REMPLAN

Report:
St Arnaud: Industrial Land Assessment

October 2022

Northern Grampians Shire Council

St Arnaud

Industrial Land Feasibility

This project has been conducted by REMPLAN

Project Team

Chris Kelly
Senior Consultant

Lakshya Duhan
Data Scientist

Dylan Quinn-Valentine
Research Assistant

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DISCLAIMER

RESOURCES

All economic reporting has been undertaken using REMPLAN© software that has been authored by Principal Research Fellow (ret.), Ian Pinge, at La Trobe University Bendigo.

Contact us:
TEL: 1300 737 443
Email: info@remplan.com.au

Contents

Acronyms

ABS	Australian Bureau of Statistics
ABR	Australian Business Register
ANZSIC	Australian & New Zealand Standard Industrial Classifications
DZ	Destination Zone
GRP	Gross Regional Product
Ha	Hectare
LGA	Local Government Area
SA2	Statistical Area level 2

Introduction

1.1 Overview of St Arnaud and the region

St Arnaud, situated in Northern Grampians Shire is located in the western part of Victoria, and is part of the broader Grampians Region (Figure 1). Northern Grampians Shire is home to approximately 11,885 people, the municipality's major towns being Stawell in the south and St Arnaud in the north. Both townships are service centres for their surrounding rural communities. St Arnaud has been identified as a regional centre for the eastern area of the Wimmera Southern Mallee Regional Growth Area.

The economy of Northern Grampians has traditionally had a strong manufacturing, mining, and agricultural base due to its regional location. However, manufacturing has been declining in the municipality as sectors such as agriculture, construction and health care increase their share of economic activity. Manufacturing is still dominated by food product manufacturing, specifically meat product manufacturing, supporting current and potential agribusiness supply chains.

Likewise, the economy of the St Arnaud township has a strong manufacturing base, being the largest gross revenue generator (output) followed by health care and rental, hiring and real estate services. Accounting for the broader St Arnaud region (St Arnaud SA2), the agricultural sector plays the most prominent role in the local economy.

Situated around major regional centres of Ararat, Ballarat, and Horsham, St Arnaud is well positioned to leverage investment in rural industries throughout the surrounding area. The extent of services and existing businesses that exist in these major centres can act as pull factors for industry looking to establish in the broader region.

St Arnaud is traversed by arterial transport and freight routes being located along the Sunraysia Highway and the Western Highway. The Mildura rail line also passes through the township.

Figure 1 Region map
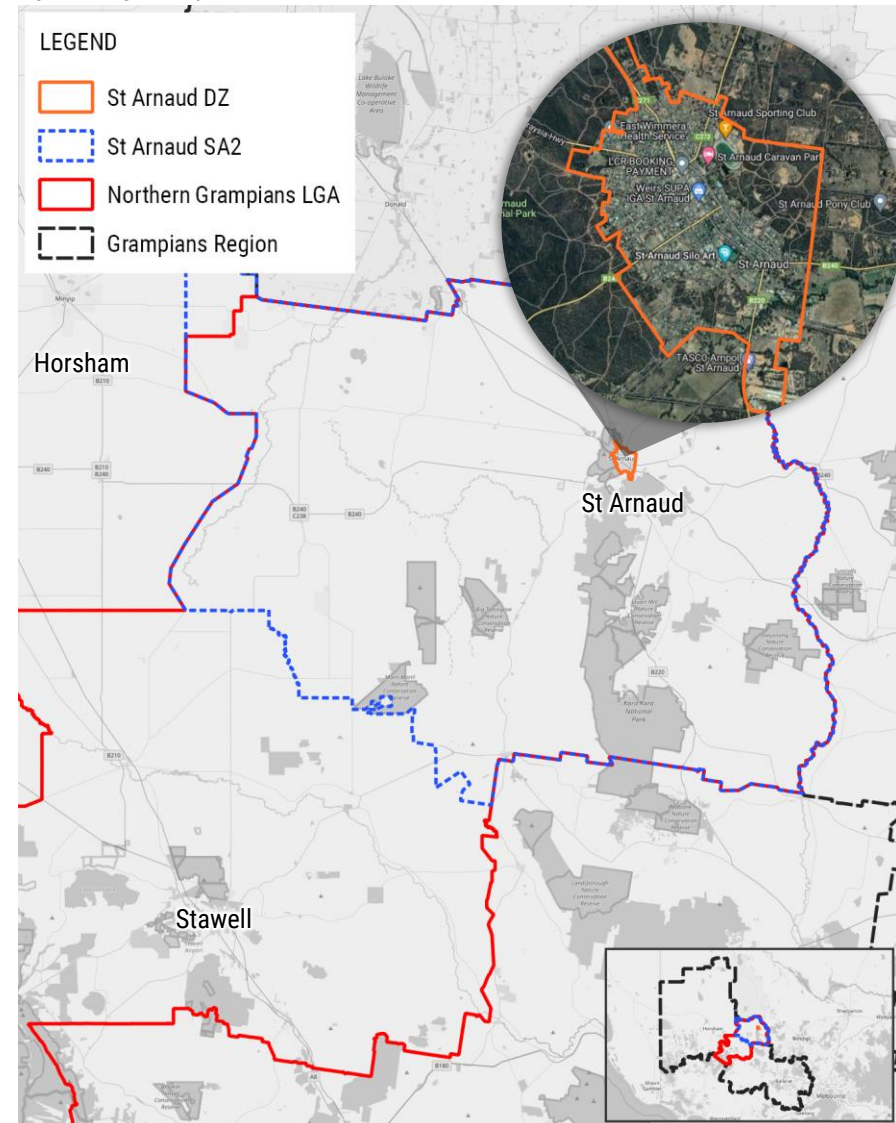
Interactive map available here - https://remplan.co/3U2hTP3

In 2021, the estimated residential population of the St Arnaud SA2 was 3,429. While the population has declined over the past decade (-182 people since 2011), the last five years has resulted in a reversal of this trend with the township growing by 76 people (Figure 2). A similar trend has been observed in the Northern Grampians Shire more broadly which has seen a larger population increase over the past five years following a period of decline up to 2016.

The recent changes in population have created a contrast to the official *Victoria in Future* (VIF) population projections provided by the Victorian Government. Whereas official projections had St Arnaud contracting by -0.8% annually between 2016 and 2021, population changes over that period have resulted 0.4% annual growth. The growing population in St Arnaud is predominantly in older cohorts aged 65+. The young working age cohort (15-29 years) continues to decline, with other cohorts remaining relatively stable over the past five years.

Employment has followed a similar, but less extreme, trajectory to population in St Arnaud. Between 2011 and 2021, employment within the St Arnaud SA2 remained relatively steady, declining slightly in the five years to 2016 but increasing marginally in the five years to 2021.

Agriculture remains the largest employing sector in St Arnaud, with employment levels in 2021 consistent with 2016. Notably, employment in manufacturing has increased over the last five years, also increasing its share of total employment in St Arnaud (Figure 5). Transport, postal and warehousing has also continued to grow since 2011. While not one of the largest employing sectors, wholesale trade which is often a typical industry occupying industrial areas, has also experienced a small increase in employment over the last five years.

Broadly speaking, employment in several key 'industrial' sectors have improved marginally over the last five years, while employment in agriculture has remained consistent.

Figure 2 St Arnaud Population Change ERP versus VIF, 2011-2021

Figure 3 Top 6 employing industries in St Arnaud SA2, change in share 2011-2021

1.2   Project rationale

Mesh Planning are currently preparing a structure plan for St Arnaud. Identified as a regional centre for the eastern area of the Wimmera Southern Mallee Regional Growth Area, St Arnaud has an established industry base and is positioned to leverage investment in rural industries throughout the surrounding area.
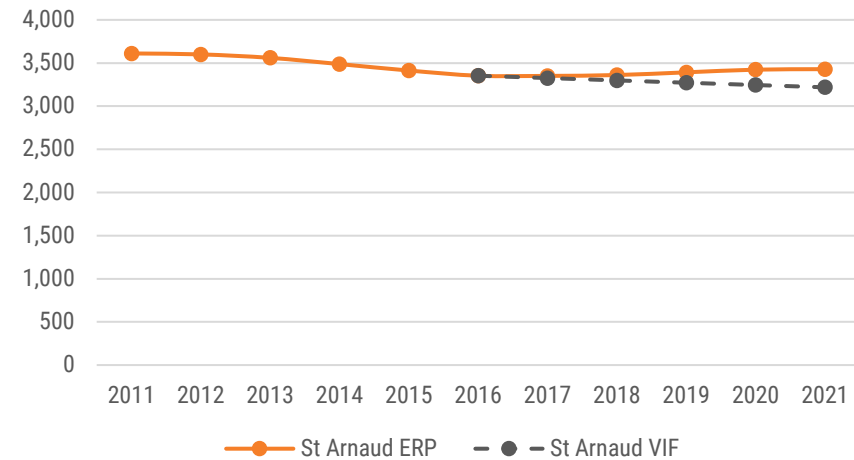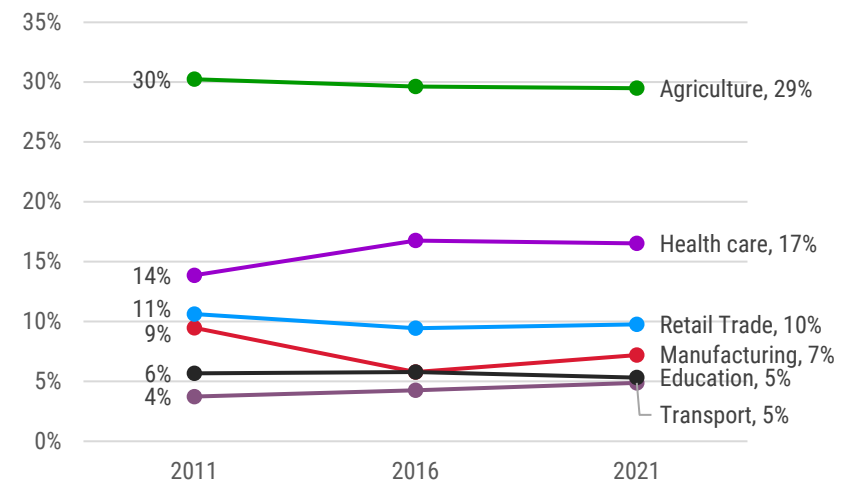
Land use analysis prepared during the structure plan project has identified the risk of industrial conflicts where existing businesses are located within proximity to sensitive uses. Further analysis is required to understand the future demand for industrial demand and assist in a review of established industrial locations to ensure structure plan recommendations strategically address potential land use conflicts, development constraints and outline future industrial land use that is fit for purpose.

1.3   Report purpose

The primary purpose of this report is to understand the future demand for industrial land and assist in a review of established industrial locations to ensure structure plan recommendations strategically address potential land use conflicts, development constraints and outline future industrial land use that is fit for purpose.

The process of undertaking the industrial land assessment and trend analysis will provide additional context around the current and future role of St Arnaud in provision of industrial land within the region.

1.4   Report scope

The project is intended as a high-level analysis of trends and influences relating to industrial land within St Arnaud that will inform future strategy and support the St Arnaud Structure Plan. This will be delivered through:

- Analysis of key economic indicators to understand changes in local industry,
- Providing an overview of regional industrial development activity,
- Preparation of industrial land demand assessment incorporating employment forecasts to establish estimates of future demand for industrial land in Northern Grampians Shire and St Arnaud,
- Provide high level site recommendations for existing and any future industrial land requirements

The project is focused on the supply and demand of land with industrial zoning (Industrial 1 Zone and Industrial 3 Zone in St Arnaud) and does not consider other zones which accommodate employment activity. It is not within the scope of the project to undertake detailed site capability analysis or recommend specific sites, if any, for future industrial land or prepare market needs analysis.

Census data releases have occurred during the preparation of this project which have provided updated population and employment figures for the region. The timing of the releases and scope/scale of the project have not allowed these to be fully incorporated into modelling. While the new data indicates a positive trajectory for overall population and employment, as outlined in Appendix A it is not anticipated that these would have a substantial impact on the outcome of modelling in terms of demand for industrial land.

Regional industrial land review

Across the Grampians region there is over 3,000 hectares of industrial land, 90% of which is zoned Industrial 1. Ballarat and Horsham accommodate over half of all industrial land, accounting for 34% and 20% respectively. Moorabool is the only municipality that contains land in the Industrial 2 Zone, a zone intended to accommodate industry that requires larger buffer distances to sensitive uses.

The Northern Grampians contains the fourth highest area of industrial land, accounting for 9% of industrial land in the broader region. The majority of this (7%) is within Stawell, the balance in St Arnaud. The area of industrially zoned land is St Arnaud is comparable to other townships of Beaufort, Buninyong, and Warracknabeal. Many of the other townships across the region are provided with much lower

Across the region, the industrial building activity is concentrated in the centres of Ballarat, Horsham, and Moorabool. Over the last five years to 2022, Wendouree-Miners Rest in Ballart's west experienced an annual average industrial building approvals valued at $18.8 million. The average annual value in the Stawell and St Arnaud SA2s over the same period was $0.9 million and $0.6 million respectively, both less than the regional average of $1.1 million (Figure 5).

St Arnaud has a higher rate of building approvals for agricultural buildings. Over the same period between 2018 and 2022 St Arnaud had the sixth highest value of agricultural buildings approved, with an annual average value $1.3 million. The bias towards agricultural development over industrial development is demonstrative of the region's focus on agribusiness.

Figure 7 and Figure 8 illustrate the average annual value of building approvals for industrial buildings and agricultural buildings across the region.

