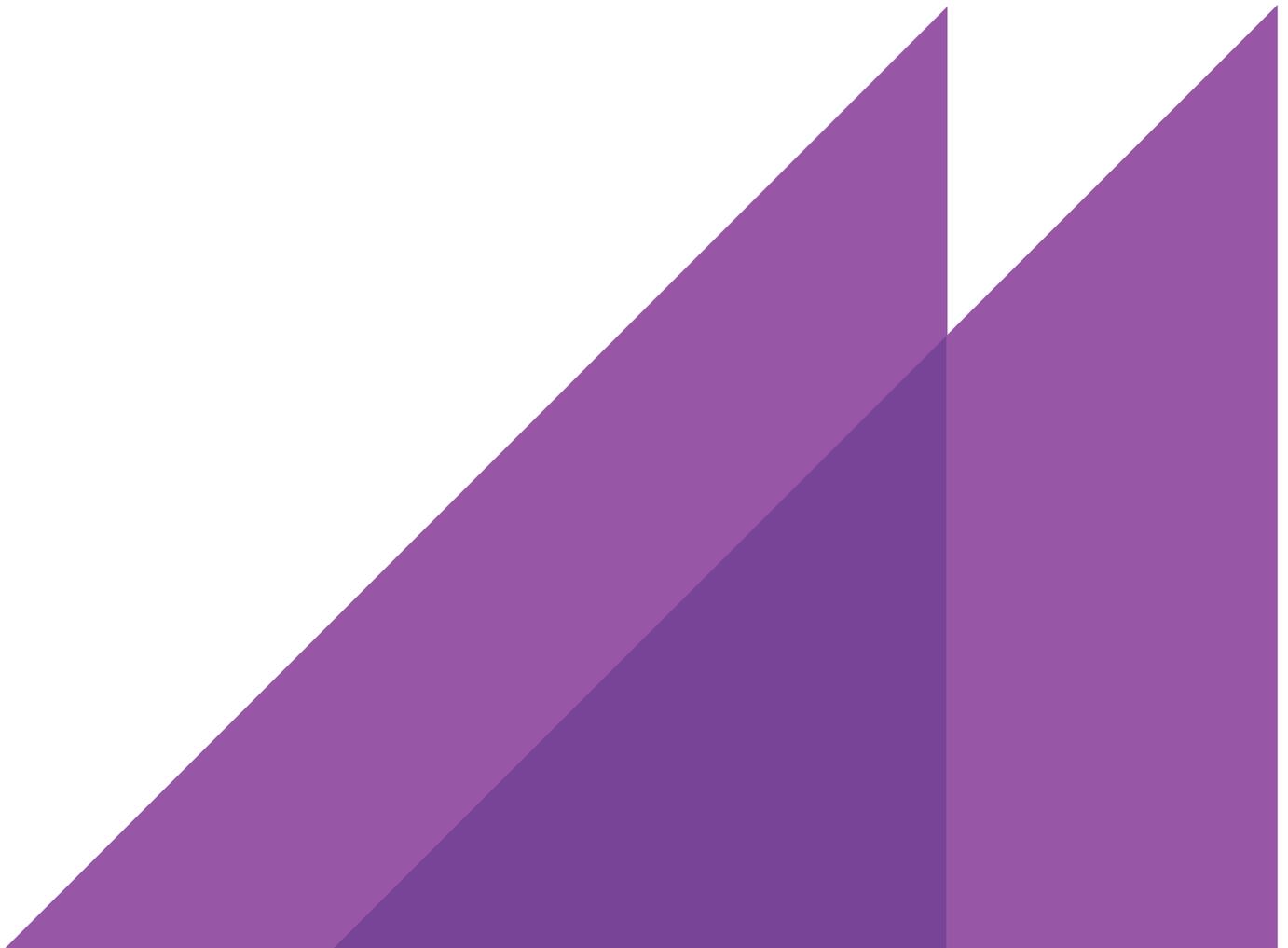
REPORT TO
INFRASTRUCTURE VICTORIA

22 JULY 2019

LODDON CAMPASPE REGION



INDUSTRY PROFILE
FINAL





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EXECUTIVE SUMMARY

Overview of region

The Loddon Campaspe region is situated in central Victoria and is bounded by the River Murray and Mallee region in the north, Goulburn to the east, Melbourne Metropolitan area and Central Highlands in the south and the Mallee and Wimmera Southern Mallee regions in the west.

Loddon Campaspe has a more diverse economy relative to Victoria's other agriculturally based regions. Although the region contains major dryland and irrigated farming areas, food product manufacturing and service industries (e.g. financial, insurance, health, etc.) are more important in terms of contribution to Gross Regional Product (GRP). Population growth across the region is occurring in major urban centres (such as Bendigo and southern parts of Macedon Ranges) which lie within commuting distance to Melbourne.

Major roads and rail lines link Loddon Campaspe with Melbourne and adjoining regions. Road and rail transportation to Melbourne has been important in supporting population growth in the southern tip of the region. In March 2019, Qantas commenced flying between Bendigo and Sydney via the Bendigo Airport.

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 the Loddon Campaspe 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 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) are 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 LGAs within Loddon Campaspe, using the Victorian CAI comparison.

¹ Australia and New Zealand Standard Industrial Classification

The economic performance of Loddon Campaspe is highly dependent on the food processing and agricultural industries, which varies across mainly rural local government areas (LGAs). In the more densely populated regional centre of Bendigo and Macedon Ranges, services industries such as finance, professional services and construction are more important.

Loddon Campaspe produces a diverse mix of commodity, high value and niche products for domestic and export markets. Lamb and wool, poultry (boiler and egg), wheat, pigs and canola are all major products. The main agricultural activities in the region include mixed farming in the Central Goldfields and Mount Alexander; irrigated dairy, large scale cropping and grazing in Campaspe; and vineyards, intensive agriculture and other niche sectors spread across the region. Due to the strengths of the region's productive soils, climate and proximity to processing and markets, Loddon Campaspe demonstrates strong comparative advantages in agriculture across the following LGAs: Loddon (17.4 Victorian CAI, negative 17 per cent growth and 54 per cent GVA), Campaspe (7.2 Victorian CAI, 22 per cent growth and 23 per cent GVA) and Central Goldfields (4.5 Victorian CAI, 53 per cent growth and 14 per cent).

The strong performance of agricultural industries is supported by the cluster of meat, food and beverage processing industries in Loddon Campaspe. Positioned near Bendigo, the mix of agricultural industries creates an agricultural processing and services hub for central Victoria. Food Product Manufacturing demonstrates a moderate comparative advantage in Mount Alexander (9.6 Victorian CAI, minus 36 per cent growth and 21 per cent GVA), Campaspe (5.4 Victorian CAI, 0 per cent growth and 12 per cent GVA) and Central Goldfields (4 Victorian CAI, 65 per cent growth and 9 per cent GVA).

It should be noted that while a number of LGAs have strong comparative advantages for Non-Metallic Mineral Mining and Quarrying (Loddon, Mount Alexander, Central Goldfields, Central Bendigo) and Metal Ore Mining (Greater Bendigo, Loddon and Mount Alexander), none of these industries represent more than one per cent of the respective LGAs' GVA. This may indicate that renewed entry of these industries to the local economy could be a source of future growth, which is highlighted by the realisation of larger gold reserves at the Fosterville Gold Mine and potential reserves for the region.

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

Industry (Level 2 ANZSIC)	LGA	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
9. Non-Metallic Mineral Mining and Quarrying (appears: 4 times)*	Loddon (S)**	25.1	6.0	26%	1%	Top right
1. Agriculture (appears: 3 times)	Loddon (S)	17.4	21.6	-17%	54%	Top left
8. Metal Ore Mining (appears: 3 times)	Greater Bendigo (C)	15.1	0.1	-22%	0%	Top left
16. Printing (including the Reproduction of Recorded Media)	Central Goldfields (S)	12.5	12.0	-36%	4%	Top left
9. Non-Metallic Mineral Mining and Quarrying (appears: 4 times)	Mount Alexander (S)	11.1	2.7	223%	1%	Top right
8. Metal Ore Mining (appears: 3 times)	Loddon (S)	10.6	0.1	83%	0%	Top right
9. Non-Metallic Mineral Mining and Quarrying (appears: 4 times)	Central Goldfields (S)	9.8	2.4	54%	1%	Top right
11. Food Product Manufacturing (appears: 3 times)	Mount Alexander (S)	9.6	12.5	36%	21%	Top right
2. Aquaculture	Loddon (S)	7.5	2.6	107%	0%	Top right
1. Agriculture (appears: 3 times)	Campaspe (S)	7.3	9.3	22%	23%	Top right
5. Agriculture, Forestry and Fishing Support Services (appears: 2 times)	Central Goldfields (S)	5.8	5.2	23%	1%	Top right

Industry (Level 2 ANZSIC)	LGA	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
9. Non-Metallic Mineral Mining and Quarrying (appears: 4 times)	Greater Bendigo (C)	5.5	1.5	134%	0%	Top right
11. Food Product Manufacturing (appears: 3 times)	Campaspe (S)	5.4	7.0	0%	12%	Top left
5. Agriculture, Forestry and Fishing Support Services (appears: 2 times)	Campaspe (S)	5.4	4.8	59%	1%	Top right
4. Fishing, Hunting and Trapping (appears: 2 times)	Macedon Ranges (S)	5.2	2.4	746%	0%	Top right
1. Agriculture (appears: 3 times)	Central Goldfields (S)	4.5	5.7	53%	14%	Top right
11. Food Product Manufacturing (appears: 3 times)	Central Goldfields (S)	4.0	5.3	65%	9%	Top right
4. Fishing, Hunting and Trapping (appears: 2 times)	Greater Bendigo (C)	3.9	2.0	8928%	0%	Top right
8. Metal Ore Mining (appears: 3 times)	Mount Alexander (S)	3.6	0.0	-1%	0%	Top left
38. Commission-Based Wholesaling	Campaspe (S)	3.4	1.9	201%	0%	Top right

Notes: *Revealed industries that appear in more than one LGA are identified *appears: x times. **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 Loddon Campaspe, 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.

The justification for inclusion of specific revealed industries in the SWOT is based on assessment of several factors.

Firstly, revealed industries identified in Table ES1 are assessed for their RCA comparison to Victoria, the contribution to an LGA's GVA and consideration of the industries' performance over the past decade. This approach identifies the most important industries to Loddon Campaspe. 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 Loddon Campaspe's case, opportunities have been identified in food product manufacturing, agricultural production and tourism.

Due to the categorisation of industries in the ANZSIC codes, tourism does not have a demonstrated RCA. However, this sector demonstrates many economic development opportunities for Loddon Campaspe.

A further assessment of the priority industries considers service industries that may contribute to the performance of a primary or secondary industry – for Agriculture, this may include Agriculture, Forestry and Fisheries Services Support.

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, 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, as shown in Table ES2 below.

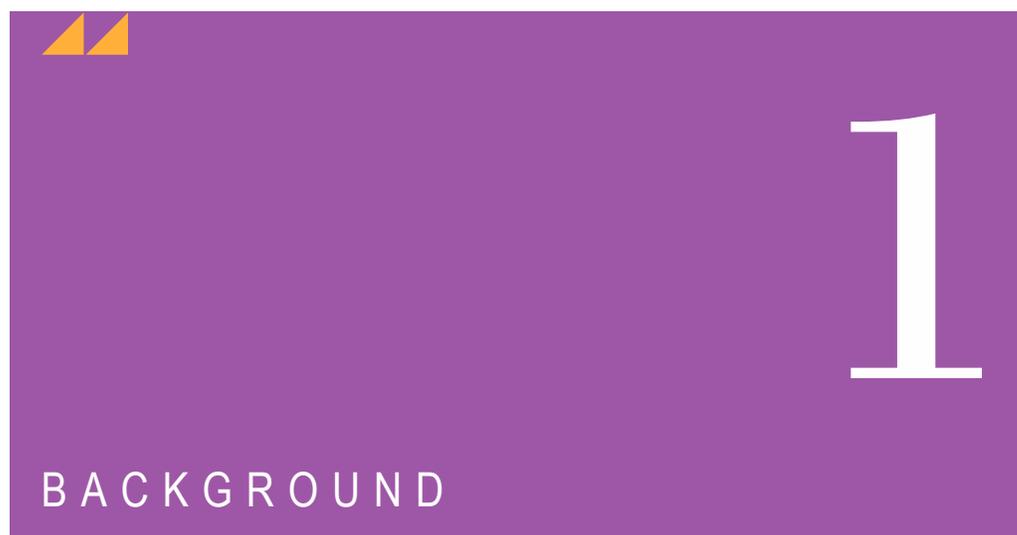
TABLE ES 2 WHAT ARE THE INFRASTRUCTURE INVESTMENT OPPORTUNITIES AND CONSTRAINTS FOR LODDON CAMPASPE?

Industry	Revealed sectors	Relevant LGAs	Identified needs	Opportunities to address needs	Constraints to economic development of the sector
Agriculture, Forestry and Fisheries	Agriculture (Intensive farming)	Loddon	Sealing country roads especially those near productive agricultural land may encourage investment in areas suited to intensive agriculture	Sealing country roads may encourage investment in areas suited to intensive agriculture	Unsealed roads in country areas reduce access for intensive agriculture operations that have significant freight traffic
	Agriculture (grain, livestock, horticulture)	Loddon Campaspe Central Goldfields Macedon Ranges Mount Alexander	Improved transport access between primary produces, processors and Melbourne markets The sheep, grain, horticulture and intensive farming industries would benefit from improved access to NBN and mobile broadband services	Investment in road and digital connectivity infrastructure (telecommunications and mobile broadband) to enable adoption of modern technologies on-farm	Limited access to fast and reliable internet services in rural LGAs, compared to metropolitan regions. This constrains farm businesses ability to implement the latest technology on-farm
	Agriculture (olives, beekeeping, apples and pears, lamb and beef)	Macedon Ranges Bendigo Mount Alexander Central Goldfields	Agritourism and food trails need public amenities and connecting road networks would need to be developed. Such as cycling paths or networks between historic towns or clusters of food experiences	Development of public amenities and road infrastructure will enable access to food production and local experiences or events	Inadequate road infrastructure including signage to facilitate agritourism opportunities or experiences in the region
Manufacturing	Lamb, grain, dairy and horticulture	Campaspe Bendigo Central Goldfield	Meat, grain, dairy processors need reliable and cost-effective access to water, energy and waste services Meat, grain and horticulture processors need reliable and safe road and rail freight corridors for access to Melbourne, Port of Melbourne and Melbourne Airport	Development of water, energy and waste utilities and road and rail infrastructure will support further development of the processing sector	Inadequate utilities, road and rail infrastructure connecting processors, producers and markets limits the regions capacity to develop

Industry	Revealed sectors	Relevant LGAs	Identified needs	Opportunities to address needs	Constraints to economic development of the sector
Mining and energy	Metal ore mining (Identified as emerging industry, based on the future opportunities identified in the SWOT however, it does not have an RCA as such)	Bendigo	Road transport linkages between Forestville Gold Mine and refineries, markets and workforce in the Bendigo area	Develop road infrastructure that will support expansion of the Forestville Gold Mine and potential development of gold resources regionally	Inadequate road infrastructure limits the gold mining industries ability to operate efficiently
	Renewable energy (Identified as emerging industry, based on the future opportunities identified in the SWOT however, it does not have an RCA as such)	Loddon Campaspe Central Goldfields	Access to enabling infrastructure (i.e. roads and transmission network connections)	Provide enabling infrastructure such as connecting roads and transmission network connections is essential to the development of renewable energy industry in the region	Inadequate road and transmission network connections will hinder growth potential of the sector
Tourism	Tourism (Identified as emerging industry, based on the future opportunities identified in the SWOT however, it does not have an RCA as such)	Loddon	Accommodation along Loddon River, farm stay accommodation	Development of enabling infrastructure to support the development of accommodation in the Loddon River area	Inadequate accommodation infrastructure constrains tourist accessibility to the region

Industry	Revealed sectors	Relevant LGAs	Identified needs	Opportunities to address needs	Constraints to economic development of the sector
		Mount Alexander	Walking trail infrastructure at Castlemaine Diggings National Heritage Park Accommodation and function facilities in Castlemaine, boutique accommodation Visitor facilities at Cairn Curran Reservoir New routes on the Goldfields Track Complementary services alongside Harcourt MTB park to encourage tourism	Growth dependent on investment in existing infrastructure such as public amenities and accommodation facilities	Inadequate walking trail, public amenities, accommodation and visitor facilities in the Mount Alexander LGA limits the potential of the local tourism industry
		Mount Alexander, Bendigo, Macedon Ranges	Develop linking road, signage and public amenity infrastructure (e.g. Murray River Adventure Trail and Daylesford to Hanging Rock Trail)	Development of enabling infrastructure, such as public amenities, at nature-based tourist destinations will encourage investment in tourist experiences and supporting services (food, beverage and accommodation)	Inadequate public road infrastructure constrains tourist accessibility to the region
		Goldfields	Cycling routes between historic towns. This would require road signage and quality roads	Development of enabling infrastructure for cycling routes would encourage tourist visitation in the region	Inadequate cycling route infrastructure constrains tourist accessibility to the region
Finance and Insurance Services	Banking	Bendigo	Digital connectivity – fast and reliable internet to enable firms' access to customers and markets outside the region	Investment in digital connectivity infrastructure	Lack of fast and reliable internet services will constrain growth opportunities for the sector, especially with the advent of internet banking
Education	Education (Identified as emerging industry, based on the future opportunities identified in the SWOT however, it does not have an RCA as such)	Bendigo	Transport infrastructure which connects the campuses to metropolitan Melbourne campuses. Amenity and place making infrastructure to make regional campuses a desirable location for international students and researchers E-learning and e-research requires strong digital connectivity	Further develop transport linkages between campuses and local townships and metro Melbourne to allow better access to cross-campus teaching and research facilities Work with universities to support on-campus development Improve digital connectivity to regional campuses and surrounds	Ability to attract domestic and international students and research given existing connectivity and amenity of campuses

SOURCE: ACIL ALLEN



1.1 Overview of Loddon Campaspe

The Loddon Campaspe region is situated in central Victoria and is bounded by the River Murray and Mallee region in the north, Goulburn to the east, Melbourne Metropolitan area and Central Highlands in the south and the Mallee and Wimmera Southern Mallee regions in the west.

The Loddon Campaspe region accounts for 8.4 per cent of Victoria's land area (covering an area of 19,026 km²). As at 2018, Loddon Campaspe had an estimated resident population (ERP) of 243,261 or 3.8 per cent of Victoria's population. The region's population and land size by local government area (LGA) are shown in Table 1.1 below:

TABLE 1.1 POPULATION AND AREA, LGA AND SUB-REGION, LODDON CAMPASPE REGION, 2018

Local Government Area and (sub-region)	ERP	Share of region	Area (km ²)	Share of region
Loddon Shire (Northern rural areas) ⁽¹⁾	7,513	3%	6,696	35%
City of Greater Bendigo (Bendigo regional hub)	116,045	48%	3,000	16%
Central Goldfields Shire (Southwest goldfields)	13,209	5%	1,533	8%
Macedon Ranges Shire (Southern peri-urban fringe)	49,388	20%	1,748	9%
Mount Alexander Shire (Southern peri-urban fringe)	19,514	8%	1,530	8%
Campaspe Shire (Northern rural areas)	37,592	15%	4,519	24%
Loddon Campaspe region⁽²⁾	243,261	100%	19,026	100%

Notes: (1) Southern portion of Loddon shire lies in the Southwest Goldfields sub-region. (2) 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 Loddon Campaspe have been aggregated from LGAs based on common economic and environmental characteristics, a list of sub-regions and map (see Figure 1.1) are provided below:

- Northern rural areas (green)
- Bendigo regional hub (yellow)
- Southern peri-urban fringe (red)
- Southwest goldfields (purple)

FIGURE 1.1 SUB-REGION MAP, LODDON CAMPASPE REGION, 2019



SOURCE: LODDON CAMPASPE REGIONAL PROFILE 2018.

The Loddon Campaspe region has a more diverse economy relative to Victoria's other agriculturally based regions. Although the region contains major dryland and irrigated farming areas, food product manufacturing and service industries (e.g., financial, insurance, health, etc.) are more important in terms of contribution to GRP. Population growth across the region is occurring in major urban centres such as Bendigo and southern parts of Macedon Ranges which lie within commuting distance to Melbourne.

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 Loddon Campaspe, in terms of natural resources and environmental features are described below.

Natural resources include:

- gold
- mineral sands
- solar and wind energy

Key environmental assets include:

- Murray River
- natural springs
- Macedon Ranges
- forests – box ironbark
- fertile farmland.

1.1.2 Key infrastructure

Major roads and rail lines link Loddon Campaspe with Melbourne and adjoining regions. Road and rail transportation to Melbourne has been important in supporting population growth in the southern tip of the region. Aside from Bendigo Airport, which now has domestic flights to Sydney, the region has a number of small regional airports. A summary of the region's key infrastructure is provided in Box 1.1.

BOX 1.1 KEY INFRASTRUCTURE, LODDON CAMPASPE REGION, 2019

Roads

- Calder Freeway (561 kms): Melbourne – Mildura (services northwest Victoria).
- Midland Highway (452 kms): Geelong – Mansfield (services central Victoria).
- Loddon Valley Highway (124 kms): Bendigo – Kerang (arterial link within the region).
- Northern Highway (164 kms): Echuca – Wallan (arterial link within the region and links to Melbourne).
- Mclvor Highway (44 kms): Bendigo – Heathcote (arterial link within the region).
- Pyrenees Highway (206 kms): Elphinstone – Ararat (services western Victoria).
- Wimmera Highway (345 kms): Bendigo - Horsham (services western Victoria and links to South Australia).

Rail

- Direct passenger and freight rail routes from Maryborough, Swan Hill, Echuca and Bendigo to Melbourne.
- Freight line links with adjoining regions (e.g. Mallee region) linking to Melbourne, Geelong and Portland.

Water

- Cairn Curran Reservoir (water storage).
- Tullaroop Reservoir (water storage).
- Lake Eppalock (water storage).
- Waranga Basin (water storage).
- Goulburn-Campaspe pipeline.

Power

- Majority of electricity for residential and commercial use is generated by coal-fired stations outside the Region.

Airports

- Bendigo Airport – direct flights to Sydney.
- several small airports service the Region.

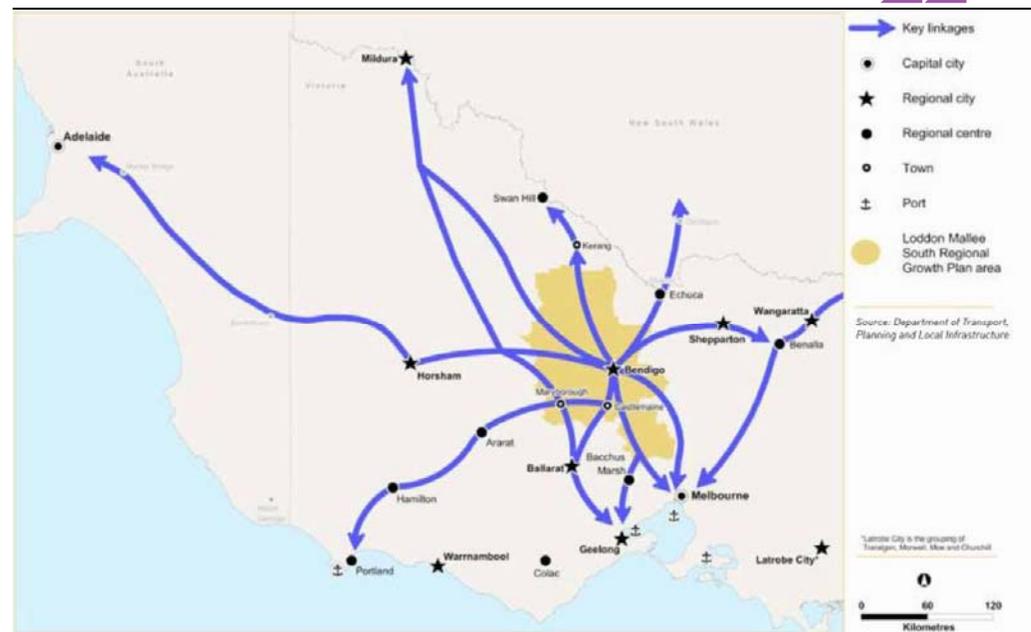
Seaports

- landlocked region with no seaports.
- road and rail access to the Port of Melbourne is provided via the Calder Freeway and Bendigo rail line.

SOURCE: LODDON CAMPASPE REGIONAL PROFILE 2018 AND LODDON MALLEE REGIONAL STRATEGIC PLAN 2015-2018.

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

FIGURE 1.2 TRANSPORT INFRASTRUCTURE, LODDON CAMPASPE REGION, 2019



SOURCE: LODDON CAMPASPE REGIONAL PROFILE 2018.

1.1.3 Other regional attributes

Loddon Campaspe has a large agricultural industry and growing services sectors. Bendigo (the largest urban centre in the region) contains approximately 48 per cent of Loddon Campaspe's population and is a major regional employer and service centre for surrounding communities. Economic activity and population growth in Bendigo is therefore a major driver of growth across the region. Located close to Melbourne's outer metropolitan fringe, strong road and rail transport linkages combined with cheaper land prices and lifestyle advantages will underpin population growth in southern townships into the future. A summary of these other attributes is provided in Box 1.2.

BOX 1.2 OTHER REGIONAL ATTRIBUTES, LODDON CAMPASPE REGION, 2019

Agriculture

- Dryland farming and irrigated farming in the north of the Region.

Services and construction

- Growing service sector employment i.e. health, tourism, food services.
- Growing construction sector employment.

Bendigo

- Regional hub, diverse economy, major source of economic/population growth.
- Growing demand for skilled labour.

Geography

- Southern tip of the Region located on Melbourne's urban fringe supporting population growth.

SOURCE: LODDON CAMPASPE REGIONAL PROFILE 2018.

1.2 Sub-regions of Loddon Campaspe

Differences exist within Loddon Campaspe at the LGA level in terms of its attributes and infrastructure. As an example, some LGAs contain a mixture of industries and several major regional/urban centres while others are largely rural based. By dividing the Loddon Campaspe region into smaller sub-regions some of the differences in economic, environmental and social characteristics within the region are described below.

Bendigo Regional Hub (City of Greater Bendigo)

Comprising the City of Greater Bendigo, the “City of Greater Bendigo” sub-region (highlighted in yellow in Figure 1.1) contains 48 per cent of Loddon Campaspe region’s ERP and 16 per cent of its area. Key facts about the Bendigo Regional Hub sub-region include:

- contains the major urban centre of Bendigo
- growing population
- diverse industry base (major provider of financial, insurance, education and health services)
- agglomeration and relocation of the Region’s health services in Bendigo city
- tourism hub for the region
- higher household incomes compared with surrounding LGAs
- major centre of employment for the surrounding area
- records positive outcomes in early childhood development, youth engagement and health.

Northern Rural Areas (Loddon Shire Council and Campaspe Shire Council)

Comprising the Loddon and Campaspe Shire Councils the “Northern Rural Areas” sub-region (highlighted in green in Figure 1.1) contains 18 per cent of Loddon Campaspe region’s ERP and 59 per cent of its area. Key facts about the Northern Rural Areas sub-region include:

- contains the townships of Echuca and Inglewood (730 persons | 2016 Census)
- largest industry is agriculture (based on Gross Value Added)
- contains numerous food processing/manufacturing industries linked to local agriculture
- low population growth and population ageing
- poorer access to health services and lower life-expectancy relative to other LGAs.

Southern peri-urban fringe areas (Macedon Ranges Shire Council and Mount Alexander Shire Council)

Comprising the Macedon Ranges and Alexander Shire Councils the “Southern Peri-urban Fringe Areas” sub-region (highlighted in red in Figure 1.1) contains 28 per cent of the region’s ERP and 17 per cent of its area. Key facts about the Southern Peri-urban Fringe Areas sub-region include:

- contains the townships of Castlemaine (9,932 persons | 2016 Census) and Gisborne (9,822 persons | 2016 Census)
- significant residential development and construction in townships in Macedon Ranges
- comparatively high incomes with other LGAs
- relatively lower levels of disadvantage (compared with other LGAs in Victoria)
- contains a large commuter population based in Macedon Ranges Council Shire travelling to Melbourne for work
- emerging creative design industry in the area, particularly in Castlemaine
- likely to experience strong future population growth due to the sub-region’s proximity to Melbourne
- positive outcomes in early childhood development, youth engagement and health.

Southwest Goldfields (Central Goldfields Shire Council)

Comprising the Central Goldfields Shire Council the “Southwest Goldfields” sub-region (highlighted in purple in Figure 1.1) contains 5 per cent of the region’s ERP and 8 per cent of its area. Key facts about the Southwest Goldfields sub-region include:

- contains township of Maryborough (7,496 persons | 2016 Census)
- largest industry is manufacturing
- comparatively lower incomes with other LGAs
- high levels of disadvantage (most disadvantaged LGA in Victoria)
- declining working age population
- poorer outcomes in early childhood development, youth engagement and health relative to other LGAs
- higher crime levels (twice the Victorian average).