Figure 4 Areas of industrially zoned land by LGA in Grampians Region
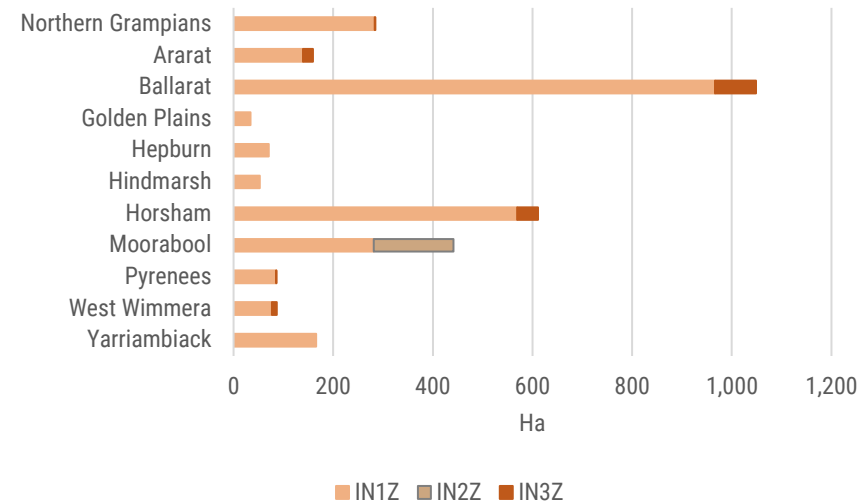
Figure 5 Annual average value of industrial building approvals by SA2, 2018-2022
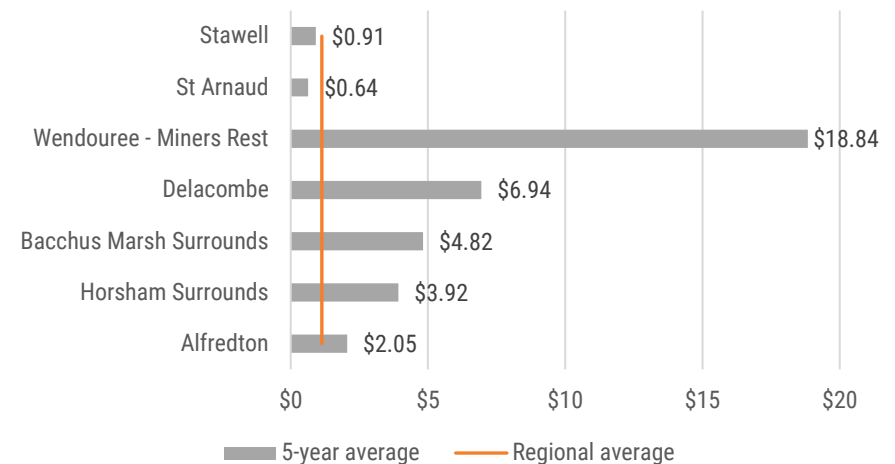
Source: ABS Building Approvals by SA2
Note: regional average excludes outlier of Wendouree-Miners Rest

Figure 6 Extent and distribution of industrial land in the surrounding region.

LEGEND

- - - Grampians Region

LGA boundaries

Zones

IN1Z

IN2Z

IN3Z

Hopetoun
42.7ha

Warracknabeal
74.4ha

Minyip
3.6ha

Kaniva
42.4ha

Nhill
26.7ha

Murtoa
45.1

St Arnaud
62.0

Ballarat/Buninyong
1,048.8ha

Daylesford
17.0ha

Trentham
17.7ha

Edenhope
44.4ha

Stawell
222.8ha

Avoca
29.9ha

Ararat
159.1ha

Beaufort
56.4ha

Creswick
35.8ha

Bannockburn
12.3ha

Smythesdale
21.7ha

Horsham
611.1ha

Bacchus Marsh/Ballan
441.6ha

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Figure 7 *Average annual of industrial building approvals, 2018-2022*

LEGEND

Northern Grampians LGA

SA2 Building Approval - Industry

- 0.05 - 0.2
- 0.2 - 0.3
- 0.3 - 0.4
- 0.4 - 0.5
- 0.5 - 0.6
- 0.6 - 0.9
- 0.9 - 1
- 1.1 - 1.7
- 1.85 - 2.1
- 4.35 - 6.9

Annual average industrial building approvals of $0.6 million
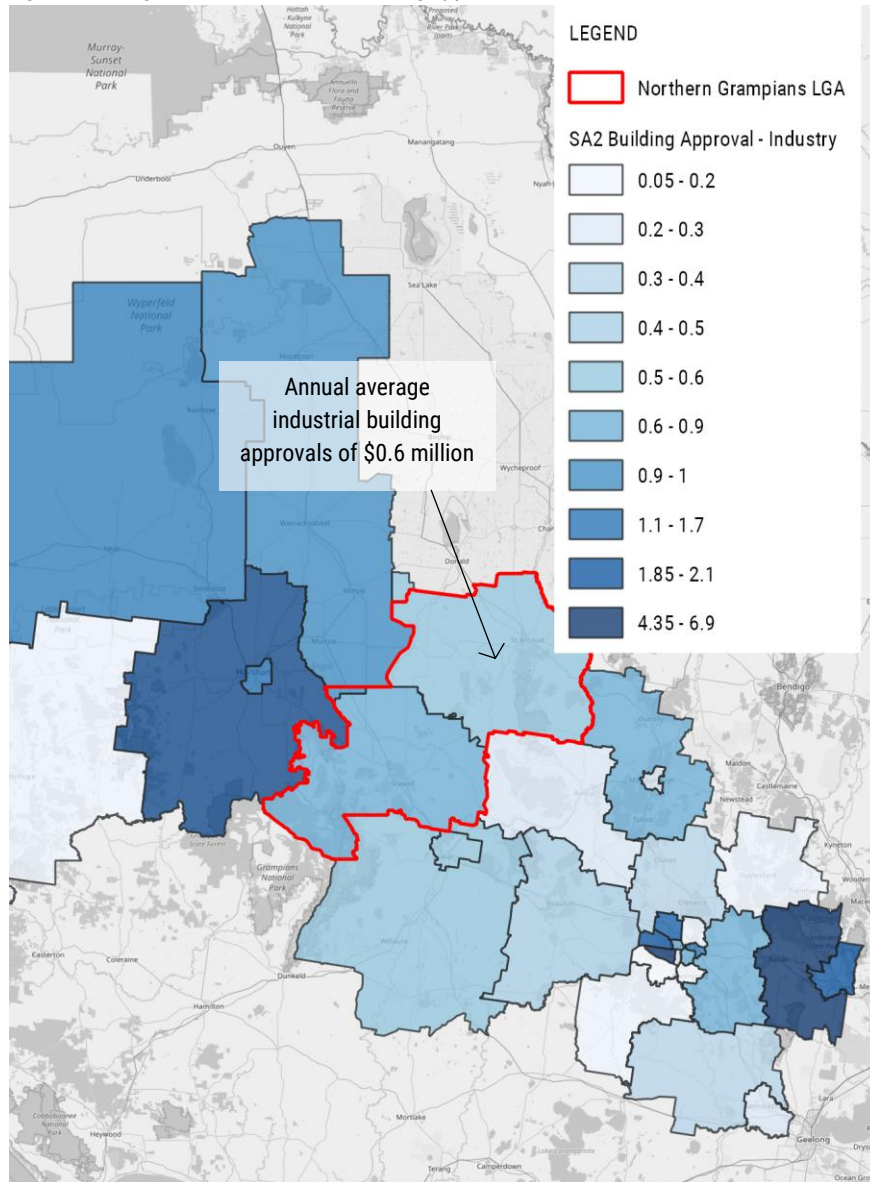
Figure 8 *Annual average of agricultural building approvals, 2018-2022*

LEGEND

Northern Grampians LGA

SA2 Building Approval - Agricultural

- 0 - 0.05
- 0.2 - 0.2
- 0.3 - 0.4
- 0.5 - 0.6
- 0.6 - 0.9
- 0.9 - 0.9
- 1 - 1.1
- 1.7 - 1.85
- 2.1 - 4.35
- 4.35 - 6.9

Annual average agricultural building approvals of $1.3 million

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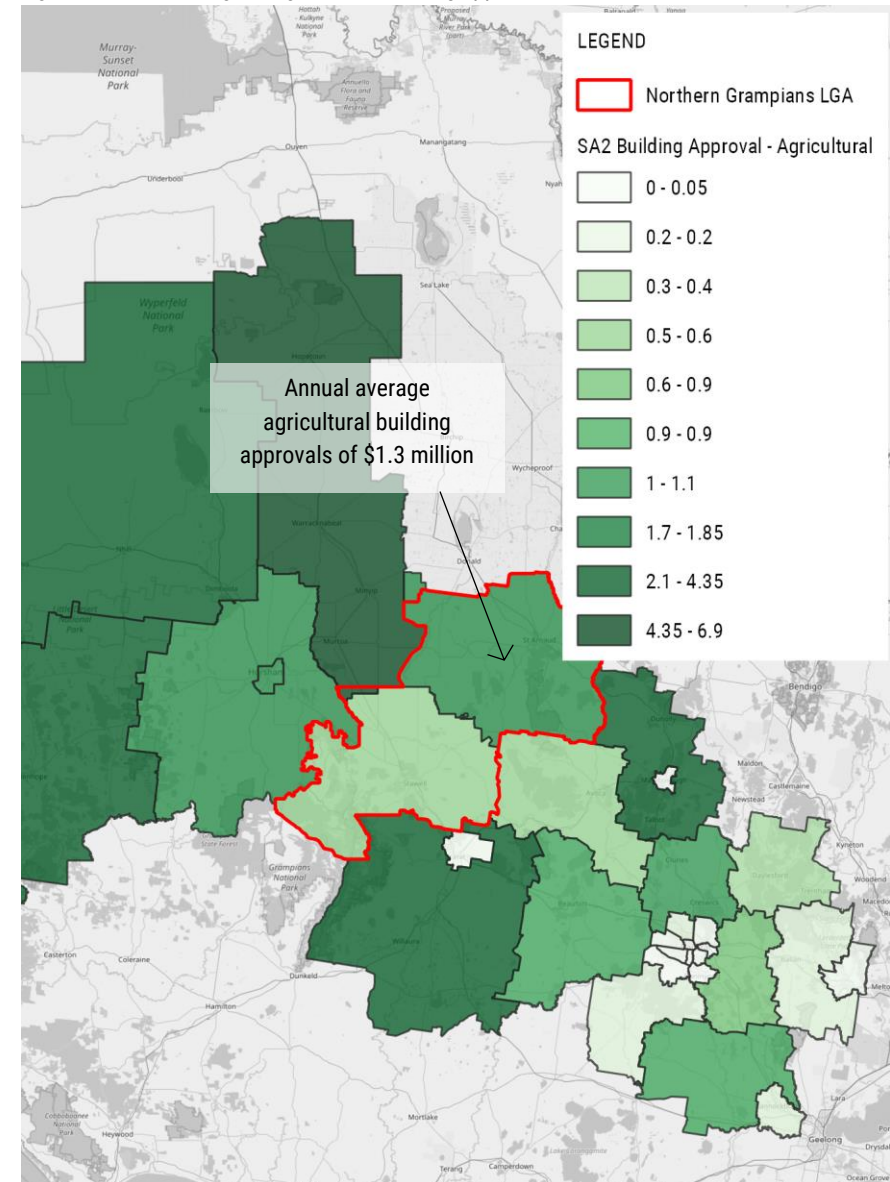
Industrial sector economic trends

1.5   Overview

Businesses within St Arnaud generate $255 million of revenue annually. Manufacturing generates around 22% ($57 million) of revenue in the township, followed by health care & social assistance services generating 12% ($30 million). Aside from manufacturing, other industries that typically occupy industrial land generate less than 5% of revenue within the town.

There are approximately 900 jobs within St Arnaud. Industries that are typically located in industrial areas account for 25% of total jobs in St Arnaud, the largest being manufacturing, however not all of these are situated within industrial land. Service sectors including health care, retail trade, education, and food services are the largest employing sectors, accounting for more than 56% of employment.

Across St Arnaud, businesses generate approximately $127 million of value-added each year. Sectors typically located in industrial areas account for 24% of the total value added generated by the St Arnaud economy. Health care & social assistance constitutes 16.5% of total value-added, followed by rental hiring and real estate services[1] (14.3%), and manufacturing (9.1%).

Of the sectors that typically occupy industrial areas, the largest contributors to the St Arnaud are manufacturing and transport, postal & warehousing, specifically road freight transport within the latter. Additionally, manufacturing is the largest overall contributor to output and is the third largest value-added contributor for St Arnaud.

Industrial land use and development is not limited to industrial precincts. Throughout the region there are a range of businesses and individuals undertaking the types of activities which would be considered appropriate or characteristic of the business operations occurring in formal industrial precincts. For example, machinery repair could be occurring in agricultural areas, road freight transport operations in low rural living areas and even small-scale manufacturing in residential areas.

This section provides an overview of economic trends occurring in 'Industry' within St Arnaud. St Arnaud has been defined by the official destination zone[2], which incorporates most of the urban area of St Arnaud. Reference to Northern Grampians includes activity within St Arnaud. 'Industry' has been defined by ANZSIC class (4-digit) of industry[3] and aggregated up to the 19-industry sector level. For this analysis, all manufacturing, construction, and wholesale trade activity has been included in the analysis of 'Industry'. There are other sectors that include activities which would typically require industrial land, but not exclusively. For example, most general retail activity is excluded from the definition of Industry, but activities such as motor vehicle parts retailing, hardware and building supplies retailing are included (see Appendix C for sectors included in the definition of 'Industry').

Economic trends in this section only provide information on those sectors which have been included in the definition of Industry as outlined above. Information is provided for St Arnaud and proximate larger regions. Data is outlined for the key economic indicators of:

- Output
- Employment
- Regional exports and imports
- Value-added

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[1] Rental, hiring & real estate services includes the subsector of 'ownership of dwellings'. While this does include permanent rental of dwellings, it also incorporates an imputed value of rent for owner occupiers of dwellings.
[2] Destination zones are the spatial unit used by the ABS to code Place of Work data. Destination zone boundaries are designed by the ABS following consultation with each State/Territory Transport Authority.

[3] 'Class' is the finest hierarchical level of industry classification under *Australian and New Zealand Standard Industrial Classification, 2006*, which is also referred to as 4-digit ANZSIC industrial classification.

1.6 Output

Output data represents the gross revenue generated by businesses/organisations in each of the industry sectors in a defined region. Gross revenue is also referred to as total sales or total income.

Output estimates provide an indication of the level of activity occurring in a region, an industry or organisation. Output is a high-level economic indicator which is inclusive of other indicators such as wages, intermediate inputs and value-added. Output is an essential measure in understanding the interrelationships between industries in a region as well as for measuring an individual industry's output.

Output from Industry across all regions has increased between 2017 and 2021. St Arnaud obviously has the lowest levels of output by Industry given its geographic scale relative to other regions. However, St Arnaud it is equal to Ballarat in terms of annual growth in output, experiencing 4.7% between 2017 and 2021. Ararat has experienced the largest increase in output by Industry with a 8.6% increase since 2017. Following Ararat was Central Goldfields (6.2%), Ballarat (4.7%), St Arnaud (4.7%), Northern Grampians as a whole (4.4%) and Horsham (3.7%).

Compared to other townships of a similar scale, St Arnaud produces the largest amount of output across all benchmarked townships at $101.1 million annually, more than twice as much as Donald which is the second highest producer of industrial output.

Figure 9 Output by Industry in surrounding municipalities, 2017 and 2021
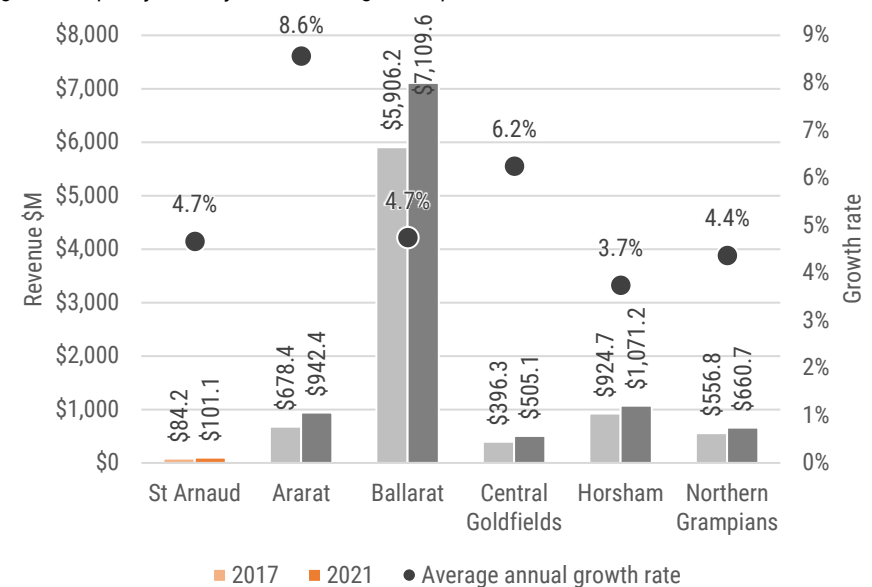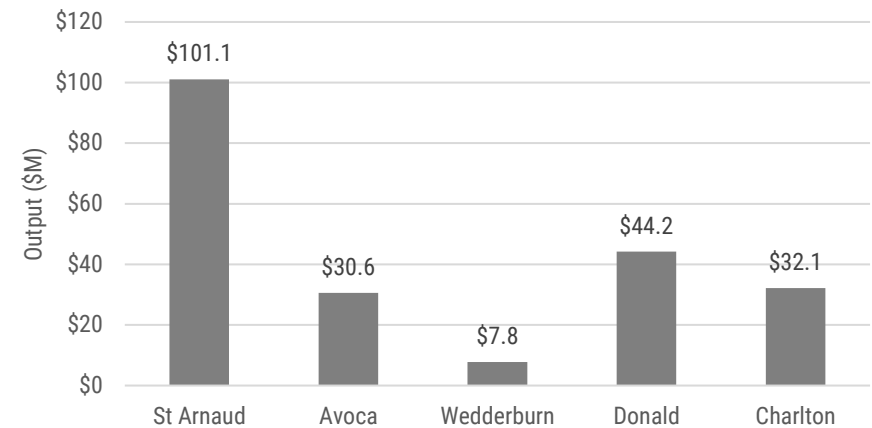

Figure 10 Output by Industry in surrounding townships, 2021

1.7   Employment

Employment data represents the number of people employed by businesses / organisations in each of the industry sectors. Employment data presented in this report is based on location of work, that is no inference is made as to where workers reside. The employment figures presented here represent total number of employees without any conversions to full-time equivalence.

The chart in Figure 11 depicts the change in employment from census year 2011 to 2016[4]. Of all regions, St Arnaud was the only region that experienced a decline in number of jobs in Industry. Interestingly, this corresponds with increasing levels of output (as illustrated in Figure 9 above), suggesting that the types of jobs that constitute Industry in St Arnaud are becoming more productive or the change in job contribution by industry is transferring to an industry with greater gross revenue generated.

Employment in Industry in Ararat has remained relatively stable over the period, while other regions all experienced growth. The highest average annual growth was in Ballart (3.9%), followed by Northern Grampians (2.3%) and Horsham (2.0%).

In St Arnaud, prepared animal, and bird feed manufacturing (34 jobs), poultry processing (34 jobs) and agricultural machinery and equipment manufacturing (33 jobs) were the largest employment contributors in 2011. However, the make-up of job contribution in Industry changed in 2016. Prepared animal and bird feed manufacturing remained as one of the largest contributors for Industry with 32 jobs, poultry processing decreased to 16 jobs and similarly, agricultural machinery and equipment manufacturing decrease to 8 jobs in 2016. Road freight transport saw an increase from 24 jobs in 2011 to 43 in 2016 becoming one of the largest employment contributors in Industry.

Of smaller benchmark townships, St Arnaud supports the highest number of jobs in sectors that typically demand industrial land, indicating the relative strength of industry in St Arnaud.

Figure 11 Employment in Industry, 2011 and 2016

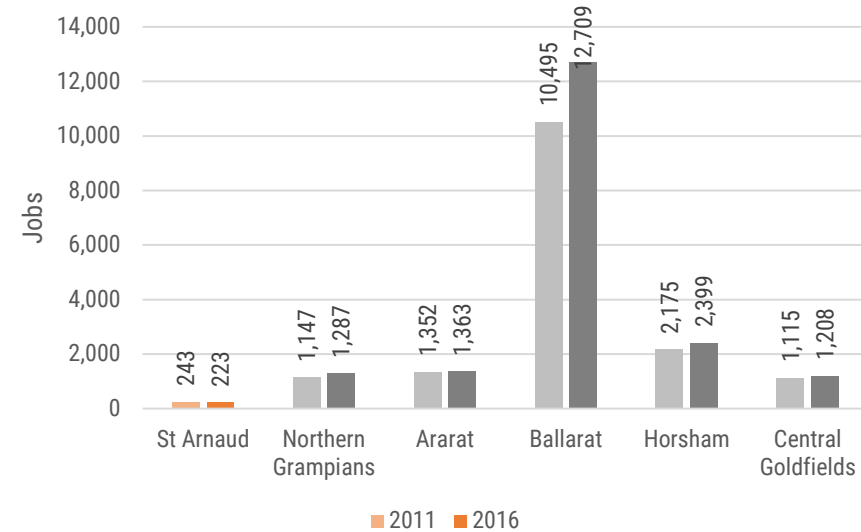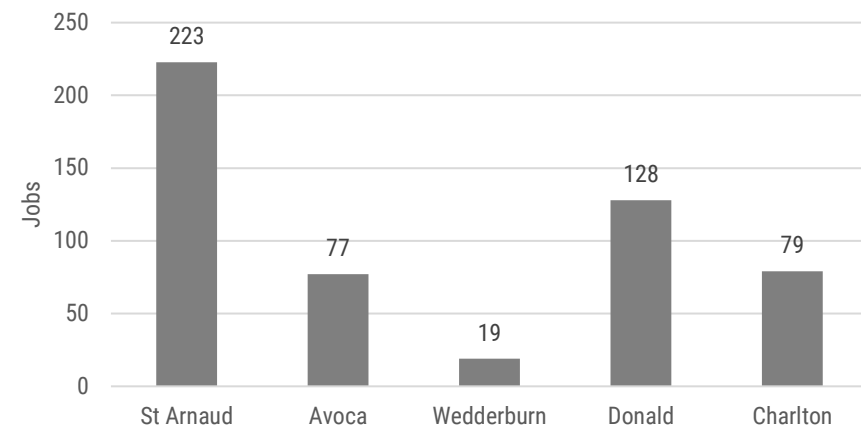Figure 12 Employment in Industry by Township 2016

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[4] Place of work data from the 2016 Census is the latest data available. This data is one of the inputs, along with a range of more contemporaneous data, used in the preparation of employment forecasts undertaken as part of this project. 2021 Census data was released at the completion of this project, and was therefore not incorporated into modelling.

1.8   Regional exports and imports

Regional exports data represents the dollar value of goods and services exported outside of the region that have been generated by businesses and organisations within the region. Another way of defining exports is as an inflow of money into the region. Conversely, regional imports represent the dollar value of goods and services imported into the region and are viewed as an outflow of money from the region. For example, a local business outsourcing accountancy services to a firm in Ballarat is a form of import and would result in an outflow of money. No distinction is made between domestic and international exports or imports.

Industrial sectors, such as manufacturing, are often a region's major exporters. However, they are typically also high importers of the intermediate goods required for production. In Northern Grampians, for example, exports accounts for 82% of output, but to generate this revenue 40% of the inputs are from imports. For Ballarat, the proportion of exports and imports to total output is 65% and 62% respectively.

Figure 13 illustrates the level of exports by Industry for each region, as well as the net level of exports (being the total exports less total imports). Note that St Arnaud's exports are in terms of its share of Northern Grampians total exports as it is contained within the Northern Grampians dataset. As a small township, St Arnaud has the lowest value of exports compared to the larger municipal regions, but net exports were still greater than Ballarat and Central Gold fields (both having negative net exports) in 2021.

Total exports have increased in all regions (Figure 13). Ararat experienced the largest increase in total exports between 2017 and 2021 with an increase of 49.4%. Despite having the highest value of total exports, net exports in Ballarat were negative in 2021, indicating Ballarat's higher dependence on outside imports relative to exports for production.

St Arnaud supports the largest value of exports across the benchmarked townships at $39 million annually, with a net export position of -$7 million. The chart in Figure 14 outlines the total exports and net exports of St Arnaud compared to other benchmark townships, illustrating the scale of exports in St Arnaud by Industry.

Figure 13 Total exports versus net exports (exports less imports), 2017 and 2021
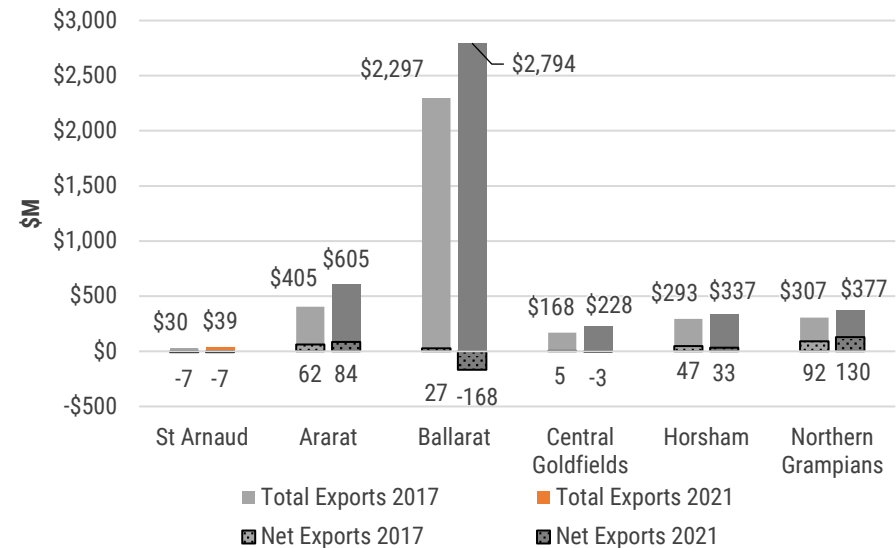
Figure 14 Total exports versus net exports (exports less imports) by township, 2021
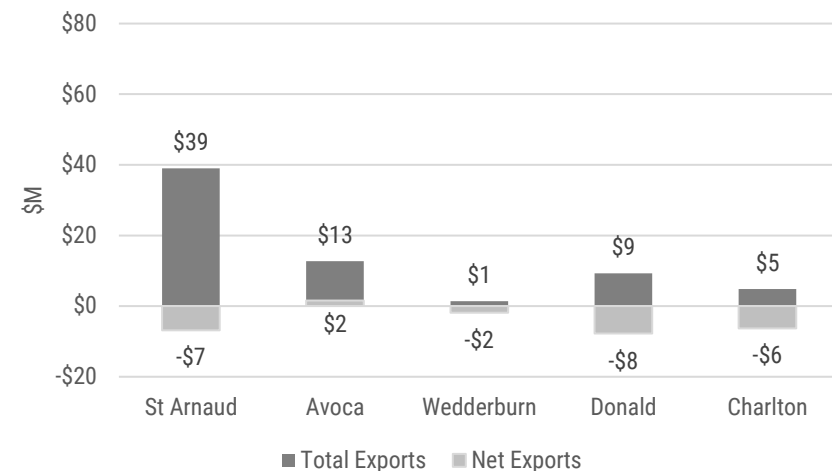
Note: figures for townships are shares of respective municipal exports and imports

1.9   Value-added

Value-added is a key economic metric which estimates the marginal economic value which is added by an industry through the process of production in a defined region. Unlike output, value-added is a non-duplicative indicator as it excludes the costs of intermediate inputs. Therefore, it is one of the best indicators of industries' contribution to the wealth of a region. Value-added by industry sector is the major element in the calculation of Gross Regional Product (and Gross State Product / Gross Domestic Product).

Value-added per worker for sectors in Industry in St Arnaud have increased between 2017 and 2021. This is consistent with in all regions (Figure 16). Ararat experienced the largest increase in value added per worker with a 20.9% increase, followed by St Arnaud (15.4%) and Central Goldfields (15.1%).

For St Arnaud, wholesale trade experienced the largest absolute value increase in value-added per worker with an increase of $36,2667, followed by manufacturing with an increase of $26,285. Interestingly, administration and support services experienced the largest percentage increase with an increase of 71.9% in value-added per worker between 2017 and 2021. This was followed by other services (24.7%) and wholesale trade (21.0%). All sectors have experienced increases in value-added per worker since 2017 (see Figure 15). The only sector experiencing slight negative change in value-added per worker is electricity, gas, water, and waste services with a decrease of -0.4%.

As with output and employment, Industry in St Arnaud generates the largest amount of value-added of the smaller benchmark townships at $30.7 million annually. By comparison, the second largest value-added generating township is Donald ($16.1 million) with the lowest being Wedderburn ($2.8 million).