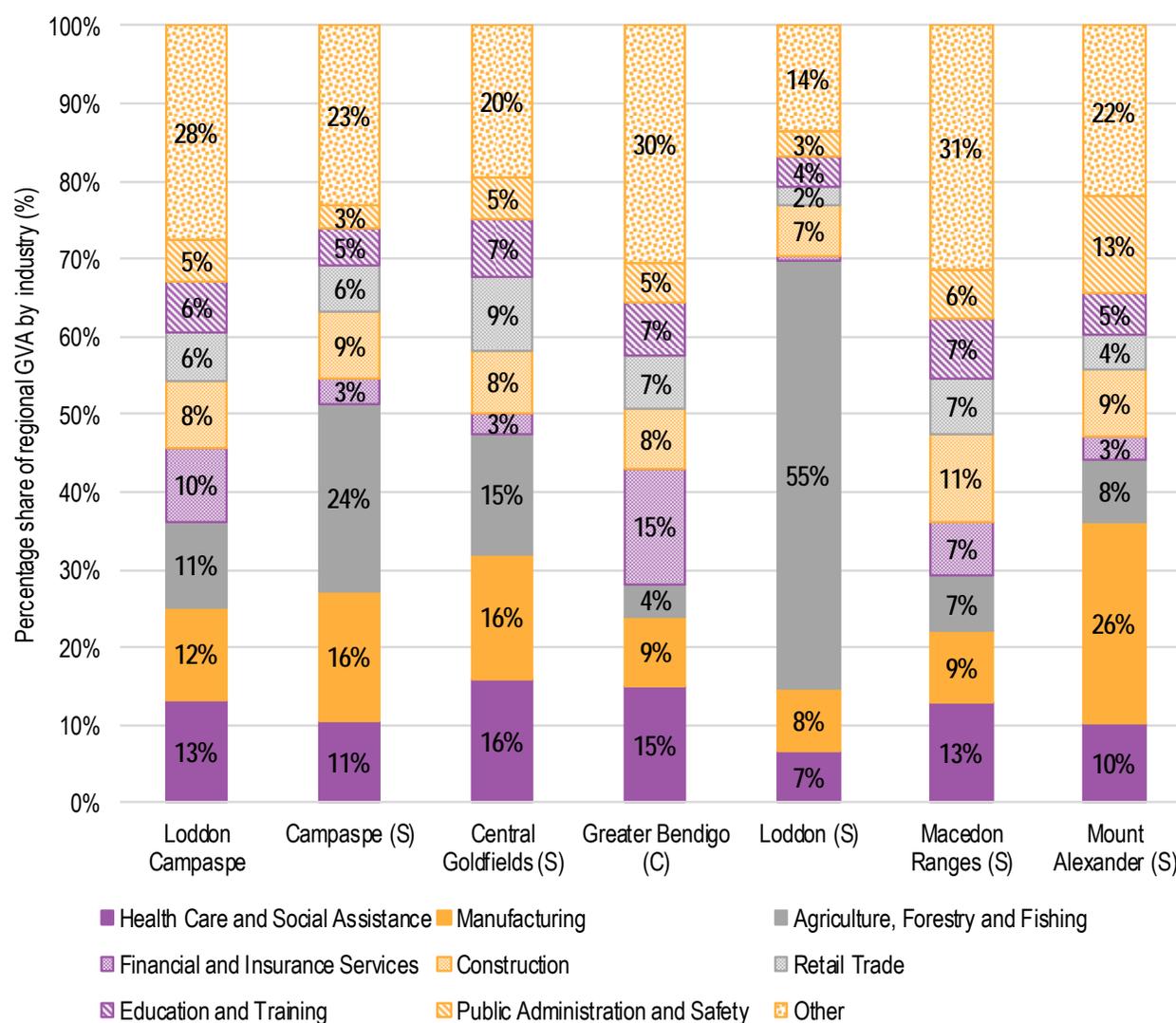
1.3 Industry composition

The Gross Regional Product (GRP) of the Loddon Campaspe region 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 Loddon Campaspe and its LGAs. The biggest industries by GVA in Loddon Campaspe are: Health Care and Social Assistance (13.2 per cent), Manufacturing (11.9 per cent), Agriculture, Forestry and Fishing (11.0 per cent), Financial and Insurance Services (9.6 per cent) and Construction (8.4 per cent). These five industries comprise half of Loddon Campaspe’s GVA.

There is noticeable variation in the composition of Loddon Campaspe’s LGAs with the key industries varying between LGAs. Some noticeable differences include the Loddon LGA having a larger Agriculture, Forestry and Fishing industry (55 per cent) relative to Loddon Campaspe as a whole. The Mount Alexander LGA has a relatively large Manufacturing sector at 26 per cent of GVA. Greater Bendigo has a relatively large Finance and Insurance Services industry at 15 per cent.

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 THE LODDON CAMPASPE, 2017-18



Note: Other includes industries with less than 5 per cent of Loddon Campaspe GVA Professional, Scientific and Technical Services; Transport, Postal and Warehousing; Accommodation and Food Services; Electricity, Gas, Water and Waste Services; Wholesale Trade; Administrative and Support Services; Rental, Hiring and Real Estate Services; Other Services; Information Media and Telecommunications; Mining; and Arts and Recreation Services.

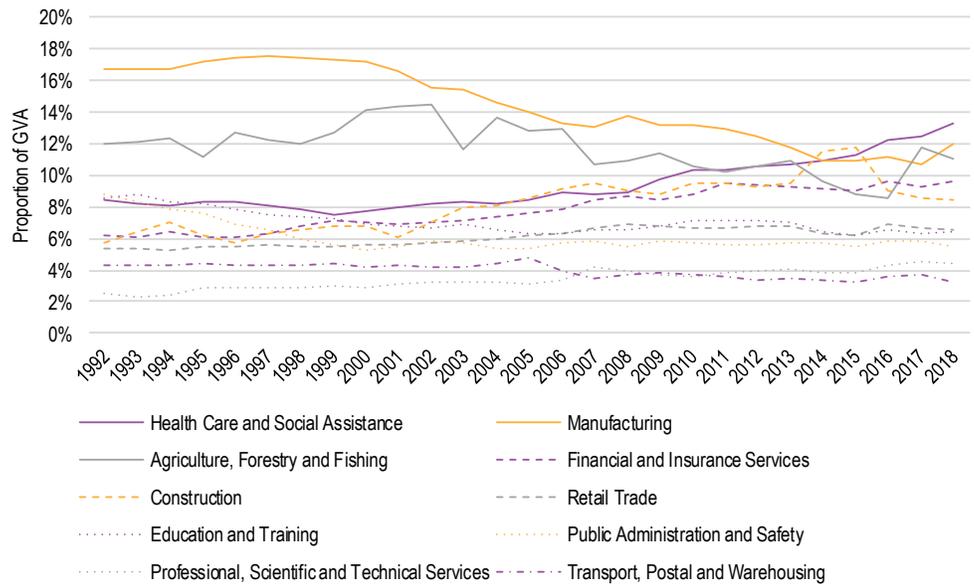
SOURCE: IV DATA 2019

Between 2007-08 and 2017-18, there was a sizable decline in the share of GVA from Manufacturing, decreasing from 13.7 per cent to 11.9 per cent (a 13 per cent reduction); and Transport, Postal and Warehousing has declined from 3.7 per cent to 3.3 per cent (a 11 per cent decline).

Since 2007-08 there has been an increase in the share of GVA from Health Care and Social Assistance, increasing from 8.9 per cent to 13.2 per cent (a 49 per cent increase). Similarly, Professional, Scientific and Technical Services' share of GVA has increased from 3.9 per cent to 4.4 per cent (a 11 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 LODDON CAMPASPE 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 Loddon Campaspe's comparative advantage is provided in this section

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 strength of an RCA approach is that it 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, for each region, 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 region's 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 an industry's strength and 'importance' to the future of the regional 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. There may be policy or other reasons to support these industries but these reasons may not be overtly economic in nature.

2.2 Loddon Campaspe (Level 1 ANZSIC analysis)

Figure 2.1 shows the CAI index and industry growth for Level 1 ANZSIC industries in Loddon Campaspe. 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 which a region most likely have comparative advantage in, and which 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 have to the region and the Victorian economy. Industries in Loddon Campaspe which appear to have comparative advantage and potential growth characteristics include Agriculture, Forestry and Fishing; Health Care and Social Assistance; Mining; and Accommodation and Food Services.

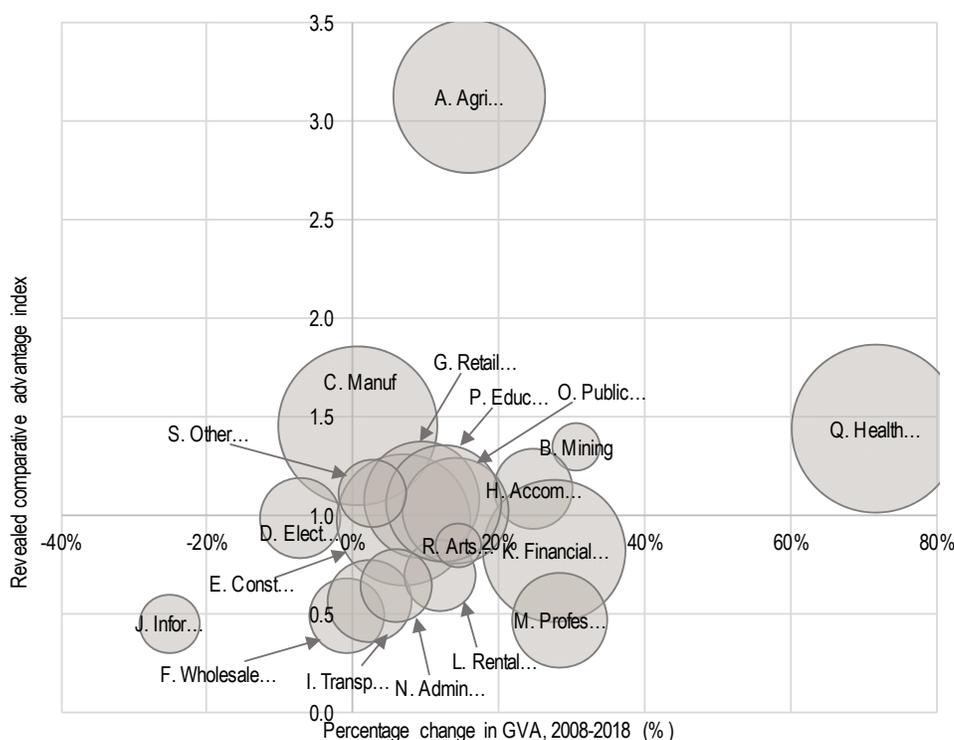
Top Left, comparative advantage with no growth: These are the industry sectors which have a comparative advantage but have been in decline over the past decade. For Loddon Campaspe, this refers to the Electricity, Gas, Water and Waste Services industry. Government policy should seek to

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 a comparative advantage. Our analysis shows that for Loddon Campaspe, these include the Financial and Insurance Services; Rental, Hiring and Real Estate Services; Professional, Scientific and Technical Services and Administrative and Support 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 is no comparative advantage or growth – namely, the Information Media and Telecommunications industry. 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 – LODDON CAMPASPE 2017-18, LEVEL 1 ANZSIC



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

Table 2.1 summarises the highest revealed comparative advantage industries (Level 1 ANZSIC) for Loddon Campaspe. 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 LODDON CAMPASPE, LEVEL 1 ANZSIC

Industry (Level 1 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
A. Agriculture, Forestry and Fishing	3.1	3.7	16%	11.0%	Top right
C. Manufacturing	1.5	1.7	1%	11.9%	Top right
Q. Health Care and Social Assistance	1.4	1.6	72%	13.2%	Top right
B. Mining	1.3	0.1	31%	1.1%	Top right
H. Accommodation and Food Services	1.1	1.1	25%	3.1%	Top right
S. Other Services	1.1	1.1	3%	2.2%	Top right
G. Retail Trade	1.1	1.3	9%	6.5%	Top right
P. Education and Training	1.1	1.2	12%	6.4%	Top right
O. Public Administration and Safety	1.0	0.9	14%	5.4%	Top right
D. Electricity, Gas, Water and Waste Services	1.0	1.1	-7%	3.1%	Bottom left

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

2.3 Loddon Campaspe LGA analysis (Level 2 ANZSIC analysis)

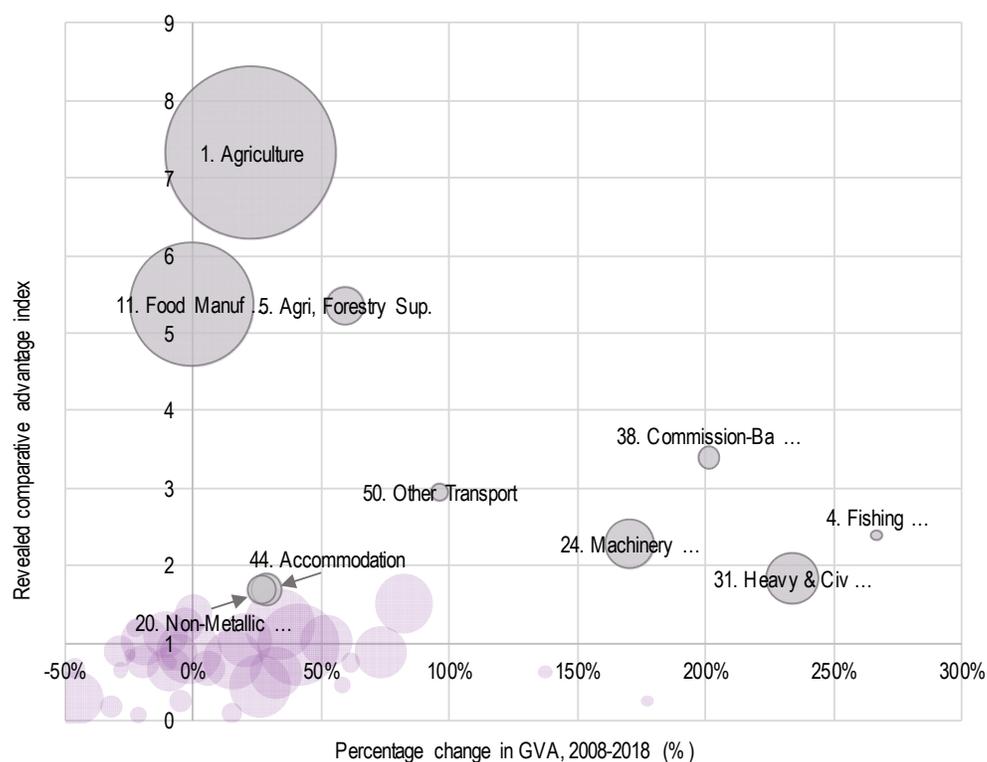
The following section includes revealed comparative advantage analysis by Level 2 ANZSIC industries for Loddon Campaspe's LGAs: Campaspe, Central Goldfields, Greater Bendigo, Loddon, Macedon Ranges and Mount Alexander.

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 Campaspe

Figure 2.2 shows RCA analysis by ANZSIC Level 2 industries for the Campaspe LGA. Key industries of interest with a high CAI in the Campaspe LGA include Agriculture; Food Product Manufacturing; Agriculture, Forestry and Fishing Support Services; Commission-Based Wholesaling; and Other Transport (see Figure 2.2).

FIGURE 2.2 COMPARATIVE ADVANTAGE INDEX FOR CAMPASPE, 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 Campaspe LGA using the Victorian CAI comparison. Important industries include Agriculture; Agriculture, Forestry and Fishing Support Services; Machinery and Equipment Manufacturing; and Heavy and Civil Engineering Construction. These industries have large CAI, undergone notable growth over the past 10 years and constitute a relatively large proportion of the LGAs GVA.

While Commission-Based Wholesaling; Other Transport; and Fishing, Hunting and Trapping have high CAI and have seen large growth, these industries represent a small proportion of Campaspe's GVA.

TABLE 2.2 TOP 10 REVEALED COMPARATIVE ADVANTAGE INDUSTRIES FOR CAMPASPE

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
1. Agriculture	7.3	9.3	22%	22.9%	Top right
11. Food Product Manufacturing	5.4	7.0	0%	11.9%	Top left
5. Agriculture, Forestry and Fishing Support Services	5.4	4.8	59%	1.2%	Top right
38. Commission-Based Wholesaling	3.4	1.9	201%	0.4%	Top right
50. Other Transport	2.9	0.9	96%	0.3%	Top right
4. Fishing, Hunting and Trapping	2.4	1.1	267%	0.1%	Top right
24. Machinery and Equipment Manufacturing	2.3	1.9	170%	1.9%	Top right

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
31. Heavy and Civil Engineering Construction	1.8	1.3	234%	2.1%	Top right
44. Accommodation	1.7	1.1	29%	0.8%	Top right
20. Non-Metallic Mineral Product Manufacturing	1.7	1.3	27%	0.7%	Top right

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

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

TABLE 2.3 TOP 10 LARGEST INDUSTRIES FOR CAMPASPE

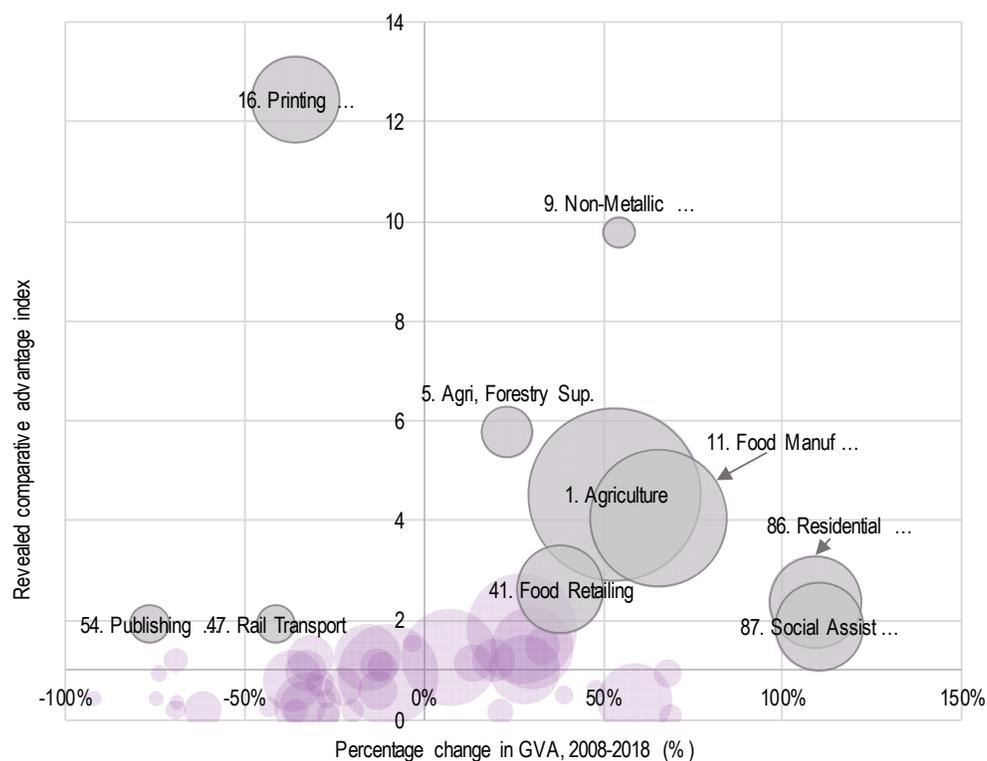
Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
1. Agriculture	7.3	9.3	22%	22.9%	Top right
11. Food Product Manufacturing	5.4	7.0	0%	11.9%	Top left
32. Construction Services	1.0	0.9	41%	5.1%	Bottom right
84. Hospitals	1.3	4.2	34%	3.9%	Top right
42. Other Store-Based Retailing	0.9	1.0	-2%	3.1%	Bottom left
69. Professional, Scientific and Technical Services	0.4	0.4	26%	2.9%	Bottom right
67. Property Operators and Real Estate Services	0.8	0.5	16%	2.7%	Bottom right
86. Residential Care Services	1.5	1.8	82%	2.6%	Top right
45. Food and Beverage Services	1.0	0.8	20%	2.3%	Top right
62. Finance	0.3	-	-46%	2.3%	Bottom left

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

2.3.2 Central Goldfields

Figure 2.3 shows RCA analysis by ANZSIC Level 2 industries for the Central Goldfields LGA. Key industries of interest with a high CAI in the Central Goldfields LGA include Printing (including the Reproduction of Recorded Media); Non-Metallic Mineral Mining and Quarrying; Agriculture, Forestry and Fishing Support Services; Agriculture; and Food Product Manufacturing (see Table 2.4).

FIGURE 2.3 COMPARATIVE ADVANTAGE INDEX FOR CENTRAL GOLDFIELDS, 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 Central Goldfields LGA using the Victorian CAI comparison. Important industries include Agriculture, Forestry and Fishing Support Services; Agriculture; Food Product Manufacturing; Food Retailing; Residential Care Services; and Social Assistance Services.

While Printing (including the Reproduction of Recorded Media) has a high CAI and is a significant proportion of GVA for Central Goldfields, this industry has had negative growth over the past 10 years.

TABLE 2.4 TOP 10 REVEALED COMPARATIVE ADVANTAGE INDUSTRIES FOR CENTRAL GOLDFIELDS

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
16. Printing (including the Reproduction of Recorded Media)	12.5	12.0	-36%	3.6%	Top left
9. Non-Metallic Mineral Mining and Quarrying	9.8	2.4	54%	0.5%	Top right
5. Agriculture, Forestry and Fishing Support Services	5.8	5.2	23%	1.3%	Top right
1. Agriculture	4.5	5.7	53%	14.1%	Top right
11. Food Product Manufacturing	4.0	5.3	65%	9.0%	Top right
41. Food Retailing	2.6	1.9	38%	3.7%	Top right
86. Residential Care Services	2.4	2.9	109%	4.1%	Top right

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
54. Publishing (except Internet and Music Publishing)	1.9	2.2	-76%	0.7%	Top left
47. Rail Transport	1.9	1.2	-41%	0.7%	Top left
87. Social Assistance Services	1.9	2.7	110%	3.8%	Top right

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

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

TABLE 2.5 TOP 10 LARGEST INDUSTRIES FOR CENTRAL GOLDFIELDS

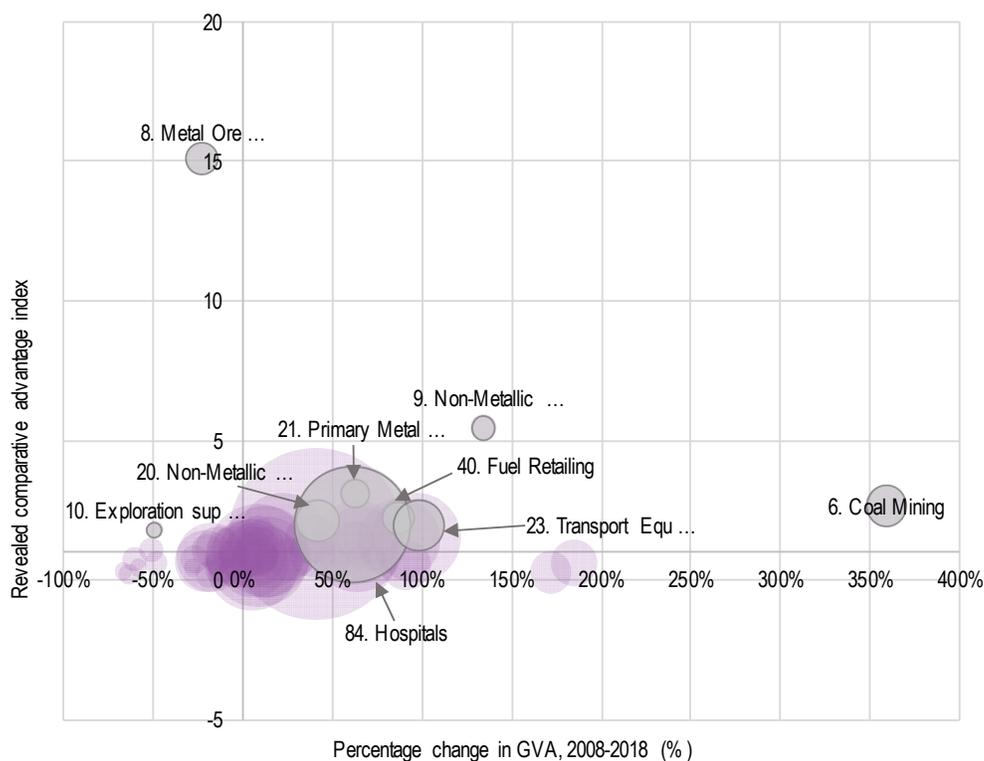
Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
1. Agriculture	4.5	5.7	53%	14.1%	Top right
11. Food Product Manufacturing	4.0	5.3	65%	9.0%	Top right
84. Hospitals	1.8	6.2	27%	5.7%	Top right
32. Construction Services	0.9	0.8	-10%	4.8%	Bottom left
42. Other Store-Based Retailing	1.3	1.4	7%	4.4%	Top right
86. Residential Care Services	2.4	2.9	109%	4.1%	Top right
87. Social Assistance Services	1.9	2.7	110%	3.8%	Top right
41. Food Retailing	2.6	1.9	38%	3.7%	Top right
16. Printing (including the Reproduction of Recorded Media)	12.5	12.0	-36%	3.6%	Top left
45. Food and Beverage Services	1.4	1.2	30%	3.2%	Top right

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

2.3.3 Greater Bendigo

Figure 2.4 shows revealed comparative advantage analysis by Level 2 ANZSIC industries for the Greater Bendigo LGA. Key industries of interest with a high CAI in the Greater Bendigo LGA include Metal Ore Mining; Non-Metallic Mineral Mining and Quarrying; Fishing, Hunting and Trapping; Primary Metal and Metal Product Manufacturing; and Coal Mining (See Table 2.6).

FIGURE 2.4 COMPARATIVE ADVANTAGE INDEX FOR GREATER BENDIGO, 2017-18, LEVEL 2 ANZSIC



Note: This includes the revealed comparative advantage relative to the Victorian economy. The chart excludes Fishing, Hunting and Trapping to focus the chart on the moderate growth industries.

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

Table 2.6 summarises the highest comparative advantage industries (Level 2 ANZSIC) for Greater Bendigo LGA using the Victorian CAI comparison. Important industries include Hospitals and Transport Equipment 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. The large growth in fishing, hunting and trapping is the result of growth in an industry which was very small in 2008, and as such has seen a large percentage increase.

The Greater Bendigo LGA has many industries with a high CAI and substantial growth but remain a small proportion of the LGAs GVA. These industries include Non-Metallic Mineral Mining and Quarrying; Fishing, Hunting and Trapping; Primary Metal and Metal Product Manufacturing; Coal Mining; and Fuel Retailing.

TABLE 2.6 TOP 10 REVEALED COMPARATIVE ADVANTAGE INDUSTRIES FOR GREATER BENDIGO

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
8. Metal Ore Mining	15.1	0.1	-22%	0.5%	Top left
9. Non-Metallic Mineral Mining and Quarrying	5.5	1.5	134%	0.3%	Top right
4. Fishing, Hunting and Trapping	3.9	2.0	8928%*	0.2%	Top right
21. Primary Metal and Metal Product Manufacturing	3.1	0.6	63%	0.4%	Top right
6. Coal Mining	2.6	0.3	359%	0.8%	Top right

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
40. Fuel Retailing	2.3	2.3	86%	0.5%	Top right
20. Non-Metallic Mineral Product Manufacturing	2.1	1.8	42%	0.9%	Top right
84. Hospitals	2.0	7.6	62%	6.1%	Top right
23. Transport Equipment Manufacturing	2.0	2.0	98%	1.2%	Top right
10. Exploration and Other Mining Support Services	1.8	0.4	-49%	0.1%	Top left

Note: *The large growth in fishing, hunting and trapping is the result of growth in an industry which was very small in 2008, and as such has seen a large percentage increase.

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

Table 2.7 summarises the largest industries (Level 2 ANZSIC) for the Greater Bendigo LGA. Finance is the largest industry in Greater Bendigo, accounting for 13.2 per cent of the LGAs GVA. This is uncommon for a regional centre outside of Melbourne and an indication of comparative advantage.