Figure 15 Value-added per worker by sector, St Arnaud

Average VA/worker:
- 2017 = $113,088
- 2021 = $128,496
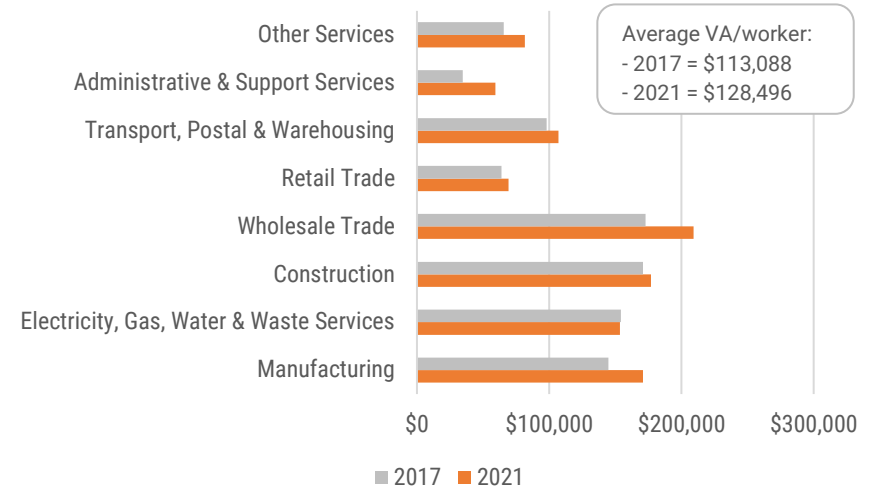
Figure 16 Value-added per worker by region for Industry, 2017 and 2021
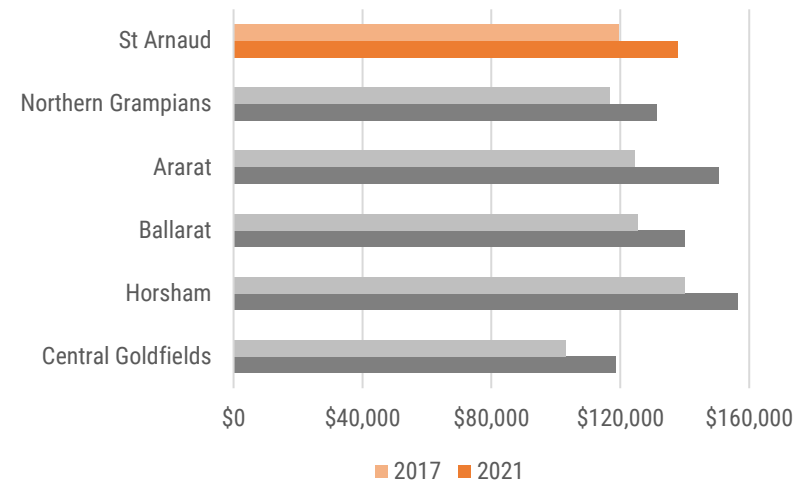
Industry clusters

1.10 Revenue

As would be expected, the levels of revenue generated by sectors that would typically demand industrial land varies across the surrounding municipalities. The maps in Figure 17 illustrate the destination zones (DZ) within Northern Grampians and the surrounding municipalities of Ararat, Ballarat, Horsham, Central Goldfields, and Pyrenees. Destination zones with a darker colour have a higher value of annual revenue being generated by sectors typically demanding industrial land. It is important to note that the data in the adjacent maps include all activity in these sectors, regardless of whether they are in industrially zoned land. Data in the adjacent maps excludes activity 'Industrial' sectors within retailing (such as building supplies) and hiring (such as heavy machinery hire) that was included in section 1.6.

The St Arnaud DZ generates around $94 million of revenue annually, with Stawell generating around $447 million. Within the Horsham DZ, industries generate close to $1 billion of revenue. Despite the higher value being generated in Horsham, the concentration is lower than in both Stawell and St Arnaud where industrial land demand sectors are generating between $0.2 to $0.3 million of revenue per hectare.

DZs within the Ballarat municipality have the highest levels of revenue and the highest concentration per hectare in the region. Many DZs are generating more than $1 million of revenue per hectare, while Wendouree – Miners Rest is up to $6.8 million of revenue per hectare. This higher 'density' of revenue generation in Wendouree – Miners Rest is due to the relatively large proportion of activity in manufacturing that is occurring in the DZ, relative to other areas primarily due to this DZ consisting entirely of industrially zoned land.

Given the St Arnaud DZ accommodates the entire township of St Arnaud, the share of revenue generated by other non-industrial sectors accounts for a relatively high share compared to some other DZs in the region.

Figure 17 Revenue by selected 'industrial' sectors, regional destination zones, 2021
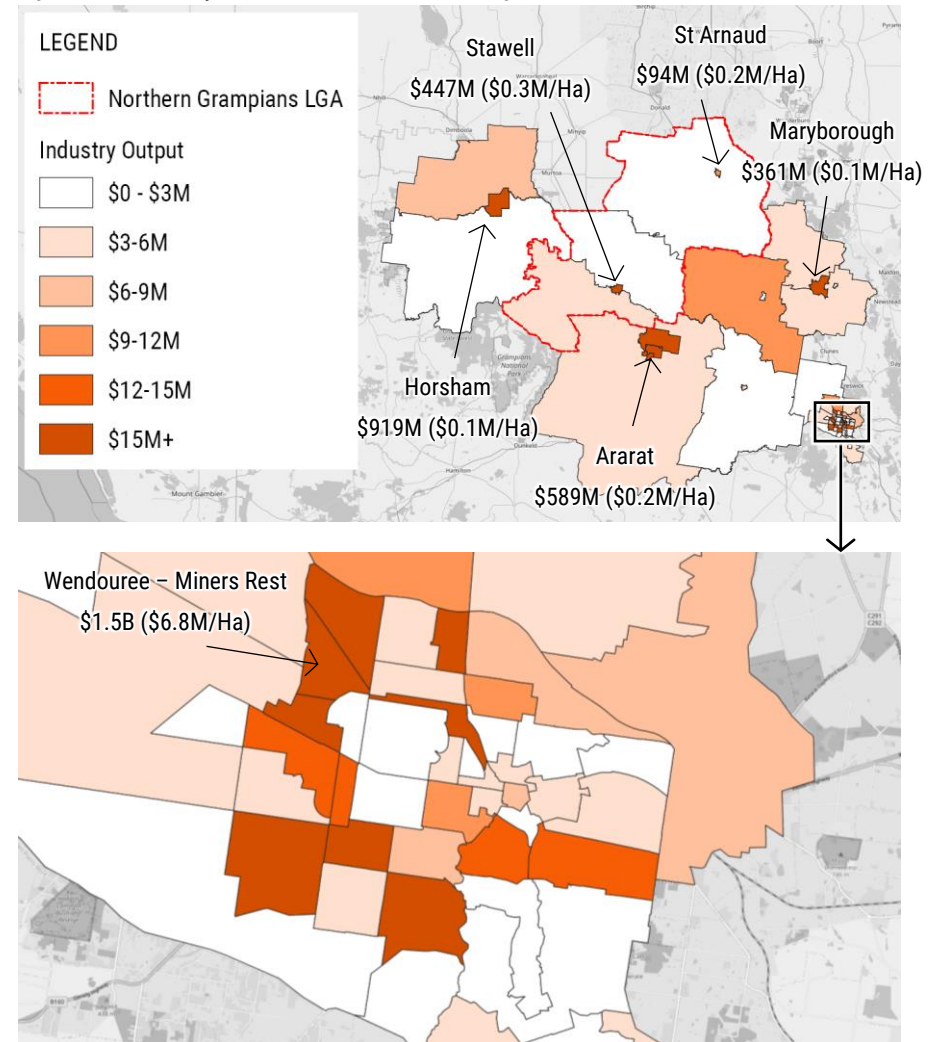
As indicated in Figure 18, each benchmarked townships differs in the composition of 'Industry'. In St Arnaud revenue by Industry is predominantly supported through manufacturing activity. Donald has some level of manufacturing activity but is much lower than St Arnaud as construction and wholesale trade make larger contributions.

Industry revenue in Avoca, Wedderburn and Charlton is primarily produced from construction sector activity. However, construction makes a much smaller share of revenue in St Arnaud. Road transport is also an important contributing sector for St Arnaud and Avoca.

Wholesale trade makes a notable share of Industry revenue in Donald. St Arnaud is the only other township where wholesale trade makes up a portion of Industry revenue.

Figure 18 Compostion of Industy revenue share, benchmark townships, 2021

Legend:
- Manufacturing
- Construction
- Road Transport
- Gas, Water & Waste Services
- Wholesale Trade
- Automotive Repair & Maintenance
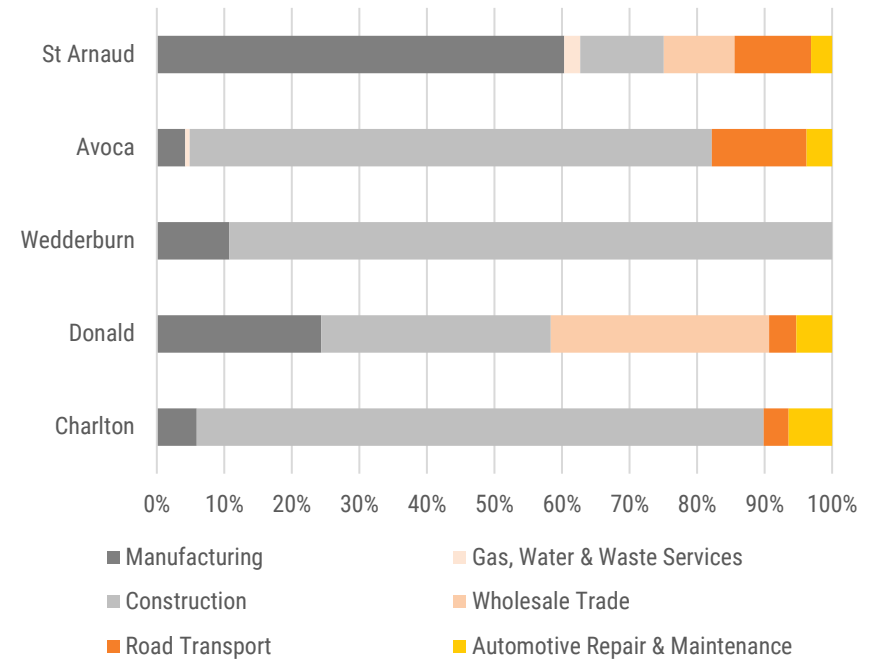
1.11 Businesses and properties

Consistent with the revenue generated by industry across the broader region, the majority of business entries in sectors that typically locate in industrial areas are concentrated in the centres of Ballarat and Horsham (Figure 19). Closer to Melbourne, Bacchus Marsh and Bannockburn also have a relatively high number of business entries.

Northern Grampians has a relatively low concentrations of businesses entries from sectors typically demanding industrial land. Between 2017 and 2021, there were a total of 70 Industrial business entries across the municipality, 36 of these being within Stawell and 13 within St Arnaud. It is important to note that not all these businesses having trading locations within industrial areas. For example, many construction companies which are characterised by smaller sole operators, trade from private dwellings.

Concentrations and locations of businesses are an important consideration for assessing current demand for industrial land. Understanding where new entries are choosing to locate can provide some insight into a location's attractiveness, and where other businesses may choose to locate into the future. The pull of larger centres that has occurred over the past five years will likely continue in the future. The critical mass of population, workforce, businesses, and support services that these centres provide will likely continue to attract new businesses.

Viewing the same data from an industry perspective, Figure 20 highlights the extent of new businesses entries across Northern Grampians within the construction sector relative to other businesses included in the definition of Industry. The majority of these are in construction services (plumbers, electricians, site preparation and the like), with no entries of new heavy and civil engineering construction firms that often require larger sites for storage of equipment and materials.

St Arnaud has accommodated the majority of new road transport businesses in Northern Grampians; however, all of these have trading locations outside industrial zoned land. New business entries in manufacturing, by contrast, are predominantly located in Stawell.

Figure 19 Concentration of businesses entries in 'Industry', five years 1 Jul 2017-30 Jun 2021

Figure 20 New 'Industry' business entries by sector, Northern Grampians 1 Jul 2017-30 Jun 2021
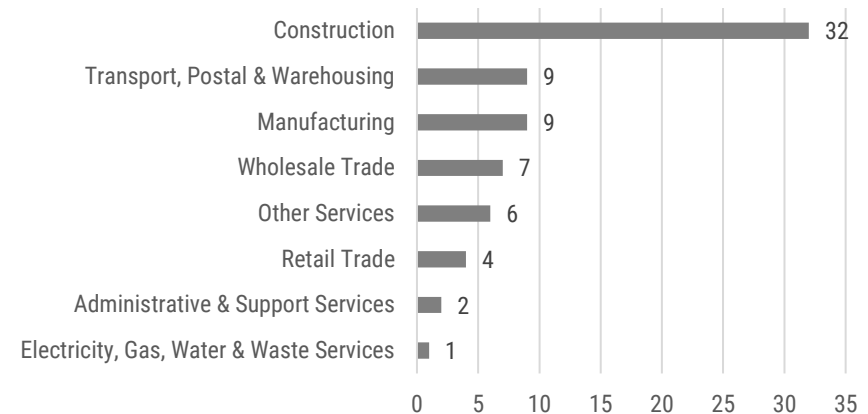
Source: Australian Business Register

Properties with an industrial classification under Council's rating system are also not confined to industrial areas. Across the municipality, excluding utilities and vacant land in the industrial zone, 54% of properties with an industrial classification are in industrial zones. The top image in Figure 21 illustrates the location of these industrially rated properties across the municipality. Properties in rural locations primarily consist of grain and other storage facilities, however processing plants and other warehouses are also present.

The rate of industrial properties being situated within industrial areas does increase slightly within the townships of Stawell and St Arnaud to 63% and 56% respectively. The bottom image in Figure 21 illustrates the general locations of industrial properties in St Arnaud.

Figure 21 Industrial rated properties, LGA and St Arnaud
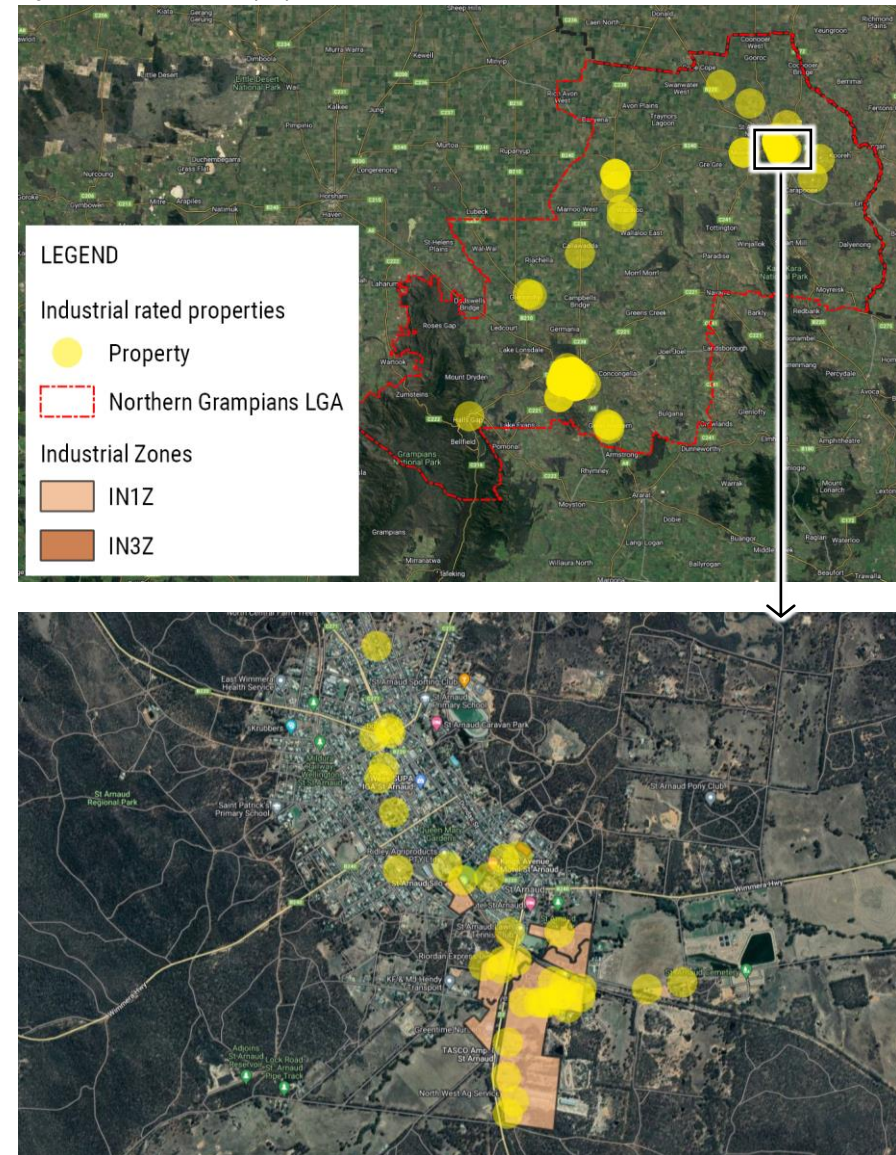
Source: Northern Grampians Shire Council

Industrial land review

1.12 Overview

Underpinning the St Arnaud industrial land review is supply and demand analysis. Supply is based on an audit of the available (vacant) existing industrial land which is a known factor. Demand, however, is largely unknown as it is reliant on assumptions around future take up of industrial land which itself will be influenced by a broad range of factors.