TABLE 2.7 TOP 10 LARGEST INDUSTRIES FOR GREATER BENDIGO

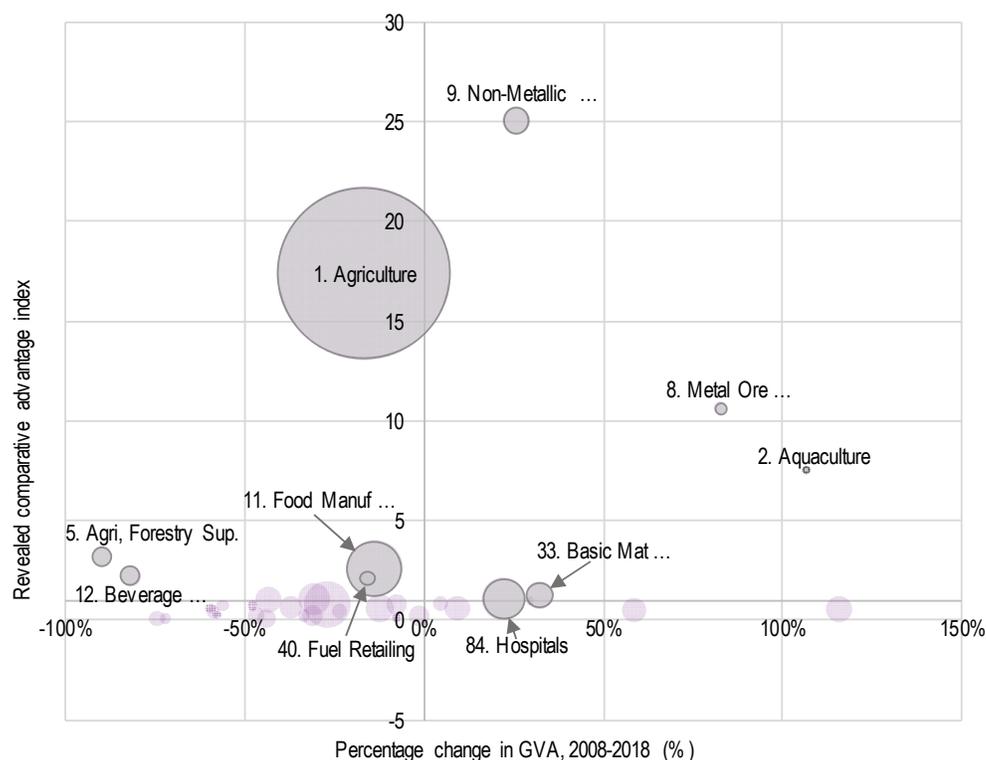
Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10-year growth	% of LGA GVA	Quadrant
62. Finance	1.7	-	41%	13.2%	Top right
84. Hospitals	2.0	7.6	62%	6.1%	Top right
32. Construction Services	0.9	0.9	8%	4.6%	Bottom right
1. Agriculture	1.2	1.7	64%	3.8%	Top right
69. Professional, Scientific and Technical Services (Except Computer System Design and Related Services)	0.6	0.5	5%	3.7%	Bottom right
42. Other Store-Based Retailing	1.0	1.3	13%	3.6%	Top right
85. Medical and Other Health Care Services	1.5	1.2	97%	3.5%	Top right
11. Food Product Manufacturing	1.6	2.3	22%	3.4%	Top right
87. Social Assistance Services	1.5	2.4	88%	3.0%	Top right
86. Residential Care Services	1.3	1.9	66%	2.3%	Top right

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

2.3.4 Loddon

Figure 2.5 shows revealed comparative advantage analysis by Level 2 ANZSIC industries for the Loddon LGA. Key industries of interest with a high CAI in the Loddon LGA include Non-Metallic Mineral Mining and Quarrying; Agriculture; Metal Ore Mining; Aquaculture; and Agriculture, Forestry and Fishing Support Services (see Table 2.8).

FIGURE 2.5 COMPARATIVE ADVANTAGE INDEX FOR LODDON, 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 Loddon LGA using the Victorian CAI comparison. Important industries include Non-Metallic Mineral Mining and Quarrying; Basic Material Wholesaling; and Hospitals which each have a large CAI, undergone notable growth over the past 10 years and constitute a relatively large proportion of Loddon's GVA.

Metal Ore Mining and Aquaculture have large CAI and have seen significant growth but remain a small proportion of Loddon's GVA. While Agriculture and Food Product Manufacturing has a very large CAI and constitute a relatively large proportion of Loddon's GVA, these industries have been in decline for the past 10 years.

TABLE 2.8 TOP 10 REVEALED COMPARATIVE ADVANTAGE INDUSTRIES FOR LODDON

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10-year growth	% of LGA GVA	Quadrant
9. Non-Metallic Mineral Mining and Quarrying	25.1	6.0	26%	1.3%	Top right
1. Agriculture	17.4	21.6	-17%	54.4%	Top left
8. Metal Ore Mining	10.6	0.1	83%	0.3%	Top right
2. Aquaculture	7.5	2.6	107%	0.1%	Top right
5. Agriculture, Forestry and Fishing Support Services	3.2	2.8	-90%	0.7%	Top left
11. Food Product Manufacturing	2.6	3.3	-14%	5.8%	Top left
12. Beverage and Tobacco Product Manufacturing	2.2	1.7	-82%	0.8%	Top left

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10-year growth	% of LGA GVA	Quadrant
40. Fuel Retailing	2.1	1.9	-16%	0.5%	Top left
33. Basic Material Wholesaling	1.3	1.2	32%	1.3%	Top right
84. Hospitals	1.1	3.5	22%	3.3%	Top right

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

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

TABLE 2.9 TOP 10 LARGEST INDUSTRIES FOR LODDON

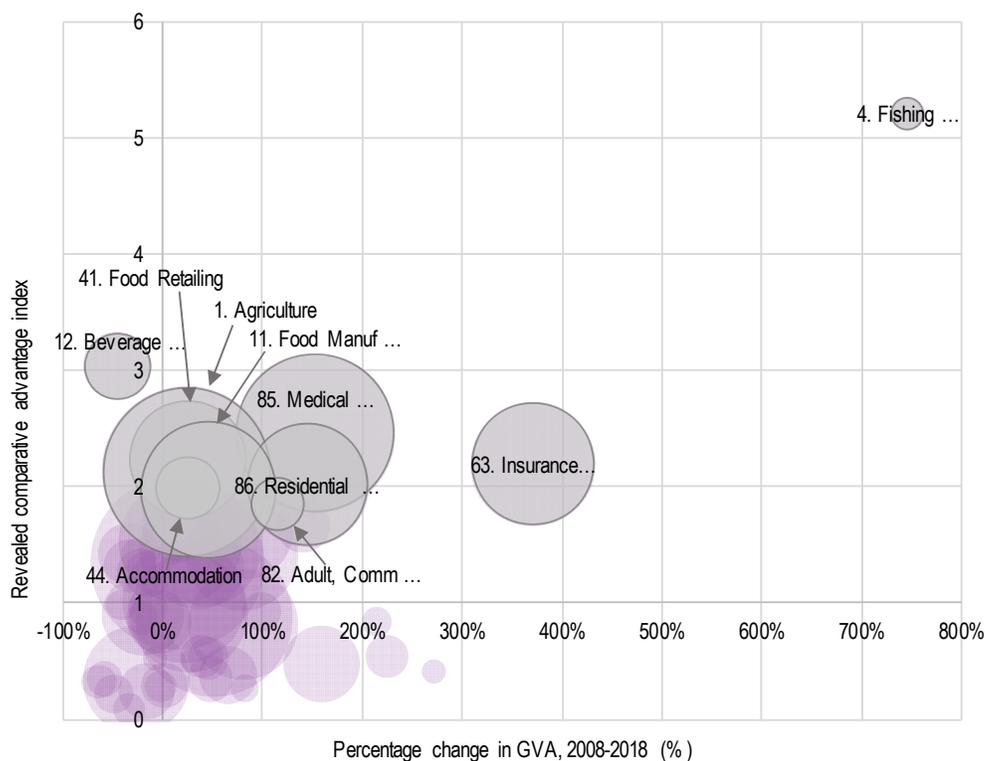
Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10-year growth	% of LGA GVA	Quadrant
1. Agriculture	17.4	21.6	-17%	54.4%	Top left
11. Food Product Manufacturing	2.6	3.3	-14%	5.8%	Top left
32. Construction Services	0.8	0.7	-27%	3.9%	Bottom left
84. Hospitals	1.1	3.5	22%	3.3%	Top right
46. Road Transport	1.1	0.9	-31%	1.8%	Top left
30. Building Construction	0.6	0.6	-13%	1.4%	Bottom left
33. Basic Material Wholesaling	1.3	1.2	32%	1.3%	Top right
9. Non-Metallic Mineral Mining and Quarrying	25.1	6.0	26%	1.3%	Top right
85. Medical and Other Health Care Services	0.5	0.4	116%	1.3%	Bottom right
31. Heavy and Civil Engineering Construction	1.0	0.7	-43%	1.2%	Top left

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

2.3.5 Macedon Ranges

Figure 2.6 shows revealed comparative advantage analysis by Level 2 ANZSIC industries for the Macedon Ranges LGA. Key industries of interest with a high CAI in the Macedon Ranges LGA include Fishing, Hunting and Trapping; Beverage and Tobacco Product Manufacturing; Medical and Other Health Care Services; Food Retailing; and Insurance and Superannuation Funds (see Table 2.10).

FIGURE 2.6 COMPARATIVE ADVANTAGE INDEX FOR MACEDON RANGES, 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 Macedon Ranges LGA using the Victorian CAI comparison. Important industries include Medical and Other Health Care Services; Food Retailing; Insurance and Superannuation Funds; 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 Macedon Ranges' GVA.

TABLE 2.10 TOP 10 REVEALED COMPARATIVE ADVANTAGE INDUSTRIES FOR MACEDON RANGES

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10-year growth	% of LGA GVA	Quadrant
4. Fishing, Hunting and Trapping	5.2	2.4	746%	0.3%	Top right
12. Beverage and Tobacco Product Manufacturing	3.0	2.5	-46%	1.1%	Top left
85. Medical and Other Health Care Services	2.5	1.8	153%	5.8%	Top right
41. Food Retailing	2.2	1.7	25%	3.2%	Top right
63. Insurance and Superannuation Funds	2.2	-	371%	3.5%	Top right
1. Agriculture	2.1	2.8	24%	6.7%	Top right
86. Residential Care Services	2.0	2.6	145%	3.5%	Top right
44. Accommodation	2.0	1.4	25%	1.0%	Top right

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10-year growth	% of LGA GVA	Quadrant
11. Food Product Manufacturing	2.0	2.7	46%	4.4%	Top right
82. Adult, Community and Other Education	1.9	2.3	115%	0.7%	Top right

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

Table 2.11 summarises the largest industries (Level 2 ANZSIC) for the Macedon Ranges LGA.

TABLE 2.11 TOP 10 LARGEST INDUSTRIES FOR MACEDON RANGES

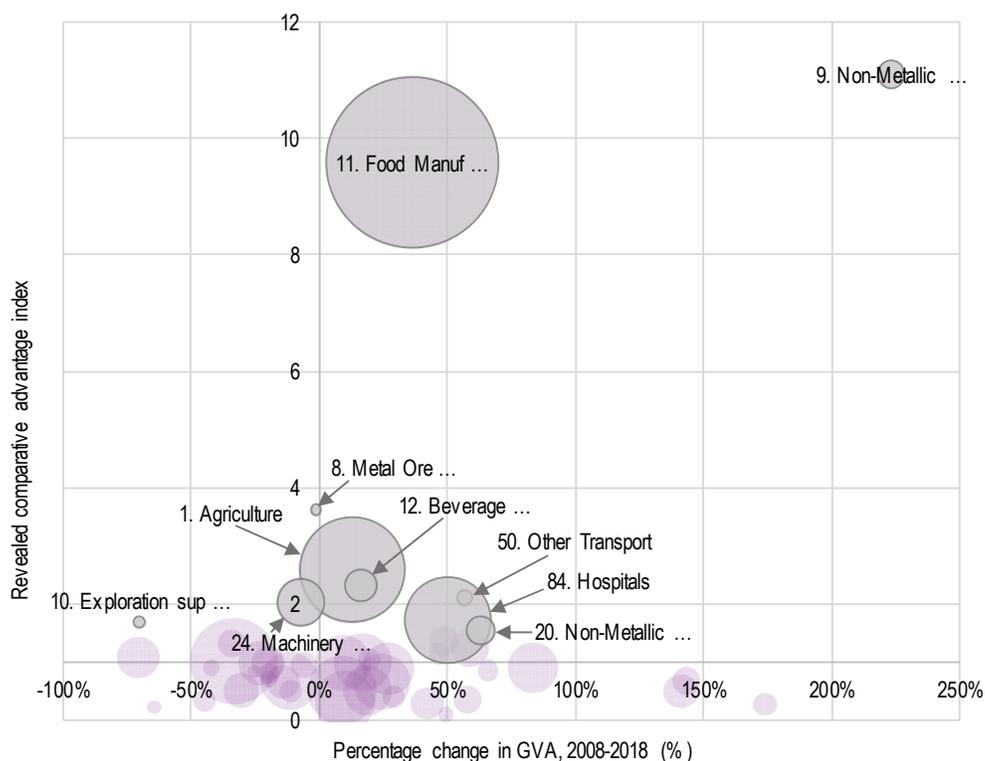
Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
32. Construction Services	1.3	1.2	14%	6.9%	Top right
1. Agriculture	2.1	2.8	24%	6.7%	Top right
85. Medical and Other Health Care Services	2.5	1.8	153%	5.8%	Top right
69. Professional, Scientific and Technical Services (Except Computer System Design and Related Services)	0.9	0.8	51%	5.6%	Bottom right
11. Food Product Manufacturing	2.0	2.7	46%	4.4%	Top right
63. Insurance and Superannuation Funds	2.2	-	371%	3.5%	Top right
67. Property Operators and Real Estate Services	1.0	0.6	22%	3.5%	Top right
86. Residential Care Services	2.0	2.6	145%	3.5%	Top right
30. Building Construction	1.5	1.5	18%	3.4%	Top right
45. Food and Beverage Services	1.5	1.2	37%	3.3%	Top right

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

2.3.6 Mount Alexander

Figure 2.7 shows revealed comparative advantage analysis by ANZSIC level 2 industries for the Mount Alexander LGA. Key industries of interest with a high CAI in the Mount Alexander LGA include Non-Metallic Mineral Mining and Quarrying; Food Product Manufacturing; Metal Ore Mining; Agriculture; and Beverage and Tobacco Product Manufacturing (see Table 2.12).

FIGURE 2.7 COMPARATIVE ADVANTAGE INDEX FOR MOUNT ALEXANDER, 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 Mount Alexander LGA using the Victorian CAI comparison. Important industries include Food Product Manufacturing; Agriculture; and Hospitals which each have a large CAI, undergone notable growth over the past 10 years and constitute a relatively large proportion of Mount Alexander's GVA.

Industries such as Non-Metallic Mineral Mining and Quarrying; Beverage and Tobacco Product Manufacturing; and Other Transport have large CAI and have seen significant growth but remain a small proportion of Mount Alexander's GVA.

TABLE 2.12 TOP 10 REVEALED COMPARATIVE ADVANTAGE INDUSTRIES FOR MOUNT ALEXANDER

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10-year growth	% of LGA GVA	Quadrant
9. Non-Metallic Mineral Mining and Quarrying	11.1	2.7	223%	0.6%	Top right
11. Food Product Manufacturing	9.6	12.5	36%	21.3%	Top right
8. Metal Ore Mining	3.6	0.0	-1%	0.1%	Top left
1. Agriculture	2.6	3.3	13%	8.0%	Top right
12. Beverage and Tobacco Product Manufacturing	2.3	1.8	17%	0.8%	Top right
50. Other Transport	2.1	0.6	57%	0.2%	Top right

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10-year growth	% of LGA GVA	Quadrant
24. Machinery and Equipment Manufacturing	2.0	1.7	-7%	1.7%	Top left
84. Hospitals	1.7	5.8	50%	5.3%	Top right
10. Exploration and Other Mining Support Services	1.7	0.3	-70%	0.1%	Top left
20. Non-Metallic Mineral Product Manufacturing	1.5	1.1	63%	0.6%	Top right

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

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

TABLE 2.13 TOP 10 LARGEST INDUSTRIES FOR MOUNT ALEXANDER

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10-year growth	% of LGA GVA	Quadrant
11. Food Product Manufacturing	9.6	12.5	36%	21.3%	Top right
1. Agriculture	2.6	3.3	13%	8.0%	Top right
84. Hospitals	1.7	5.8	50%	5.3%	Top right
32. Construction Services	1.0	0.9	-33%	5.2%	Top left
69. Professional, Scientific and Technical Services (Except Computer System Design and Related Services)	0.5	0.4	9%	3.4%	Bottom right
62. Finance	0.3	-	10%	2.6%	Bottom right
42. Other Store-Based Retailing	0.7	0.7	-12%	2.4%	Bottom left
85. Medical and Other Health Care Services	1.0	0.7	17%	2.3%	Bottom right
67. Property Operators and Real Estate Services	0.7	0.4	24%	2.3%	Bottom right
30. Building Construction	1.0	0.9	9%	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 Loddon Campaspe, using the Victorian CAI comparison.

The economic performance of Loddon Campaspe is highly dependent on the food processing and agricultural industries, which varies across mainly rural LGAs. In the more densely populated regional centre of Bendigo and periphery Macedon Ranges, services industries such as finance, professional services and construction are more important.

Loddon Campaspe produces a diverse mix of commodity, high value and niche products for domestic and export markets. Lamb and wool, poultry (boiler and egg), wheat, pigs and canola are all major products. The main agricultural activities in the region include mixed farming in the Central Goldfields and Mount Alexander; irrigated dairy, large scale cropping and grazing in Campaspe; and vineyards, intensive agriculture and other niche sectors spread across the region. Due to the strengths of the region's productive soils, climate and proximity to processing and markets, Loddon Campaspe demonstrates strong comparative advantages in agriculture across the following LGAs: Loddon (17.4 Victorian CAI, negative 17 per cent growth and 54 per cent GVA), Campaspe (7.2 Victorian CAI,

22 per cent growth and 23 per cent GVA) and Central Goldfields (4.5 Victorian CAI, 53 per cent growth and 14 per cent).

The strong performance of agricultural industries is supported by the cluster of meat, food and beverage processing industries in Loddon Campaspe. Positioned near Bendigo, the mix of agricultural industries creates an agricultural processing and services hub for central Victoria. Food Product Manufacturing demonstrates a moderate comparative advantage in Mount Alexander (9.6 Victorian CAI, minus 36 per cent growth and 21 per cent GVA), Campaspe (5.4 Victorian CAI, 0 per cent growth and 12 per cent GVA) and Central Goldfields (4 Victorian CAI, 65 per cent growth and 9 per cent GVA).

It should be noted that while a number of LGAs have strong comparative advantages for Non-Metallic Mineral Mining and Quarrying (Loddon, Mount Alexander, Central Goldfields, Central Bendigo) and Metal Ore Mining (Greater Bendigo, Loddon and Mount Alexander), none of these industries represent more than one per cent of the respective LGAs' GVA. This may indicate that renewed entry of these industries to the local economy could be a source of future growth, which is highlighted by the realisation of larger gold reserves at the Fosterville Gold Mine and potential reserves for the region.

TABLE 2.14 TOP 20 HIGHEST REVEALED COMPARATIVE ADVANTAGE BY LGA, LODDON CAMPASPE

Industry (Level 2 ANZSIC)	LGA	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
9. Non-Metallic Mineral Mining and Quarrying (appears: 4 times)	Loddon (S)	25.1	6.0	26%	1%	Top right
1. Agriculture (appears: 3 times)	Loddon (S)	17.4	21.6	-17%	54%	Top left
8. Metal Ore Mining (appears: 3 times)	Greater Bendigo (C)	15.1	0.1	-22%	0%	Top left
16. Printing (including the Reproduction of Recorded Media)	Central Goldfields (S)	12.5	12.0	-36%	4%	Top left
9. Non-Metallic Mineral Mining and Quarrying (appears: 4 times)	Mount Alexander (S)	11.1	2.7	223%	1%	Top right
8. Metal Ore Mining (appears: 3 times)	Loddon (S)	10.6	0.1	83%	0%	Top right
9. Non-Metallic Mineral Mining and Quarrying (appears: 4 times)	Central Goldfields (S)	9.8	2.4	54%	1%	Top right
11. Food Product Manufacturing (appears: 3 times)	Mount Alexander (S)	9.6	12.5	36%	21%	Top right
2. Aquaculture	Loddon (S)	7.5	2.6	107%	0%	Top right
1. Agriculture (appears: 3 times)	Campaspe (S)	7.3	9.3	22%	23%	Top right
5. Agriculture, Forestry and Fishing Support Services (appears: 2 times)	Central Goldfields (S)	5.8	5.2	23%	1%	Top right
9. Non-Metallic Mineral Mining and Quarrying (appears: 4 times)	Greater Bendigo (C)	5.5	1.5	134%	0%	Top right
11. Food Product Manufacturing (appears: 3 times)	Campaspe (S)	5.4	7.0	0%	12%	Top left
5. Agriculture, Forestry and Fishing Support Services (appears: 2 times)	Campaspe (S)	5.4	4.8	59%	1%	Top right
4. Fishing, Hunting and Trapping (appears: 2 times)	Macedon Ranges (S)	5.2	2.4	746%	0%	Top right
1. Agriculture (appears: 3 times)	Central Goldfields (S)	4.5	5.7	53%	14%	Top right
11. Food Product Manufacturing (appears: 3 times)	Central Goldfields (S)	4.0	5.3	65%	9%	Top right

Industry (Level 2 ANZSIC)	LGA	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
4. Fishing, Hunting and Trapping (appears: 2 times)	Greater Bendigo (C)	3.9	2.0	8928%	0%	Top right
8. Metal Ore Mining (appears: 3 times)	Mount Alexander (S)	3.6	0.0	-1%	0%	Top left
38. Commission-Based Wholesaling	Campaspe (S)	3.4	1.9	201%	0%	Top right

Revealed industries that appear in more than one LGA are identified "appears: x times.". LGAs are classified as follows: (C) Cities, (S) Shires, (RC) Rural Cities.

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

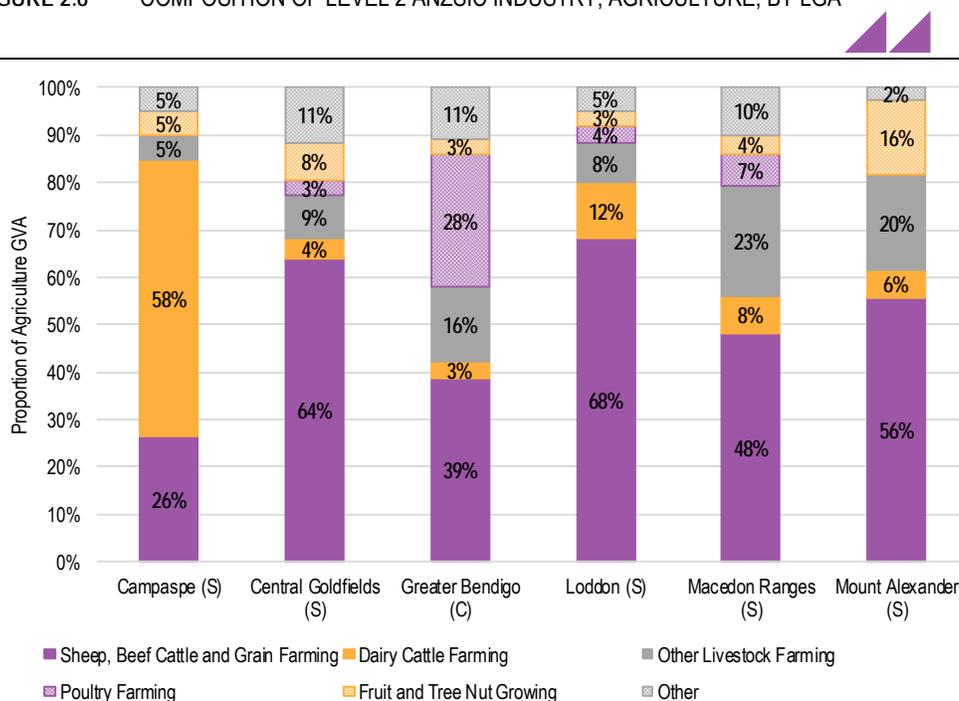
2.4.1 Agricultural production by sector

The Level 2 ANZSIC industry, Agriculture, forms a large component of GVA for the majority of LGAs in Loddon Campaspe. 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 Loddon Campaspe, Agriculture is primarily made up of Sheep, Beef Cattle and Grain Farming, with selected LGAs having Dairy Cattle Farming; Poultry Farming; and Other Livestock Farming.

Each LGA of Loddon Campaspe has sizable Sheep, Beef Cattle and Grain Farming industries. Campaspe has a large Dairy Cattle Farming industry (58 per cent) and Greater Bendigo has significant Poultry Farming activity (28 per cent).

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



Note: Other includes: Mushroom and Vegetable Growing; Nursery and Floriculture Production; Other Crop Growing; and Deer 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 Loddon Campaspe. The analysis follows the process outlined in the 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 an assessment of several factors.

Firstly, revealed industries identified in Table 2.14 are assessed for their RCA comparison to Victoria, the contribution to an LGA's GVA and consideration of the past decade's performance. This approach identifies the most important industries to the Loddon Campaspe 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 Loddon Campaspe's case, opportunities have been identified in food product manufacturing, agricultural production and tourism. Second, due to the categorisation of industries in the ANZSIC codes, tourism does not have a demonstrated RCA. However, this sector demonstrates many economic development opportunities for Loddon Campaspe.

A further assessment of the priority industries considers service industries that may contribute to the performance of a primary or secondary industry – for Agriculture, this may include Agriculture, Forestry and Fisheries Services Support.

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, 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 Loddon Campaspe 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 LODDON CAMPASPE

Category	Strengths	Weaknesses	Opportunities	Threats
Cross sector	<ul style="list-style-type: none"> Modern diversified economy (Bendigo) Strong population growth Higher education facilities (TAFEs, Bendigo campuses of Latrobe University, Monash University) 	<ul style="list-style-type: none"> Mobile and digital connectivity is inadequate and constrains productivity and business competitiveness <p>Population</p> <ul style="list-style-type: none"> Ageing population and decline in rural areas Managing development in larger centres due to population growth <p>Industry</p> <ul style="list-style-type: none"> Skills shortages in highly skilled professions requiring tertiary qualifications <p>Education</p> <ul style="list-style-type: none"> High-school completion rates below state average 	<ul style="list-style-type: none"> Opportunities exist to develop digital connectivity and telecommunication infrastructure along transport corridors between Melbourne and Bendigo. 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 Opportunities exist to further develop train line infrastructure to increase speeds, more frequent services and station renewal to support private sector developments (Bendigo) Improve digital connectivity through the Connecting Regional Communities Program and Mobile Blackspots Program Opportunities for further development in Bendigo Airport given commencement of domestic flights to Sydney Opportunities to improve intra-regional access to higher education facilities (both physical and digital) 	<ul style="list-style-type: none"> Climate change presents numerous risks to the region, inc. increased incidence of bushfire, severity of storm events and floods and reduced water availability. Climate change risk: water infrastructure vulnerable to fire and flood
Agriculture, Forestry and Fisheries	<ul style="list-style-type: none"> Established food processing industry (meat, dairy, horticulture, bakery goods and wine) Mixed farming in south of region (Central Goldfields and Mount Alexander) Irrigated dairy, large scale cropping and grazing (Campaspe) Wineries Highly educated and trained workforce (+30 per cent) Access to research, development and extension (RD&E) capability including Kangan Institute Food and Fibre Centre of Excellence, La Trobe University Bendigo, MSD Animal Health (animal vaccine business) Strategic transport and logistics infrastructure connecting region to Melbourne and export markets <ul style="list-style-type: none"> Two major rail corridors (upgrade to Murray Basin Rail) and seven highway corridors Secure water supply and infrastructure (Loddon, Campaspe and Avoca Rivers <ul style="list-style-type: none"> Upgrade irrigation infrastructure (\$2B), southern areas access to Southwest Loddon Pipeline for stock and domestic water supply Recognised gourmet food and wine region, with significant tourist population Heathcote region 70 vineyards Harcourt region (Vic largest producer apples) <ul style="list-style-type: none"> Recognition for cider production <p>Dairy</p> <ul style="list-style-type: none"> Most valuable agriculture sector, clustered in North (\$265m) 	<ul style="list-style-type: none"> Labour shortages High input costs (e.g. labour, electricity, water, gas) High dependency on continuous and secure water supply leaves the sector vulnerable during times of drought <p>Environmental</p> <ul style="list-style-type: none"> Natural waterways are in poor condition due to land clearing and agriculture Soil erosion and salinity in farming areas 	<ul style="list-style-type: none"> Opportunities exist to increase technology adoption including IoT and remote sensing technologies Opportunities exist to increase processing of grain produced locally and regionally, such as pasta, breads and cereals, especially organic products and quality animal feed grains. This builds on the region's strength of access to quality grain and proximity to intensive livestock businesses. For example, development of new egg operation at Lake Marmal or chicken production operation at Rochester Opportunities to market value-added processed grains into the local gourmet, organic and agritourist market Opportunities exist in production of value-added products such as marinated meats, pre-prepared meals and convenience products Opportunities exist to enhance the local agritourism / gourmet food sector linkages between wine and cider processors, producers and service provision sector. This can capture the increased demand for cider beverages domestically Opportunities exist to increase agricultural production-based access to South West Loddon Pipeline and potential funding of Mitiamo pipeline supply domestic and stock water <p>Intensive agriculture</p> <ul style="list-style-type: none"> Opportunities exist to further develop intensive farms in the North West of the region, where appropriate distances for biosecurity and amenity protection <ul style="list-style-type: none"> These industries need access to water, electricity infrastructure and proximity to processing facilities and markets <p>Orchards, vineyards, groves and plantations</p> <ul style="list-style-type: none"> Opportunities to leverage industry clusters using agritourism and events (food trails and farm gate / cellar doors) <p>Campaspe</p>	<ul style="list-style-type: none"> More heatwaves and extreme events (damage/costs to infrastructure) Less rainfall (potential costs to farming and infrastructure) 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 (constraint on economic growth, negative impact on living standards) Climate change potential impact around increased incidence of algal blooms in waterways and irrigation channels Land-use conflict which may reduce availability of productive agricultural lands