Key considerations for demand in Northern Grampians generally and St Arnaud specifically are the declining population and employment, the high level of employment self-sufficiency (i.e., most of the workers in Northern Grampians live in the municipality), and larger 'Industrial' employers typically being long established organisations rather than new entrants.

Other considerations include the likely scale of industries that would be locating in St Arnaud. Larger manufacturing and transport operations will be more likely to locate in regional centres of Ballarat and Horsham. Large scale activities around St Arnaud typically support agricultural production, with these types of processing facilities suited and permitted to operate in agricultural areas. The Gilmac site to the north of the township is an example of this, with the facility actively utilising around 16 hectares of a 56-hectare site located in the farming zone.

Future industries that will demand industrial land in St Arnaud are more likely to have land demand that is reflective of standard or smaller industries, as opposed to large format processing facilities or logistics hubs. Such activities would be providing support services to the region's agricultural sector, activities such as wholesaling or repair services, or businesses servicing the local population.

It is important to consider that any forecast demand scenarios are not fixed and include a level of uncertainty. The approach taken in this assessment attempts to address this in a number of ways, such as applying probabilistic simulations and providing demand ranges. Applying such methods attempt to account for the inherent uncertainty involved with forecasting while providing realistic projections around the likely future requirements for industrial land within the municipality.

1.13 Land supply audit

A supply audit of industrial land within St Arnaud was undertaken via a parcel-by-parcel desktop assessment. The assessment combined rates database provided by Council, a review of aerial photography, and where required a review of the Australian Business Register data and/or internet searches.

A map of existing industrial land in St Arnaud that was part of the audit is provided in Figure 22. A map of the results is provided in Figure 23 on the following page.

Figure 22 Industrial land, St Arnaud
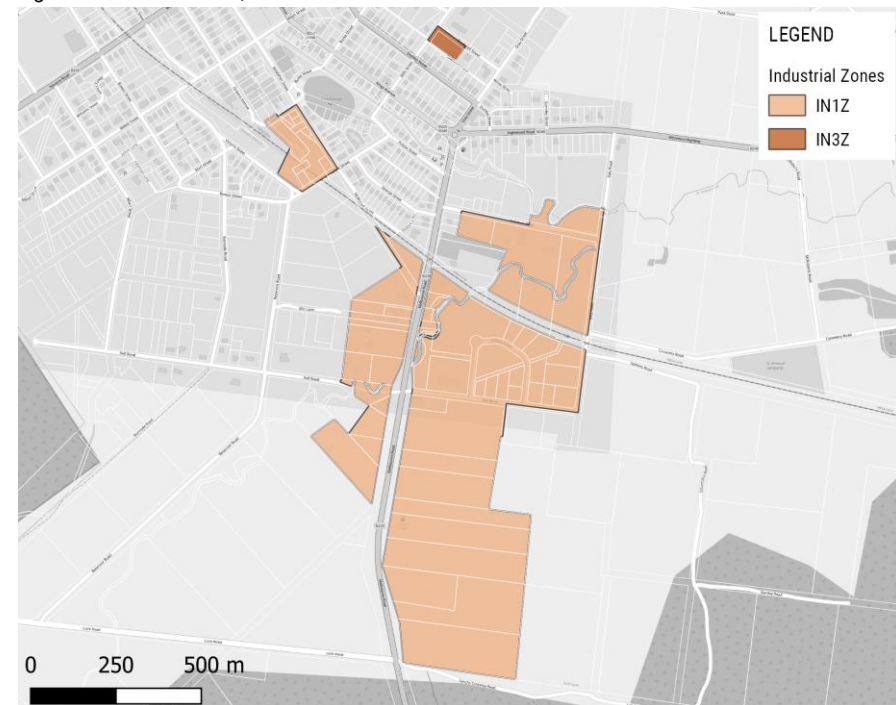
Figure 23 St Arnaud industrial land supply audit

LEGEND

Flooded parcels

Flood

Parcel status

Occupied

Vacant

Unavailable
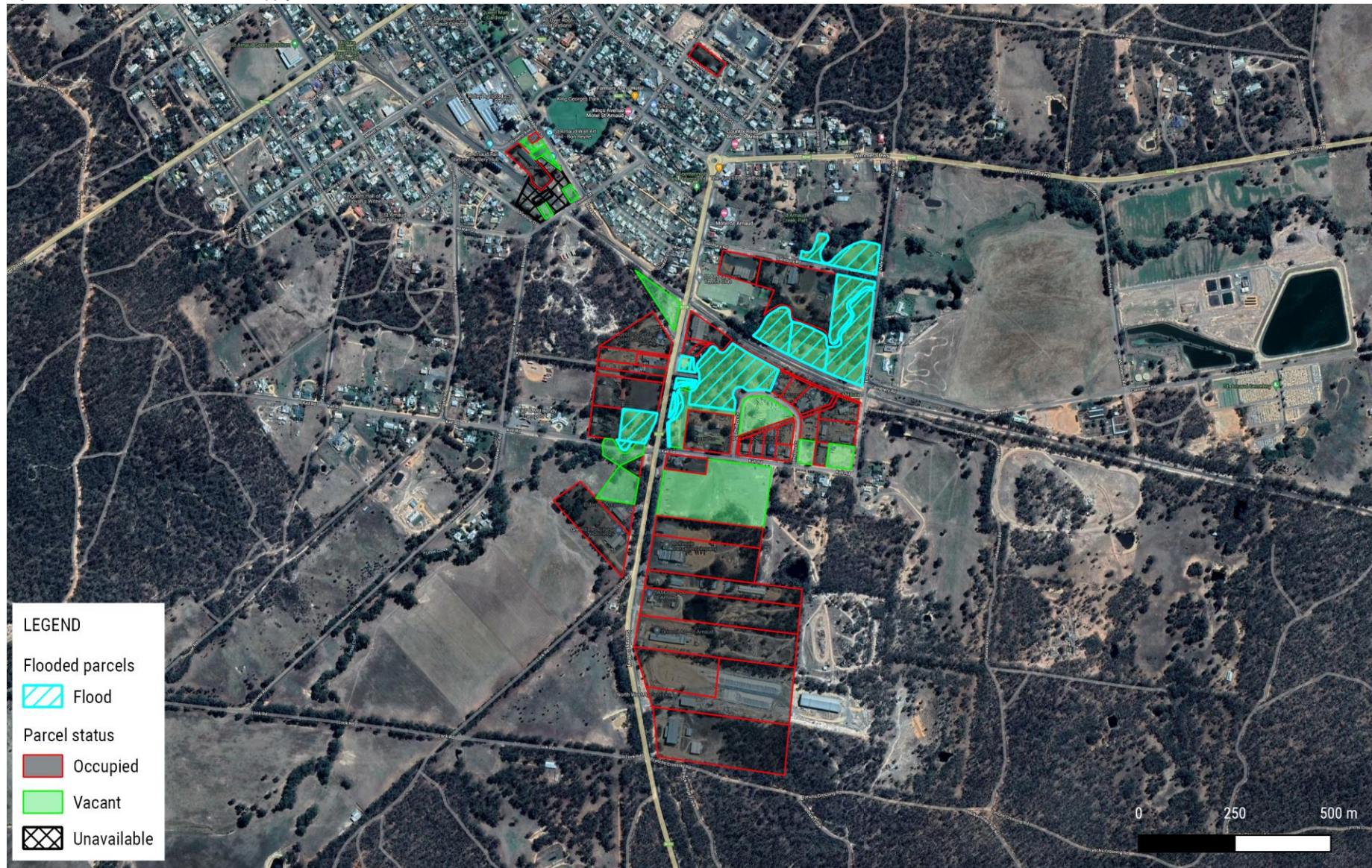
Land supply results

The final land supply audit is summarised in Table 1 and illustrated in Figure 24. There are a limited number of vacant parcels in St Arnaud (32), and almost half of these are constrained by flooding. The 17 vacant lots unconstrained by flooding have a total area of 8.2 hectares. Around half of this is provided by a single 4-hectare parcel.

However, excluding 'vacant' parcels around the silos, the number of vacant parcels would be reduced to only 7.

This limited supply could be taken up relatively quickly with only a few new developments. Practical supply can be further limited by vacant lots not being available to purchase.

While most of St Arnaud's industrial land is occupied, there is also evidence of underutilisation. Underutilised land may be occupied by non-industrial uses such as dwellings, include large areas that are unused, or have a low intensity of use (e.g., have dispersed storage areas or very large circulation).

Table 1 Industrial land supply audit

	Unconstrained Count	Constrained count	Unconstrained Area (ha)	Area constrained (ha)
Occupied	43		40.2	
Vacant	17	15	8.2	8.6
Unavailable	2		1.1	
Total	**62**	**15**	**49.5**	**8.6**

Figure 24 Industrial land supply audit
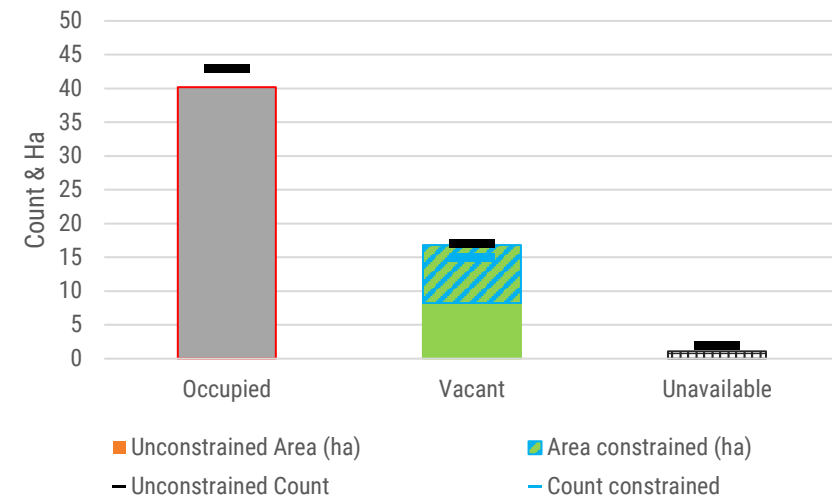
1.14 Land demand modelling

Determining future demand for industrial land applies an employment-based approach whereby new jobs demand a certain amount of land based on a range of predefined factors. The key intuition is therefore the local relationship between land and employment. Understanding the likely relationship between these two key factors of production, it is possible to estimate the future demand for industrial land using employment forecasts. The process is outlined briefly below (see detailed approach in Appendix A).

Employment forecasts are prepared at a municipal level for all industry sectors, then proportioned at an industry level for St Arnaud.

A key input into the demand assessment is understanding the proportion of jobs within certain industries that locate in industrial areas. A second factor is the amount of land that is typically occupied by businesses for a number of employees. Both factors are very localised. For example, employment to land area ratios for a regional location such as St Arnaud will be different than exists in metropolitan Melbourne. Similarly, there will likely be a different proportion of 'Industry jobs' that locate in industrial precincts in regional areas compared to major cities or metropolitan areas. To account for these localised factors, a site-by-site audit of businesses in St Arnaud's industrial areas was undertaken. The results were combined with results from similar assessments prepared for other regional areas to determine key ratios and probability curves used in the modelling.

Standard industry sectors are not good representations of the actual scale and intensity of businesses. For example, a meat product manufacturer making boutique smallgoods would have vastly different characteristics to a large meat product manufacturer such as Frews. Forecast jobs are therefore allocated into broad land-use types which have different employment to land area ratios (see descriptions in Appendix C). Freight and logistics have been excluded from the St Arnaud assessment as it is not anticipated that this scale of activity would occur in the township's industrial areas.