Category	Strengths	Weaknesses	Opportunities	Threats
	<p>Sheep meat</p> <ul style="list-style-type: none"> – Significant industry (\$149m) <p>Beef</p> <ul style="list-style-type: none"> – Significant growth (47 per cent) production of beef <p>Intensive agriculture</p> <ul style="list-style-type: none"> – Boiler farms, egg production and piggeries <p>Orchards, vineyards, groves and plantations</p> <ul style="list-style-type: none"> – Highly productive and emerging boutique industries including vineyards, olive groves and orchards – Complementary businesses: farm gate sales, wine tasting and events (food and wine trails) – Vertically integrated olive production processing to make extra virgin olive oil (Boort) <p>Equine industry</p> <ul style="list-style-type: none"> – Prominent in Macedon Ranges – Significant service support industries (vet, farriers, suppliers, manufacturers etc.) and linkages to recreational pursuits e.g. clubs 		<ul style="list-style-type: none"> – Opportunities exist for local farm businesses to diversify into non-traditional businesses such as protected cropping. This could leverage access to Murray Goulburn irrigation network – Opportunity to develop food manufacturing leveraging tourism brand of Echuca Moama (boutique, specialised and gourmet food space) 	
Manufacturing	<ul style="list-style-type: none"> – Developed food and beverage, metals and engineering, transport manufacture, building products, and textiles and clothing. – Defence equipment manufacturing and engineering is strong sub-sector <p>Food product</p> <ul style="list-style-type: none"> – Main types: meat, fruit, dairy and vegetables. Poultry and egg production and processing expanding (Northern Poultry Cluster) – Location: Bendigo, Echuca and Castlemaine – Bendigo: great integration between meat (poultry and pigs) beverage manufacturing (grapes, apples and pear growing) and local producers <ul style="list-style-type: none"> – Hazeldene’s Chicken Farms (vertically integrated business) located at Lockwood – Centre of vegetable and fruit product manufacturing (Echuca) 	<ul style="list-style-type: none"> – Exposure to volatility in commodity markets – International competition – Skills shortages and labour supply – Limitations on enabling infrastructure provision: <ul style="list-style-type: none"> - Water processing limitation and investment capacities of the water authorities is also limiting growth of industry (e.g. meat processing). - Gas supply and pricing issues are impacting on the viability of certain businesses/industry (e.g. food processors). 	<ul style="list-style-type: none"> – Opportunities to explore regional engineering and advanced manufacturing industry development – Opportunities exist to strengthen supply chain mechanisation and technology to enhance agricultural and manufacturing sectors – Opportunities to transform the sector in the future (smart manufacturing) using robotics, AI and IoT. <p>Food</p> <ul style="list-style-type: none"> – Opportunities exist to further support the manufacturing sector through supply chain development, making linkages between processors in south and production in the North <p>Defence manufacturing</p> <ul style="list-style-type: none"> – Opportunities exist to develop local defence manufacturing sector centred around Thales Australia, Australian Defence Force Apparel and Australian Geospatial Intelligence (AGO) 	<ul style="list-style-type: none"> – Any reduction in the scale or viability of major export-oriented manufacturing businesses due to macroeconomic conditions

Category	Strengths	Weaknesses	Opportunities	Threats
Energy and Mining	<p>Gold</p> <ul style="list-style-type: none"> – Significant gold deposits – Gold mining is supported by quarrying services and hydraulic manufacturer service sectors <p>Renewable energy</p> <ul style="list-style-type: none"> – Availability of solar and bioenergy resources 	<ul style="list-style-type: none"> – Exposure to volatility in commodity markets – Emission intensity nature of mining and resources sectors – Energy: Link to the National Electricity Market 	<p>Gold</p> <ul style="list-style-type: none"> – Opportunities exist to develop significant gold reserves in the Fosterville Mine and across the region <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 – AEMO's recommendation of a planned upgrade to the transmission network in Victoria's west (AEMO 2019) will improve transmission network capacity to accommodate growth in new renewable generation in Western Victoria – Renewable energy increasingly becoming cost competitive compared to traditional energy sources – Opportunities exist to develop renewable energy industries such as solar and bioenergy/ biofuels – Opportunity for develop pumped hydro in the Bendigo region using existing mining infrastructure 	<ul style="list-style-type: none"> – Any reduction in the scale or viability of major export-oriented manufacturing businesses due to macroeconomic conditions
Finance	<ul style="list-style-type: none"> – The finance and insurance services sector are one of the fastest growing employment sectors in the region 	<ul style="list-style-type: none"> – Access to fast reliable internet connections 	<ul style="list-style-type: none"> – To provide the industry with access to digital infrastructure that provides connectivity to customers and markets outside the region 	<ul style="list-style-type: none"> – Global financial forces
Tourism	<ul style="list-style-type: none"> – History and Heritage (e.g. Bendigo Gold Rush) – Bendigo Art Gallery – Castlemaine Diggings National Park – Trails (Goldfields track, Bendigo Bushland Trail and O'Keefe's Rail Trail) – Commencement of domestic flights in Bendigo Airport <p>Campaspe</p> <ul style="list-style-type: none"> – Winter blues festival and Riverboats Music Festival 	<ul style="list-style-type: none"> – Enabling services limitations (e.g. in Bendigo hotel developments are hindered by the need to install expensive pumping infrastructure to increase water pressure to service the facilities and in times of emergencies (i.e. fires) <p>Bendigo</p> <ul style="list-style-type: none"> – Nature based tourism is a weakness for Bendigo – Not well known for food experiences – Inadequate group accommodation for sporting clubs or school groups – Inadequate luxury accommodation located in CBD – Inadequate rural based accommodation (farm-stay, eco-cabin, winery) located in Bendigo outskirts <p>Loddon</p> <ul style="list-style-type: none"> – There are few options for short stay visitors to be accommodated in the Shire. Maintaining infrastructure is an essential element in driving sustainable growth. 	<ul style="list-style-type: none"> – Opportunities to develop nature based tourism sector at Castlemaine Diggings National Heritage Park <ul style="list-style-type: none"> – Growth dependent on investment in existing infrastructure such as walking trails to convention centres. – Opportunities to develop agri-tourism experiences in conjunction with local agricultural production <ul style="list-style-type: none"> – Particularly around Woodend, Castlemaine, Heathcote and Bendigo wine regions – Integration with Bendigo Food Hub, Institute of Gastronomy at Daylesford – Opportunities exist to develop nature-based tourism centred around indigenous enterprises across natural and cultural locations in the region – Development of artisanal food experiences – Upgrade infrastructure that supports the 'grey nomad' tourist market (roads, rest-stops and signage) – Opportunities around cycling tourism (MTB, road and trails) through development investment in infrastructure that enables further development of the niche market (Some identified cycling tourism opportunities include Murray River Adventure Trail, Daylesford to Hanging Rock Trail, Heathcote to Murchison Trail, Upgrades to the Goldfields Track, Expansion of the Harcourt Mountain Bike Park). <p>Bendigo</p> <ul style="list-style-type: none"> – Emerging opportunities to develop regional food fossicking and developing restaurant scene and boutique wine regions to develop 	<ul style="list-style-type: none"> – Climate change could impact nature based tourism attractions in the region

Category	Strengths	Weaknesses	Opportunities	Threats
			<ul style="list-style-type: none"> Nature-based tourism is a relative weakness for the Bendigo Region. Unlocking the region's natural assets through improved State and National Park, and waterway infrastructure, and packaging and promotion of recreational opportunities should be encouraged. Nature based tourism is a key strength of the Loddon sub-region which can provide a unique offer to the rest of the Bendigo Region Improve nature based tourism opportunities in State and National Parks such as tree-top walks, trails, Bendigo Bushland Track, Boort Scar Trees in Lake Boort Region Develop visitor facilities and wine tourism opportunities in the Bendigo Wine region <p>Mount Alexander</p> <ul style="list-style-type: none"> Opportunity to develop accommodation and function facilities in Castlemaine, boutique accommodation Upgrade visitor facilities at Cairn Curran Reservoir Opportunity for increased visitation of Goldfields Track if new routes developed Opportunity to develop complementary services alongside Harcourt MTB park to encourage tourism <p>Central Goldfields</p> <ul style="list-style-type: none"> Opportunity to develop road cycling between historic towns. This would require road signage and quality roads <p>Loddon</p> <ul style="list-style-type: none"> Opportunities exist for nature based tourism accommodation along Loddon River, farm stay accommodation Opportunities to develop caravan parks, which is significant accommodation supply source 	

SOURCE: VARIOUS SOURCES

VICTORIAN GOVERNMENT (2018) INVEST IN VICTORIAN AGRICULTURE AND FOOD: LODDON CAMPASPE

VICTORIAN GOVERNMENT (2019) REGIONAL PARTNERSHIPS LODDON CAMPASPE: OUR OUTCOMES ROADMAP

VICTORIAN GOVERNMENT (2014) REGIONAL GROWTH PLAN: LODDON MALLEE SOUTH

VICTORIAN GOVERNMENT (2019) LODDON CAMPASPE REGIONAL ECONOMIC GROWTH STRATEGY

CITY OF GREATER BENDIGO (2016) ECONOMIC DEVELOPMENT STRATEGY 2014-2020

LODDON SHIRE COUNCIL (2015) ECONOMIC DEVELOPMENT STRATEGY 2015-19

SHIRE OF CAMPASPE (2014) ECONOMIC DEVELOPMENT STRATEGY 2014-2019

URBAN ENTERPRISES (2015) BENDIGO REGION DESTINATION MANAGEMENT PLAN

VICTORIAN GOVERNMENT (2018) VICTORIA'S NEW GOLD RUSH IN FOSTERVILLE. ACCESSED 5 JUNE 2019 ([HTTPS://WWW.PREMIER.VIC.GOV.AU/VICTORIAS-NEW-GOLD-RUSH-IN-FOSTERVILLE/](https://www.premier.vic.gov.au/victorias-new-gold-rush-in-fosterville/))

VICTORIAN GOVERNMENT (2018) RENEWABLE ENERGY: PUMPED HYDRO. ACCESSED 5 JUNE 2019 ([HTTPS://WWW.ENERGY.VIC.GOV.AU/RENEWABLE-ENERGY/PUMPED-HYDRO/](https://www.energy.vic.gov.au/renewable-energy/pumped-hydro/))

VICTORIAN GOVERNMENT, REGIONAL ADAPTATION SNAPSHOT – LODDON MALLEE [HTTPS://WWW.CLIMATECHANGE.VIC.GOV.AU/_DATA/ASSETS/PDF_FILE/0031/392926/D18-001.REGCCASNAPSHOTREPORTS_LODDONMALLEE_FALR.PDF](https://www.climatechange.vic.gov.au/_data/assets/pdf_file/0031/392926/D18-001.REGCCASNAPSHOTREPORTS_LODDONMALLEE_FALR.PDF); [HTTPS://WWW.CLIMATECHANGE.VIC.GOV.AU/REDUCING-EMISSIONS/EMISSIONS-TARGETS](https://www.climatechange.vic.gov.au/reducing-emissions/emissions-targets)

AEMO [HTTPS://ENERGYLIVE.AEMO.COM.AU/NEWS/WESTERN-VICTORIA-TO-RECEIVE-CRITICAL-NETWORK-INVESTMENT](https://energylive.aemo.com.au/news/western-victoria-to-receive-critical-network-investment)

VICTORIAN GOVERNMENT, [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/)

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 (lamb, wool, poultry, eggs, wheat, dairy, fruit and vegetables)

Loddon Campaspe produces a diverse mix of agricultural products, reflecting the region's which geography and land capabilities. In the south of the region, mixed farming industries include lamb and wool, cattle and grains (Central Goldfields and Mount Alexander) and in the north, larger scale cropping and grazing, irrigated dairy businesses and intensive agriculture such as poultry and pigs (Loddon and Campaspe). For the agricultural industries producing at scale, there are several opportunities to expand, become more productive and profitable. In the face of increasing costs of production and reduced farm gate prices in real terms, these industries need to continue to exploit incremental productivity gains and market their products into higher value markets. A widely accepted but unrealised opportunity is the potential of digital connectivity to enable Internet of Things technologies such as remote sensing for example. For Loddon Campaspe, this could improve livestock, broadacre grain, intensive livestock and horticultural industries to be more efficient in application of inputs (seed, fertiliser and chemical), decision making for seeding, spraying and harvesting and inform longer term management decisions due to the power of data analytics. These opportunities are highly dependent on the access to telecommunication and broadband internet infrastructure and the provision of technical services that support them.

The second opportunity relates to the development of value-adding opportunities based on the region's intrinsic strengths. An example may be increasing the processing of grain locally for food products (i.e. pasta and bread) and quality animal feed grains. This builds on the region's strength around access to quality grain and proximity to intensive livestock businesses.

To realise these opportunities, there needs to be consideration around how these new businesses may emerge and what supporting infrastructure they may need to either justify establishment or encourage further development. This is particularly important for intensive and vertically integrated businesses that would increase the transport of goods along unsealed or country roads as well as main freight corridors to regional centres (Bendigo) and larger markets such as Melbourne or Geelong.

Agriculture (beekeeping, olive growing, apple and pear)

The diverse mix of agricultural production in the region becomes a key strength to leverage into experience and tourism-based sectors. The region has a burgeoning beekeeping, olive growing and smaller apple and pear and beef producers. The proximity to Bendigo and Melbourne presents significant opportunities to develop an artisanal, boutique and agritourism sector. This can be achieved through improving food sector linkages between wine and cider processors, producers and the service sectors. This could capture increased demand for cider beverages domestically, but equally be marketed to a significant international tourist population that enters Victoria through Melbourne. To enable these opportunities to flourish, the appropriate tourist facilities, public amenities and connecting road networks would need to be developed. This may include, for example, cycling paths or networks between historic towns or clusters of food experiences.

Food processing (meat, poultry, fruit, dairy and vegetables)

Commercial food processing alongside agriculture is the largest industry in Loddon Campaspe. There is a mix of meat, fruit, dairy and vegetable processing facilities located in Bendigo, Echuca and Castlemaine. This integrates well with the local lamb, pig, poultry, grains and fruit production. There are large vertically integrated businesses such as Hazeldene's Chicken Farms located at Lockwood, but also a growing number of boutique and smaller processors that produce lower volume and high value goods.

The larger processors rely on access to skilled and unskilled local workers, consistency of supply of produce and supply chain efficiency to remain profitable. Since food processing is an important industry across regional Victoria, there is strong competition in the beef and lamb, dairy, grains, horticulture, wine, beer and cider processing markets. As a result, processors need to identify opportunities to improve the quality, safety and reliability of the products they produce at a lower cost. This can be achieved through automation, robotics, and use of sensory and artificial intelligence technologies to replace less efficient manual processes. Intuitively, increased production of goods would be required to justify the increase in capital intensiveness, thereby increasing the volume of road and air freight to transport the products to domestic and international markets.

Mining and Energy

Gold is a significant resource in the Loddon Campaspe region. Although historically a significant industry, the revealed comparative analysis identifies Metal Ore Mining as less than one per cent of GVA in the Greater Bendigo, Loddon and Mount Alexander LGAs whilst demonstrating strong comparative advantages. These do not reflect the significant opportunities for the current gold mining industry to expand and the subsequent implications for regional economic development. This could require significant road, rail and utility infrastructure upgrades and ongoing maintenance.

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

Similar to other regions of Victoria, the opportunity to develop renewable energy resources such as solar and bioenergy are important to explore in the context of the Loddon Campaspe region. More specifically, opportunities are being explored to develop pumped hydro in the Bendigo region using existing mining infrastructure.

Tourism and services

Tourism is an important industry and has significant growth potential. The region has several cultural (Bendigo Art Gallery) and nature-based sites (Castlemaine Diggings National Park, Trails (Goldfields track, Bendigo Bushland Trail and O'Keefe's Rail Trail). In the Campaspe LGA, the Winter Blues Festival and Riverboats Music Festival are examples of events that feature the region's natural assets and cultural heritage.

Significant opportunities exist throughout the region to leverage current tourist drawcards like the Bendigo Art Gallery and the Murray River in the North. All of these require enabling infrastructure to create an experience, facilitate accommodation or improve visitors' access. Some of these opportunities include:

- develop nature based tourism sector at Castlemaine Diggings National Heritage Park
- develop agri-tourism experiences in conjunction with local agricultural production
 - areas: Woodend, Castlemaine, Heathcote and Bendigo wine regions
 - integration with Bendigo Food Hub, Institute of Gastronomy at Daylesford
- develop nature-based tourism centred around indigenous enterprises across natural and cultural locations in the region
- artisanal food experiences
- upgrade infrastructure that supports the 'grey nomad' tourist market (roads, rest-stops and signage).

Many of these opportunities are focused on integration of experiences with the traditional economic industries in the region, which can offer domestic and international tourists a range of options for daytrip or overnight stays. Similar detailed opportunities can be outlined for the Bendigo, Mount Alexander, Loddon and Central Goldfields LGAs.

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

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?

The Loddon Campaspe has a diverse economy that is built on the agricultural industries with complementary industries such as food manufacturing and related services. There are also traditional gold mining and related service industries that have future growth potential. Also, the region features an established services and tourism sectors and a significant regional population based in Bendigo. This diversity supports the regions capacity to manage the projected impacts of climate change on the region. However, the region is significantly exposed to the increased incidence of drought and extreme weather such as heat, frost and storm events. This can be managed through a strong focus on research and development that can increase water use efficiency from irrigation infrastructure, adoption of modern technology via increased digital connectivity and new and emerging industry development.

3.1.3 Weaknesses – Opportunities assessment

This part of the SWOT considers: How can the region's/sector's weaknesses be minimised by using the opportunities identified?

Loddon Campaspe'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 renewable energy technologies such as solar and hydro pumping power. These opportunities can increase the diversity of industries that generate economic output and 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 and 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 at a regional level.

3.1.4 Weaknesses – Threats assessment

This part of the SWOT considers: How can a region's/sector's weaknesses be minimised to avoid the threats it/they are facing?

Through the *Climate Change Act 2017*, the Victorian Government has set a long-term target of net zero emissions by 2050. The primary weakness for Loddon Campaspe is reliance on emission intensive agriculture, manufacturing and mining sectors.

Although these sectors have experienced growth, the future expectations of reduced reliance on fossil fuel energy sources and the potential premium placed on low-carbon emission technologies could be leveraged in Loddon Campaspe.

For industries to manage the risk that changing consumer preferences present as well as to respond to the Victorian Government's long-term target of net zero emissions by 2050, there is potential for investment in more efficient plant and equipment and to utilise renewable energy sources to bolster the sustainability credentials and manage operating expenditure price risks.

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 Loddon Campaspe and within the Campaspe, Central Goldfields, Greater Bendigo, Loddon, Macedon Ranges and Mount Alexander 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:

- Loddon (17.4 Victorian CAI, negative 17 per cent growth and 54 per cent GVA).
- Campaspe (7.2 Victorian CAI, 22 per cent growth and 23 per cent GVA).
- Central Goldfields (4.5 Victorian CAI, 53 per cent growth and 14 per cent).

The economic performance of Loddon Campaspe is highly dependent on the primary production of lamb, wool, poultry, eggs, wheat, milk, fruit and vegetables, olives and honey are the main production sectors for the region. Future growth of these sectors can depend on either productivity gains on-farm, developing existing or new markets to capture greater value and enhancing the supply chain infrastructure to reduce the cost of production.

What needs could be addressed by government?

- Improved road access on country roads (sealing) to encourage development of intensive agriculture and agritourism experience routes.
- Improved transport access between primary produces, processors and Melbourne markets.
- The sheep, grain, horticulture and intensive farming industries would benefit from improved access to NBN and mobile broadband services.
- Agritourism and food trails need public amenities and connecting road networks would need to be developed. This may include for example, cycling paths or networks between historic towns or clusters of food experiences.

Manufacturing

Food Product Manufacturing is an important industry for Loddon Campaspe, demonstrating modest comparative advantage and performing well over the past decade.

- Mount Alexander (9.6 CAI Vic comparison, minus 36 per cent growth and 21 per cent GVA)
- Campaspe (5.4 CAI Vic comparison, 0 per cent growth and 12 per cent GVA)
- Central Goldfields (4 CAI, 65 per cent growth and 9 per cent GVA).

This includes the manufacture of dairy, poultry, grapes, apples and pears, olives and meats (lamb and beef).

What needs could be addressed by government?

- Meat, grain, dairy processors need reliable and cost-effective access to water, energy and waste services
- Meat, grain and horticulture processors need reliable and safe road and rail freight corridors for access to Melbourne, Port of Melbourne and Melbourne Airport.

Mining and energy

The gold mining industry is historically an important sector for Loddon Campaspe. The metal ore mining industries demonstrate strong comparative advantage but very limited GVA across the region. Recent news of increase gold reserves and progress at the Forestville Gold Mine encourage future economic development opportunities for Loddon Campaspe.

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.⁴ There is considerable solar energy generation potential in the Loddon Campaspe region, including some existing large-scale generators in the Loddon Shire and other rural areas.

What needs could be addressed by government?

- Road transport linkages between Forestville Gold Mine and refineries, markets and workforce in the Bendigo area.
- Access to enabling infrastructure (i.e. roads and transmission network connections).

Tourism and services

Tourism is an important industry and has significant growth potential. The region has several tourism assets such as cultural (Bendigo Art Gallery) and nature-based sites (Castlemaine Diggings National Park, Trails (Goldfields track, Bendigo Bushland Trail and O'Keefe's Rail Trail). In the Campaspe LGA, the Winter Blues Festival and Riverboats Music Festival are examples of events that feature the regions natural assets and cultural heritage. The region's tourism sector would benefit from increased development of enabling infrastructure across the region.

What needs could be addressed by government?

- Enabling infrastructure such as boat ramps, street scapes, walking and cycling tracks, caravan parks, roads and signage and built amenities.
- Walking trails for the Castlemaine Diggings National Heritage Park.
- Road and supporting signage infrastructure linking tourists with farms in the Woodend, Castlemaine, Heathcote and Bendigo wine regions.
- Upgrade infrastructure that supports the 'grey nomad' tourist market (roads, rest-stops and signage).
- Cycling based road infrastructure.
- Improve nature based tourism opportunities in State and National Parks such as tree-top walks, trails and gnome villages, Bendigo Bushland Track.
- Develop visitor facilities and wine tourism opportunities in the Bendigo Wine region
- Access to fast and reliable internet so the 'services' parts of these industries have strong connectivity to customers and markets outside the region.

Finance and Insurance services

The financial services sector is a key industry in Loddon Campaspe, primarily based in Bendigo. Finance and insurance services is the largest industry in Bendigo, driven by the presence of Bendigo Bank.

What needs could be addressed by government?

- Access to fast and reliable internet to enable the industry to have strong connectivity to customers and markets within and outside the region.

Education

While Education, in particular, higher education, is not a RCA industry for the region, there are a number of significant university campuses operating in Loddon Campaspe. These campuses provide a mixture of undergraduate, postgraduate and research opportunities for students and staff.

What needs could be addressed by government?

- Transport infrastructure which connects the campuses to local areas and other regional universities/research institutions.

⁴ : <https://www.climatechange.vic.gov.au/reducing-emissions/emissions-targets>

- Amenity and place making infrastructure to make regional campuses a desirable location for international students and researchers.
- Support in helping research concentrations (such as food, agricultural and advanced manufacturing research) better link with local and national industries.

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 Loddon Campaspe which have a high comparative advantage.

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

Industry	Revealed sectors	Relevant LGAs	Identified needs	Opportunities to address needs	Constraints to economic development of the sector
Agriculture, Forestry and Fisheries	Agriculture (Intensive farming)	Loddon	Sealing country roads especially those near productive agricultural land may encourage investment in areas suited to intensive agriculture	Sealing country roads may encourage investment in areas suited to intensive agriculture	Unsealed roads in country areas reduce access for intensive agriculture operations that have significant freight traffic
	Agriculture (grain, livestock, horticulture)	Loddon Campaspe Central Goldfields Macedon Ranges Mount Alexander	Improved transport access between primary produces, processors and Melbourne markets The sheep, grain, horticulture and intensive farming industries would benefit from improved access to NBN and mobile broadband services.	Investment in road and digital connectivity infrastructure (telecommunications and mobile broadband) to enable adoption of modern technologies on-farm	Limited access to fast and reliable internet services in rural LGAs, compared to metropolitan regions. This constrains farm businesses ability to implement the latest technology on-farm
	Agriculture (olives, beekeeping, apples and pears, lamb and beef)	Macedon Ranges Bendigo Mount Alexander Central Goldfields	Agritourism and food trails need public amenities and connecting road networks would need to be developed. Such as cycling paths or networks between historic towns or clusters of food experiences	Development of public amenities and road infrastructure will enable access to food production and local experiences or events	Inadequate road infrastructure including signage to facilitate agritourism opportunities or experiences in the region
Manufacturing	Lamb, grain, dairy and horticulture	Campaspe Bendigo Central Goldfield	Meat, grain, dairy processors need reliable and cost-effective access to water, energy and waste services Meat, grain and horticulture processors need reliable and safe road and rail freight corridors for access to Melbourne, Port of Melbourne and Melbourne Airport	Development of water, energy and waste utilities and road and rail infrastructure will support further development of the processing sector	Inadequate utilities, road and rail infrastructure connecting processors, producers and markets limits the regions capacity to develop
Mining and energy	Metal ore mining (Identified as emerging industry, based on the future opportunities identified in the SWOT however, it does not have an RCA as such)	Bendigo	Road transport linkages between Forestville Gold Mine and refineries, markets and workforce in the Bendigo area	Develop road infrastructure that will support expansion of the Forestville Gold Mine and potential development of gold resources regionally	Inadequate road infrastructure limits the gold mining industries ability to operate efficiently

Industry	Revealed sectors	Relevant LGAs	Identified needs	Opportunities to address needs	Constraints to economic development of the sector
	Renewable energy (Identified as emerging industry, based on the future opportunities identified in the SWOT however, it does not have an RCA as such)	Loddon Campaspe Central Goldfields	Access to enabling infrastructure (i.e. roads and transmission network connections)	Provide enabling infrastructure such as connecting roads and transmission network connections is essential to the development of renewable energy industry in the region	Inadequate road and transmission network connections will hinder growth potential of the sector
Tourism	Tourism (Identified as emerging industry, based on the future opportunities identified in the SWOT however, it does not have an RCA as such)	Loddon	Accommodation along Loddon River, farm stay accommodation	Development of enabling infrastructure to support the development of accommodation in the Loddon River area	Inadequate accommodation infrastructure constrains tourist accessibility to the region
		Mount Alexander	Walking trail infrastructure at Castlemaine Diggings National Heritage Park Accommodation and function facilities in Castlemaine, boutique accommodation Visitor facilities at Cairn Curran Reservoir New routes on the Goldfields Track Complementary services alongside Harcourt MTB park to encourage tourism	Growth dependent on investment in existing infrastructure such as public amenities and accommodation facilities	Inadequate walking trail, public amenities, accommodation and visitor facilities in the Mount Alexander LGA limits the potential of the local tourism industry
		Mount Alexander, Bendigo, Macedon Ranges	Develop linking road, signage and public amenity infrastructure (e.g. Murray River Adventure Trail and Daylesford to Hanging Rock Trail)	Development of enabling infrastructure, such as public amenities, at nature-based tourist destinations will encourage investment in tourist experiences and supporting services (food, beverage and accommodation)	Inadequate public road infrastructure constrains tourist accessibility to the region
		Goldfields	Cycling routes between historic towns. This would require road signage and quality roads	Development of enabling infrastructure for cycling routes would encourage tourist visitation in the region	Inadequate cycling route infrastructure constrains tourist accessibility to the region
Finance and Insurance Services	Banking	Bendigo	Digital connectivity – fast and reliable internet to enable firms' access to customers and markets outside the region	Investment in digital connectivity infrastructure	Lack of fast and reliable internet services will constrain growth opportunities for the sector, especially with the advent of internet banking

Industry	Revealed sectors	Relevant LGAs	Identified needs	Opportunities to address needs	Constraints to economic development of the sector
Education	Education (Identified as emerging industry, based on the future opportunities identified in the SWOT however, it does not have an RCA as such)	Bendigo	<p>Transport infrastructure which connects the campuses to metropolitan Melbourne campuses.</p> <p>Amenity and place making infrastructure to make regional campuses a desirable location for international students and researchers</p> <p>E-learning and e-research requires strong digital connectivity</p>	<p>Further develop transport linkages between campuses and local townships and metro Melbourne to allow better access to cross-campus teaching and research facilities</p> <p>Work with universities to support on-campus development</p> <p>Improve digital connectivity to regional campuses and surrounds</p>	Ability to attract domestic and international students and research given existing connectivity and amenity of campuses

SOURCE: ACIL ALLEN

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