Figure 25 Deriving future industrial land demand from employment forecasts
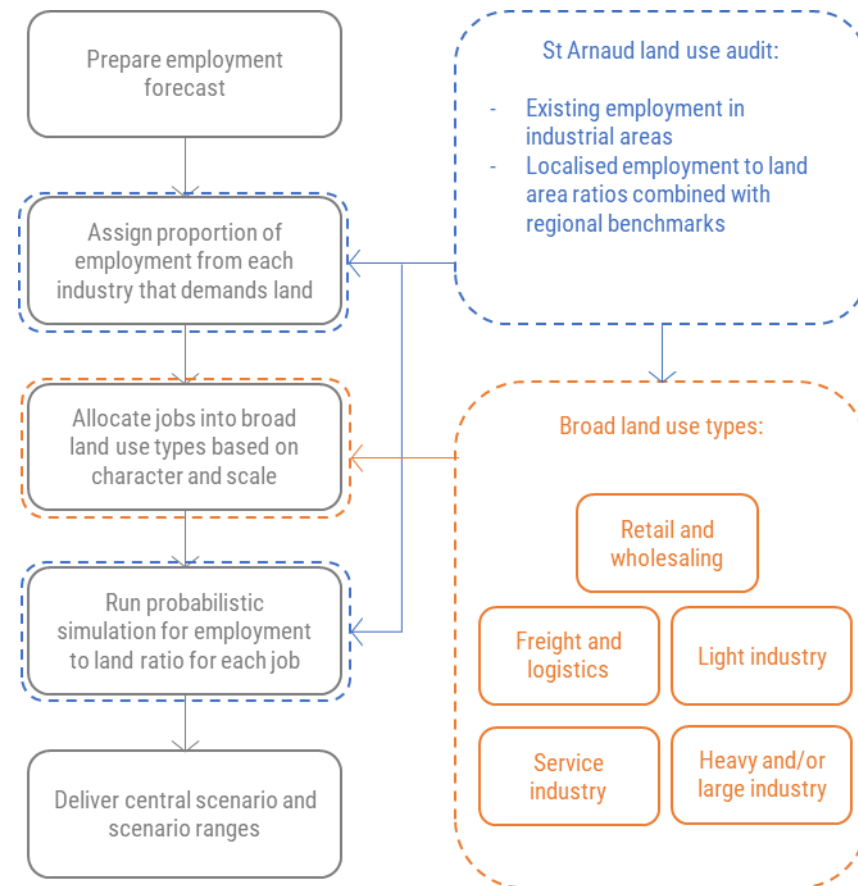
1.15 Employment forecasts

Three employment forecast scenarios were modelled for St Arnaud township. The central demand scenario is the best estimate for potential future demand given the data available to date. A high demand scenario was also prepared to demonstrate a future where plausible growth scenarios in industrial jobs increased demand in the township, while a low demand scenario attempts to capture a pessimistic outlook. The high and low scenarios capture 50% of the entire forecast range for the central scenario.

Figure 26 outlines the employment forecast scenarios for St Arnaud through to 2041 for all industry sectors, including those not typically demanding industrial land. Both the central and low forecasts predict a decline in employment at an average annual rate of around -0.6% and -1.9% respectively. The high scenario indicates employment will increase slightly, with annual average growth of 0.3%.

These forecasts are for all jobs within the St Arnaud, the majority of which are in sectors which have no demand for industrial land. For example, health care is forecast to increase under the central growth scenario. In contrast, employment in all other sectors is forecast to contract or remain stable under the central scenario. The chart in Figure 27 illustrates the forecast in health care relative to other key 'industrial demand' sectors. Combined with the fact that not all of the new jobs will locate in industrial areas, the result is that demand for industrial land is forecast to be negative under the central and low scenario.

Data tables for each of the employment scenarios for both industries and broad land use types are provided in Appendix D.

Figure 26 Employment forecast, St Arnaud (all industries)
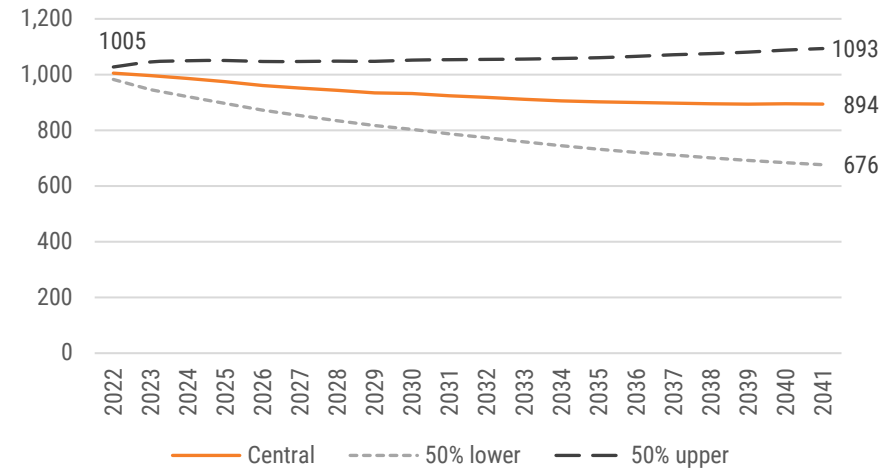
Source: REMPLAN 2022

Figure 27 Central scenario employment forecast, St Arnaud (selected industries)
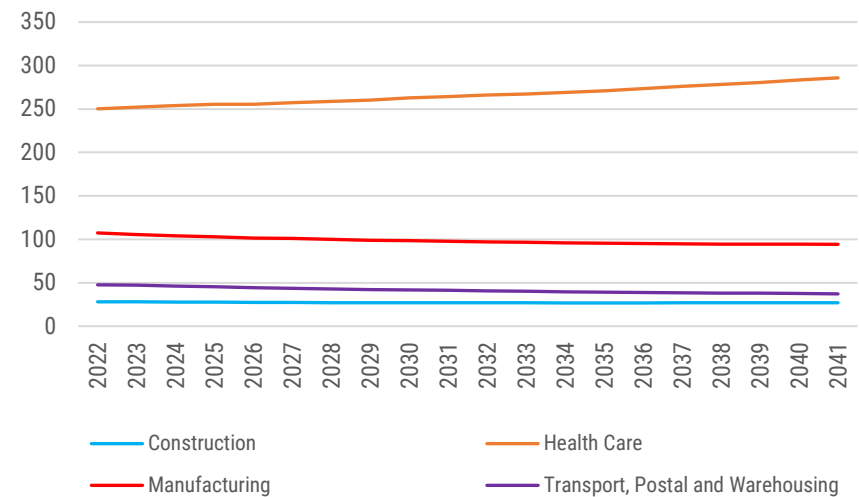
1.16 Outcomes of supply and demand analysis

The results under the central demand scenario are illustrated in the chart in Figure 28Figure . As a model, the decline in employment in industrial sectors translates to negative demand for industrial land. If the forecast decline in employment does eventuate, it would not become immediately apparent as existing activities would continue for a period of time but with lower levels employment.

The largest contributor to the decline in demand is the retailing and wholesaling sector, followed by heavy and/or large industry. Retailing and wholesaling have been experiencing broad declines across the country as technological changes have been impacting these sectors.

It is relevant to note that although the forecasts indicate negative demand, the impact is still small. Forecasts suggest that by 2039 land demand would have declined to its maximum level for the period which is only -1.2 ha. In the context of industrial development, which requires larger parcels, this is relatively small as a single new operation of scale could easily require this amount of land.

Under the supply and demand model, declining demand translates to increased supply (Figure 29). From a base amount of 8.2 hectares of vacant unconstrained land, the central demand scenario results in around 1 hectare of land becoming available over the forecast period.

The model is theoretical as previously occupied land with capital improvements would be unlikely to revert to vacant land. However, for the purposes of estimating current levels of supply versus future demand it provides an indication that the current level of industrial land available in the township would likely suffice to meet projected demand over the long term.

Despite the low projected demand, there may be other strategic justification to provide new serviced industrial land. As identified above, there is a relatively low level of industrial land available within the township. If conditions change in the future and there is even a moderate increase in demand, then the lack of land may be a restricting factor to attracting new businesses or allowing existing businesses to expand.

Figure 28 Cumulative demand for industrial land under central demand scenario, St Arnaud

Figure 29 Balance of industrial land under central demand scenario, St Arnaud
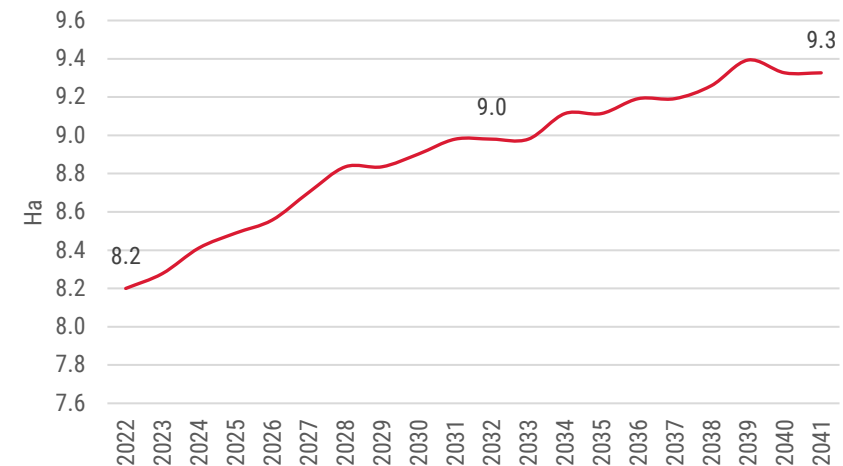
Potential investigation locations

As outlined above, although demand for industrial land is anticipated to be declining, this does not mean that there may be other reasons to plan and/or provide for additional land. Having a limited amount of development-ready land can itself be a constraint to attracting new enterprises or allowing existing businesses to expand while remaining in the local area.

It is also important to consider that although forecasts are based on the best information available at the time, conditions can change in the future. The establishment of a new mining operation, a specific type of processing facility or new energy generation plant could provide impetus for industrial land demand.

Exploring locations for industrial land should include factors such as access to utilities and transport networks, larger property(ies) to facilitate site assembly, adequate overall land area to provide suitable number and size of lots, distance from sensitive uses, and an area that is relatively free from environmental constraints.

While the north of the town contains a number of larger properties, the lack of sewer infrastructure is a key consideration. There are examples in other regional Victorian towns where land rezoned to industrial has laid undeveloped due to cost constraints of servicing.

Considering the factors listed above and noting that detailed capability assessments or land status (occupied/vacant) has not been undertaken as part of this report, properties to the south of the township (Figure 30) appear to present the best opportunities for further investigation as they are:

- Accessible to existing utilities
- Proximate to the existing industrial area.
- Have good access to the existing arterial transport network
- Contain a number of larger sized properties.

The scale of any new industrial precinct would need to respond to the likely scale of activities that would occur. For St Arnaud, any new industrial land would most likely need to provide for small to medium scale operations. Larger scale industrial activities in the area are likely to comprise of rural industries situated outside the township.

A review of newer industrial subdivision in Northern Grampians and other regional municipalities indicates an average lot size of around 3,000 to 5,000 square metres. The smallest stand-alone industrial lots are generally no less than 1,000 square metres. Based on an average lot size of 4,000 square metres and a 20% development takeout rate, 10 lots would be able to be provided for every 5 hectares of land.

Figure 30 Industrial land site opportunties

Parcels to the north are distant to from the sewer network which could be costly for servicing.

Parcels to the south present best opportunity for new industrial land.

LEGEND

Property within 2km of township

- ☐ 0 - 5ha
- ☐ 5 - 10ha
- ☐ 10ha +
- ⋯ 500m to electricity network
- ⋯ 500m to sewer network
- ▬ Arterial roads
- ▨ Flood mapping

Existing Industrial Zones

- ☐ IN1Z
- ☐ IN3Z

0   1000   2000 m

REMPLAN
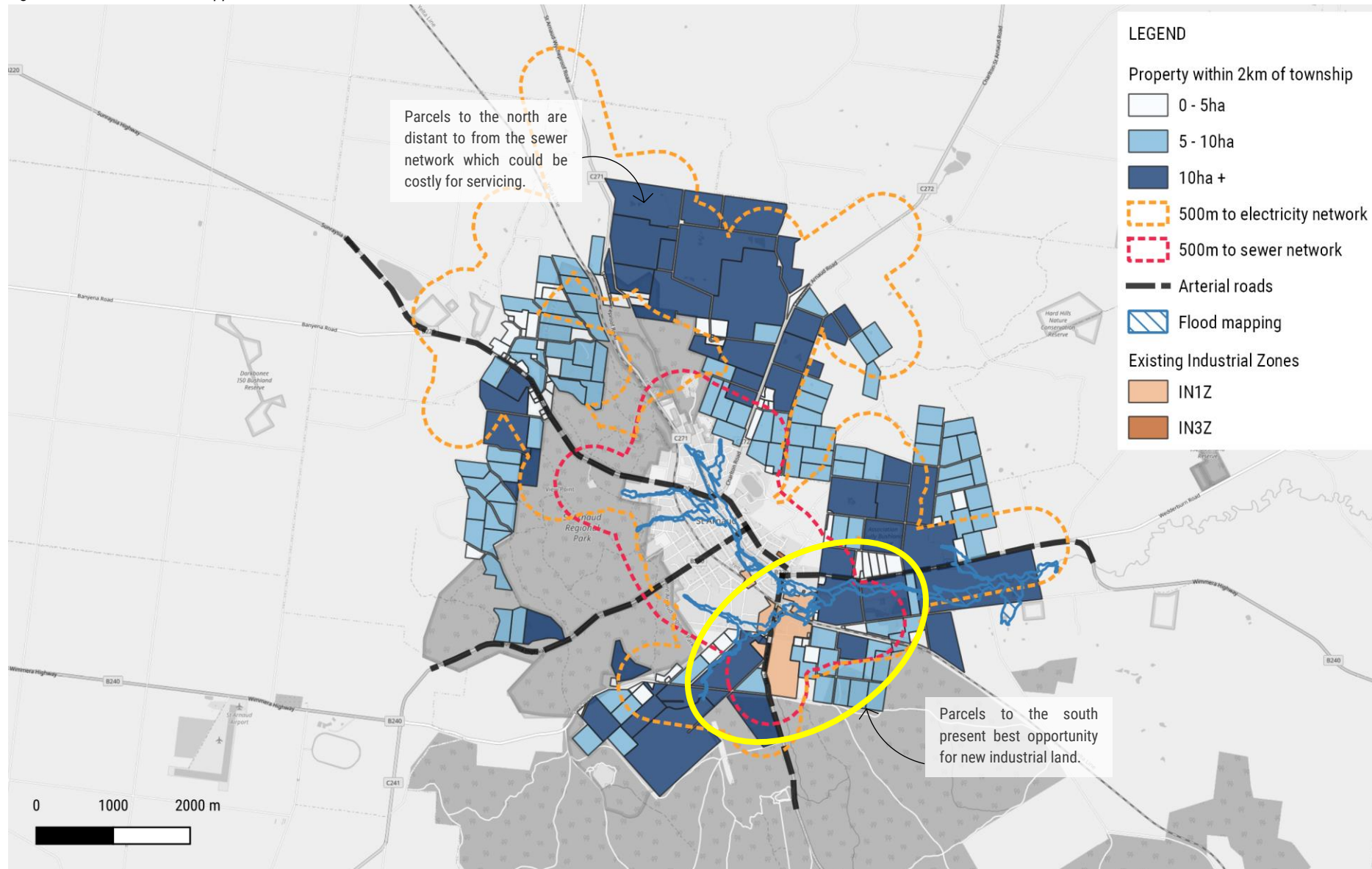
Employment growth scenario

Most employment within the St Arnaud SA2 since 2011 has been in agriculture, particularly within the livestock, grains, and other agriculture subsector. The combined level of employment in 'industrial' sectors[5] is around half that supported by agriculture and is roughly equivalent to the number of jobs supported by health care.

The relative depth of employment in agricultural industries is due to characteristics of the region, including natural assets, workforce skills and infrastructure. Employment growth in the St Arnaud region is likely to be related to activities within the surrounding agricultural areas, which could relate to agricultural production or mining. New or expanding enterprises that establish in the surrounding agricultural area would then support new opportunities in supply-chain activity within the township. For example, a new agricultural produce processor would likely generate demand for additional road transport services, which in turn would increase demand for a range of repair and maintenance services.

To demonstrate the potential impact that a new or expanded industry would have on local employment, an economic impact assessment (EIA) has been prepared which models 30 new jobs in the agriculture, forestry & fishing sector. An EIA indicates the potential demand for additional employment in supply chain industries generated by direct changes in employment. This is a plausible scenario given the relatively recent establishment of Gilmac in St Arnaud which supports between 15 to 20 jobs directly.

The creation of 30 new jobs in the agriculture, forestry & fishing sector in the St Arnaud SA2 area would support an additional 14 jobs through flow on impacts for the local economy. Some of these jobs would be in sectors that demand industrial land, including manufacturing, transport, repair and maintenance, wholesale trade, and large format retailers (Figure 31).

While the results of this scenario may not appear to be very large, for a smaller township such as St Arnaud, these can be relatively substantial.

While this scenario reflects the flow on effects of employment growth in the agricultural industry, similar effects may be realised with new mining operations (such as those being established for the Donald sand mine), or an increase in employment in existing manufacturing operations in the township which would potentially have higher multiplying effects, thereby supporting more local jobs in supply chain industries.

Figure 31 Employment impact of 30 new jobs in agriculture, St Arnaud SA2
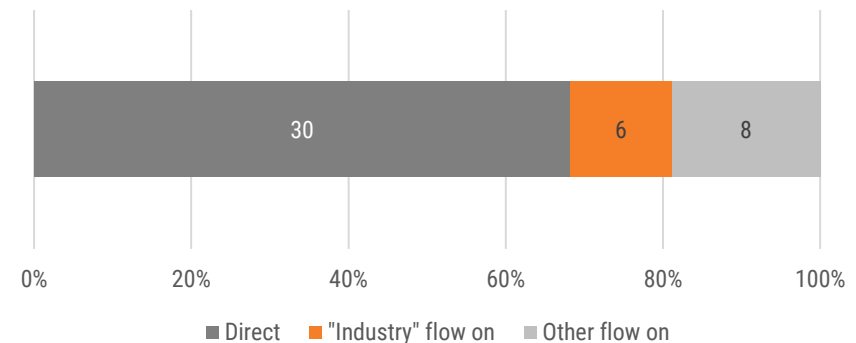
[5] Manufacturing, construction, wholesale trade, transport & and warehousing, and other services industry group

Summary and conclusion

St Arnaud is the second largest township in the Northern Grampians and plays a key role in the provision of services to the local population and surrounding rural area. The township is provided with around 58 hectares of industrial land, however the majority of this is developed with many of the remaining vacant parcels being constrained by flooding or unavailable in a practical sense.

While supply is relatively limited, demand over the coming decades is forecast to be in decline. This declining demand is largely a result of a historically declining and ageing population, long-term decline in employment more broadly, and a contraction of employment in sectors that demand industrial land specifically.

While demand is forecast to be low, this does not necessarily mean that planning for the provision of additional land should not be undertaken for a range of strategic reasons. More pressing, however, is the declining population which should be a key focus for the township.

Outcomes of the industrial land supply and demand analysis can be summarised as:

- Forecast employment and industrial land demand does not indicate a clear requirement for additional industrial land supply.

- However, the limited supply of vacant industrial land is itself a possible constraint to new development occurring.

- Provision of additional industrial land would be a strategic decision to enable and facilitate new local investment opportunities if/when they arise. This may be from new businesses establishing in the town or existing businesses expanding/upgrading.

- Areas to the south-east of the township would be the most likely area for further investigation.

- Strategies that focus on resident attraction and housing renewal to support population growth should be given priority over increasing industrial land supply in St Arnaud.

Appendix A – Approach to modelling land demand

Modelling of land demand applies an employment-based approach to determining estimates of land consumption. This approached is grounded in the key connection between jobs and the relationship with land area.

There are four key components of this approach, being:

1. Employment forecasts by industry,
2. Understanding the share of employment that falls within industrial areas,
3. Classifying industry into broad land use type, and
4. Establishing job to land area ratios by broad land use type.

1. Employment forecasts by industry

The forecasts of future employment are generated using an ensemble modelling approach where multiple sources of data are applied to estimate future levels of employment by industry sector.

Each dataset provides insights into the potential future demand for jobs in the region and is based on place of work. That is, no inference is made to where workers reside.

The forecasts apply three employment demand models:

- Demographic models - which consider the working age population and their propensity to work and how these propensities might change going forward.
- Time series models - which rely on the historical estimates of jobs and how they are evolving over time.

Other factors that have been taken into consideration include:

- The economic cycle
- The live and work colocation dynamics (commuting)
- The future of work and the impact of disruptive technologies.

Demographic models

Population growth is key driver of the employment forecasts. The number of people that are available to participate in the workforce is a key determinate of the labour market outcomes in a region. For example, it is common to see a seasonal spike in the number of retail jobs during the pre-Christmas rush. For this seasonal spike to materialise there needs to be enough willing labour market participants to fill the available job positions. In this example, these participants tend to be younger people who are balancing the work and education phases of their life. But all industries have idiosyncratic gender and age profiles of their workforce.

Consequently, the gender and age profile of the future population is expected to shape the labour market outcomes of the future. Furthermore, it is projected that subtle changes in the propensities of people to work will change over time. As the economy evolves and becomes more dependent on the 'thinking' economy, some people in the younger working cohorts are expected to delay entering the workforce in preference of longer periods of education. Also, as we track forward to 2036 the proportion of people over 60 years will increase, and it is estimated that a greater number of people in older age cohorts will be engaged in the workforce for longer.

It is important to note that new population figures were published after modelling was completed for this project and have therefore not been incorporated into the demand model. These figures were rebased from the most recent 2021 Census and resulted in the previous population decline for St Arnaud being reversed to a small increase in the population. While a growing population would alter the outcome of the demand modelling to a small degree, the breakdown of age cohorts suggests that any change would be negligible. While the population of St Arnaud has increased since 2016, this is primarily in retirement age and older. Population figures indicate that young workers (aged 15 to 29) are still leaving, while other cohorts are relatively stable.

Two sets of population forecasts were used to inform the labour market estimates that underpin the employment forecasts. Independent population forecasts for Northern Grampians Shire were prepared by REMPLAN, as well as the forecasts prepared by the State Government outlined in Victoria in Future[6]. The Victoria in

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[6] Victorian Government (2019), Victoria in Future: Population Projections 2016 to 2056

Future forecasts were rebased for the 2016 Census and extrapolated for the period 2031 to 2036. These have not been rebased for the latest 2021 Census.

Time series labour market models

Alongside the population forecasts, the other key determinant for the employment forecasts is the industry employment trends. These trends capture how industries are changing over time – changes that are driven by a myriad of factors such as new innovations, technological advancements, and new business models.

Different industries face different economic conditions. For example, the decade long decline in the number of jobs in the manufacturing industry in Australia reflects the global economic conditions that influences that industry. At the same time the rapid growth of the higher skilled services industry in Australia, such as health and education are indicative of the evolving comparative advantages of the Australian economy.

Likewise, the trends of different industries in Northern Grampians are varied, with some experiencing consistent growth while others are tracking sideways or contracting. The evolving nature of employment trends need to be captured as best as possible to produce the best possible employment forecasts. This often means that a simple linear extrapolation is ineffective.

The recent employment data from the 2021 Census was released at the end of this project and was therefore not able to be incorporated into any modelling. Preliminary assessment indicates that employment in St Arnaud has stopped its long-term decline and has stabilised to some degree. While overall employment has increased over the last five years, it is not enough to indicate that a major growth in industrial demand sectors would occur over the forecast period.

Our estimates of the employment trends are derived using an ensemble time series modelling approach – in this context 'ensemble' means to use multiple models and then average them into a single average forecast series (see Figure App - 1).

Figure App - 1 Employment trends in, example region
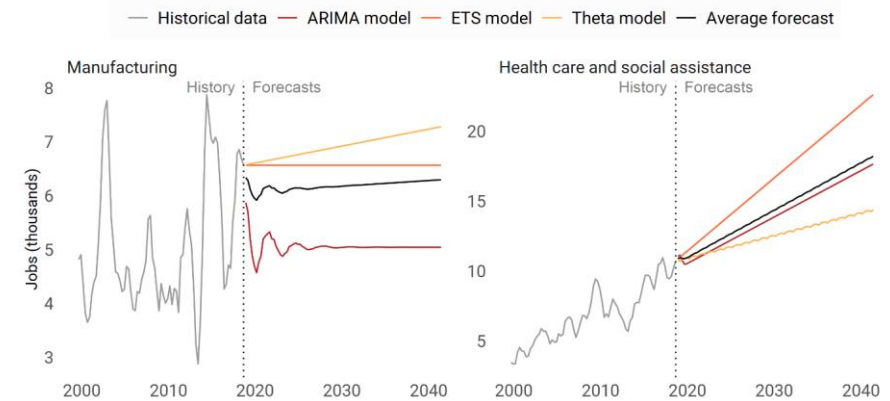
Source: ABS and REMPLAN

Final employment forecasts

As with all forecasts, there is a degree of uncertainty which grows the further out that forecasts are projected. The figures used in this analysis are primarily derived from the midpoint of the prediction range. The chart in Figure App - 2 illustrates how uncertainty increases over time as the forecast range extends further from the central scenario.

For this region in 2040, the midpoint of the range is 9,470 jobs. However, if we were to look at the upper and lower limits of the forecast range and wanted to cover 95 percent of potential outcomes, the range is as high as 12,117 and as low as 6,824.

Figure App - 2 Employment forecasts example region, all industries (central demand scenario)
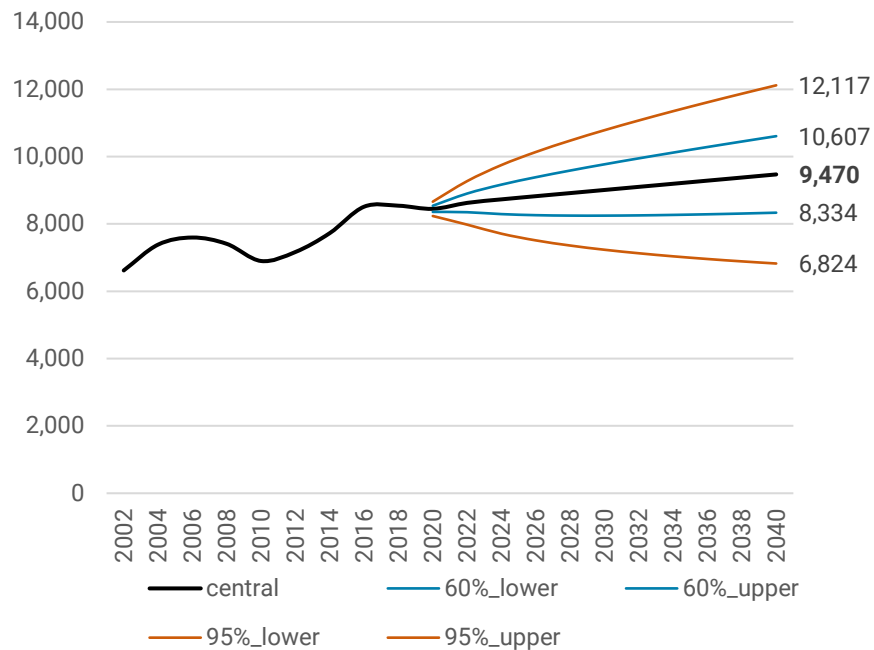
2. Employment in industrial precincts

Regional areas can be quite unique as to what proportion of 'industrial jobs' are actually located within industrial areas. For an area like St Arnaud, many industrial jobs are accommodated in rural land, be that at a person's dwelling where someone may keep several trucks as part of a transport company, or as a rural industry such as a winery or machinery repairer.

To understand the proportion of jobs that are currently located in industrial areas for St Arnaud, REMPLAN undertook a site-by-site analysis of businesses and employment numbers. The audit was related back to total employment numbers for the municipality. Due to the low count in many areas, the proportions were tested against other regional industrial land analysis and scaled up or down to ensure shares used in each scenario were not over or underrepresented. The shares used in each scenario are outlined in the table below.

Table App - 1 Share of jobs in industrial precincts by industry (excludes industries with not share)

Industry	Industrial land share of actual jobs (audit)	Industrial land share of new jobs (central scenario)	Industrial land share of new jobs (high scenario)
Manufacturing	62%	60%	90%
Electricity, Gas, Water & Waste Services	0%	20%	40%
Construction	8%	20%	25%
Wholesale Trade	0%	50%	60%
Retail Trade	1%	5%	10%
Transport, Postal & Warehousing	1%	10%	40%
Rental, Hiring & Real Estate Services	2%	10%	40%
Other Services	12%	20%	40%

3. Classifying industry into broad land use type

The precinct audit also informed how employment in given industries would be categorised into broad land use types. For example, what proportion of manufacturing is large scale industry and how much is light industry, or how to classify road transport in St Arnaud given the small scale of existing footprints relative to larger industrial precincts in regional centres such as Ballart or Horsham. The final shares for each industry are outlined in the table below.

Descriptions of each broad land use type are provided in Appendix B.

Table App - 2 Share of jobs by industry into broad land use type

Broad land use type → Industry sector ↓	Heavy and/or large industry	Light industry	Retail and wholesaling	Service Industry
Manufacturing	50%	50%	-	-
Electricity, Gas, Water & Waste Services	-	50%	-	50%
Construction	-	50%	-	50%
Wholesale Trade	-	-	100%	-
Retail Trade	-	-	100%	-
Transport, Postal & Warehousing	-	20%	80%	-
Rental, Hiring & Real Estate Services	-	80%	-	20%
Other Services	-	25%	-	75%

4. Job to land area ratios

Regional job to land area ratios were applied in the modelling, based on assessment of industrial land in other Victorian regional areas. Including outcomes of other regional assessments ensured that ratios were sufficiently robust and not over specified, particularly given the underutilisation that is apparent in St Arnaud for some parcels that have been developed for a long period of time.

Analysis used an average around probability curves that were used in simulations for all new jobs. The purpose behind running simulations is to recognise that while most jobs in a given land use type will have similar land demands, there will be occasions where higher or lower ratios would occur. For example, where the average job to land area ratio for a sector is small (e.g. 277 square metres as opposed to 600 square metres), the low and flat curve was used in simulations for new jobs in this land use type as there is generally a broader range of possible ratios (Figure App - 3).

Figure App - 3 Probability curves for light industry (low red curve used in modelling)
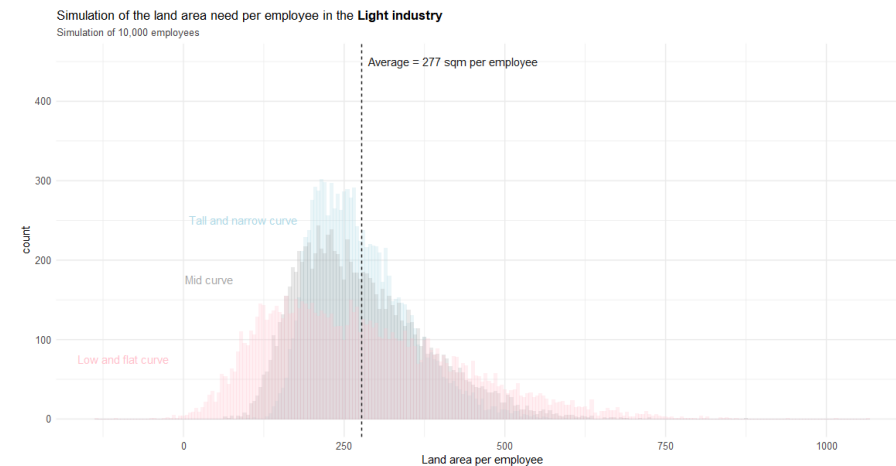
Appendix B – Broad land use classifications

Description	Examples	Land use requirements / implications
Retail and wholesaling Large format retail and wholesaling which can generate a degree of light and heavy vehicle movements due to regularity of deliveries and/or scale of product sold.	Dedicated trade supplies, vehicle and parts wholesaling, pet food and grocery wholesaling, fuel wholesaling, hardware stores.	Zoning: IN1Z, C3Z Requirements: Access to arterial roads. Market proximity (within urban areas). Implications: Activity generally compatible with other uses but intensity and route of vehicle movements to be considered.
Service industry Smaller scale industries that service a resident population but often have requirements for more extensive areas of storage (indoor or outdoor) for equipment. Traffic generation of light vehicles may be high.	Construction trades, car servicing, domestic storage.	Zoning: IN1Z, C3Z Requirements: Market proximity (within urban areas). Require areas for storage of goods, materials, and equipment. Implications: Potentially incompatible with sensitive uses (noise, visual). High generation of light vehicle and moderate heavy vehicle traffic.
Light industry Small scale production of a range of goods. Lower emissions and nuisance level which could be a result of scale of operation, but also improved use of technology, equipment, and emission management.	Cabinet making, printing, clothing manufacturer, light engineering, some R & D activities, small scale food and beverage processing.	Zoning: IN1Z, C3Z Requirements: Transport accessibility. Implications: Potential amenity issues depending on activity; however, many small-scale activities will be compatible with sensitive uses.
Heavy and/or large industry Large scale production activity which is typically characterised as having high adverse amenity potential due to greater levels emissions or visual amenity issues. Can generate significant numbers of heavy truck movements.	Fabricated metal production, chemical and paint production, large scale food and beverage manufacturing, concrete batching, resource and waste recovery, textile manufacturing, sawmill or construction product manufacturing, utilities.	Zoning: IN1Z, IN2Z, IN3Z Requirements: High infrastructure requirements. Direct arterial road and/or rail access. Larger parcels of land. Buffer distances to sensitive uses. Implications: Generally incompatible with sensitive uses due to emissions and visual amenity. Can be high generator of heavy vehicle movements.

Description	Examples	Land use requirements / implications
Freight and logistics Warehousing and distribution, increasingly of a large scale. Generally, has a high demand for land and is characterised by large footprint high roof buildings with extensive docking and hardstand areas. Very high generator of heavy truck movements. (Note: this broad land use type was not used in the modelling for St Arnaud).	Cold storage, distribution / logistics centres, postal depots.	Zoning: IN1Z, IN3Z Requirements: Direct access to major arterial roads or freeway. Large land parcels. Implications: Activity incompatible with sensitive uses due to visual amenity and very high levels of heavy vehicle movements.

Appendix C. – 'Industry' sectors at 4-digit level

4-digit Industry Classification	19 Sector Industry Classification
Meat Processing	Manufacturing
Poultry Processing	Manufacturing
Cured Meat and Smallgoods Manufacturing	Manufacturing
Seafood Processing	Manufacturing
Milk and Cream Processing	Manufacturing
Ice Cream Manufacturing	Manufacturing
Cheese and Other Dairy Product Manufacturing	Manufacturing
Fruit and Vegetable Processing	Manufacturing
Oil and Fat Manufacturing	Manufacturing
Grain Mill Product Manufacturing	Manufacturing
Cereal, Pasta, and Baking Mix Manufacturing	Manufacturing
Bread Manufacturing (Factory based)	Manufacturing
Cake and Pastry Manufacturing (Factory based)	Manufacturing
Biscuit Manufacturing (Factory based)	Manufacturing
Bakery Product Manufacturing (Non-factory based)	Manufacturing
Sugar Manufacturing	Manufacturing
Confectionery Manufacturing	Manufacturing
Potato, Corn, and Other Crisp Manufacturing	Manufacturing
Prepared Animal and Bird Feed Manufacturing	Manufacturing
Other Food Product Manufacturing nec	Manufacturing
Soft Drink, Cordial and Syrup Manufacturing	Manufacturing
Beer Manufacturing	Manufacturing
Spirit Manufacturing	Manufacturing
Wine and Other Alcoholic Beverage Manufacturing	Manufacturing
Cigarette and Tobacco Product Manufacturing	Manufacturing
Wool Scouring	Manufacturing
Natural Textile Manufacturing	Manufacturing
Synthetic Textile Manufacturing	Manufacturing
Leather Tanning, Fur Dressing and Leather Product Manufacturing	Manufacturing
Textile Floor Covering Manufacturing	Manufacturing
Rope, Cordage and Twine Manufacturing	Manufacturing
Cut and Sewn Textile Product Manufacturing	Manufacturing
Textile Finishing and Other Textile Product Manufacturing	Manufacturing
Knitted Product Manufacturing	Manufacturing
Clothing Manufacturing	Manufacturing
Footwear Manufacturing	Manufacturing
Log Sawmilling	Manufacturing
Wood Chipping	Manufacturing
Timber Resawing and Dressing	Manufacturing
Prefabricated Wooden Building Manufacturing	Manufacturing
Wooden Structural Fitting and Component Manufacturing	Manufacturing
Veneer and Plywood Manufacturing	Manufacturing
Reconstituted Wood Product Manufacturing	Manufacturing
Other Wood Product Manufacturing nec	Manufacturing
Pulp, Paper, and Paperboard Manufacturing	Manufacturing
Corrugated Paperboard and Paperboard Container Manufacturing	Manufacturing
Paper Bag Manufacturing	Manufacturing
Paper Stationery Manufacturing	Manufacturing
Sanitary Paper Product Manufacturing	Manufacturing
Other Converted Paper Product Manufacturing	Manufacturing
Printing	Manufacturing
Printing Support Services	Manufacturing
Reproduction of Recorded Media	Manufacturing
Petroleum Refining and Petroleum Fuel Manufacturing	Manufacturing

Other Petroleum and Coal Product Manufacturing	Manufacturing	Ready-Mixed Concrete Manufacturing	Manufacturing
Industrial Gas Manufacturing	Manufacturing	Concrete Product Manufacturing	Manufacturing
Basic Organic Chemical Manufacturing	Manufacturing	Other Non-Metallic Mineral Product Manufacturing	Manufacturing
Basic Inorganic Chemical Manufacturing	Manufacturing	Iron Smelting and Steel Manufacturing	Manufacturing
Synthetic Resin and Synthetic Rubber Manufacturing	Manufacturing	Iron and Steel Casting	Manufacturing
Other Basic Polymer Manufacturing	Manufacturing	Steel Pipe and Tube Manufacturing	Manufacturing
Fertiliser Manufacturing	Manufacturing	Alumina Production	Manufacturing
Pesticide Manufacturing	Manufacturing	Aluminium Smelting	Manufacturing
Human Pharmaceutical and Medicinal Product Manufacturing	Manufacturing	Copper, Silver, Lead and Zinc Smelting and Refining	Manufacturing
Veterinary Pharmaceutical and Medicinal Product Manufacturing	Manufacturing	Other Basic Non-Ferrous Metal Manufacturing	Manufacturing
Cleaning Compound Manufacturing	Manufacturing	Non-Ferrous Metal Casting	Manufacturing
Cosmetic and Toiletry Preparation Manufacturing	Manufacturing	Aluminium Rolling, Drawing, Extruding	Manufacturing
Photographic Chemical Product Manufacturing	Manufacturing	Other Basic Non-Ferrous Metal Product Manufacturing	Manufacturing
Explosive Manufacturing	Manufacturing	Iron and Steel Forging	Manufacturing
Other Basic Chemical Product Manufacturing nec	Manufacturing	Structural Steel Fabricating	Manufacturing
Polymer Film and Sheet Packaging Material Manufacturing	Manufacturing	Prefabricated Metal Building Manufacturing	Manufacturing
Rigid and Semi-Rigid Polymer Product Manufacturing	Manufacturing	Architectural Aluminium Product Manufacturing	Manufacturing
Polymer Foam Product Manufacturing	Manufacturing	Metal Roof and Guttering Manufacturing (except Aluminium)	Manufacturing
Tyre Manufacturing	Manufacturing	Other Structural Metal Product Manufacturing	Manufacturing
Adhesive Manufacturing	Manufacturing	Boiler, Tank and Other Heavy Gauge Metal Container Manufacturing	Manufacturing
Paint and Coatings Manufacturing	Manufacturing	Other Metal Container Manufacturing	Manufacturing
Other Polymer Product Manufacturing	Manufacturing	Sheet Metal Product Manufacturing (except Metal Structural and Container Products)	Manufacturing
Natural Rubber Product Manufacturing	Manufacturing	Spring and Wire Product Manufacturing	Manufacturing
Glass and Glass Product Manufacturing	Manufacturing	Nut, Bolt, Screw and Rivet Manufacturing	Manufacturing
Clay Brick Manufacturing	Manufacturing	Metal Coating and Finishing	Manufacturing
Other Ceramic Product Manufacturing	Manufacturing	Other Fabricated Metal Product Manufacturing nec	Manufacturing
Cement and Lime Manufacturing	Manufacturing	Motor Vehicle Manufacturing	Manufacturing
Plaster Product Manufacturing	Manufacturing	Motor Vehicle Body and Trailer Manufacturing	Manufacturing

Automotive Electrical Component Manufacturing	Manufacturing	Metal Furniture Manufacturing	Manufacturing
Other Motor Vehicle Parts Manufacturing	Manufacturing	Mattress Manufacturing	Manufacturing
Shipbuilding and Repair Services	Manufacturing	Other Furniture Manufacturing	Manufacturing
Boatbuilding and Repair Services	Manufacturing	Jewellery and Silverware Manufacturing	Manufacturing
Railway Rolling Stock Manufacturing and Repair Services	Manufacturing	Toy, Sporting and Recreational Product Manufacturing	Manufacturing
Aircraft Manufacturing and Repair Services	Manufacturing	Other Manufacturing nec	Manufacturing
Other Transport Equipment Manufacturing nec	Manufacturing	Other Electricity Generation	Electricity, Gas, Water & Waste Services
Photographic, Optical and Ophthalmic Equipment Manufacturing	Manufacturing	Gas Supply	Electricity, Gas, Water & Waste Services
Medical and Surgical Equipment Manufacturing	Manufacturing	Water Supply	Electricity, Gas, Water & Waste Services
Other Professional and Scientific Equipment Manufacturing	Manufacturing	Sewerage and Drainage Services	Electricity, Gas, Water & Waste Services
Computer and Electronic Office Equipment Manufacturing	Manufacturing	Solid Waste Collection Services	Electricity, Gas, Water & Waste Services
Communication Equipment Manufacturing	Manufacturing	Other Waste Collection Services	Electricity, Gas, Water & Waste Services
Other Electronic Equipment Manufacturing	Manufacturing	Waste Treatment and Disposal Services	Electricity, Gas, Water & Waste Services
Electric Cable and Wire Manufacturing	Manufacturing	Waste Remediation and Materials Recovery Services	Electricity, Gas, Water & Waste Services
Electric Lighting Equipment Manufacturing	Manufacturing	House Construction	Construction
Other Electrical Equipment Manufacturing	Manufacturing	Other Residential Building Construction	Construction
Whiteware Appliance Manufacturing	Manufacturing	Non-Residential Building Construction	Construction
Other Domestic Appliance Manufacturing	Manufacturing	Road and Bridge Construction	Construction
Pump and Compressor Manufacturing	Manufacturing	Other Heavy and Civil Engineering Construction	Construction
Fixed Space Heating, Cooling and Ventilation Equipment Manufacturing	Manufacturing	Land Development and Subdivision	Construction
Agricultural Machinery and Equipment Manufacturing	Manufacturing	Site Preparation Services	Construction
Mining and Construction Machinery Manufacturing	Manufacturing	Concreting Services	Construction
Machine Tool and Parts Manufacturing	Manufacturing	Bricklaying Services	Construction
Other Specialised Machinery and Equipment Manufacturing	Manufacturing	Roofing Services	Construction
Lifting and Material Handling Equipment Manufacturing	Manufacturing	Structural Steel Erection Services	Construction
Other Machinery and Equipment Manufacturing nec	Manufacturing	Plumbing Services	Construction
Wooden Furniture and Upholstered Seat Manufacturing	Manufacturing	Electrical Services	Construction

Air Conditioning and Heating Services	Construction
Fire and Security Alarm Installation Services	Construction
Other Building Installation Services	Construction
Plastering and Ceiling Services	Construction
Carpentry Services	Construction
Tiling and Carpeting Services	Construction
Painting and Decorating Services	Construction
Glazing Services	Construction
Landscape Construction Services	Construction
Hire of Construction Machinery with Operator	Construction
Other Construction Services nec	Construction
Wool Wholesaling	Wholesale Trade
Cereal Grain Wholesaling	Wholesale Trade
Other Agricultural Product Wholesaling	Wholesale Trade
Petroleum Product Wholesaling	Wholesale Trade
Metal and Mineral Wholesaling	Wholesale Trade
Industrial and Agricultural Chemical Product Wholesaling	Wholesale Trade
Timber Wholesaling	Wholesale Trade
Plumbing Goods Wholesaling	Wholesale Trade
Other Hardware Goods Wholesaling	Wholesale Trade
Agricultural and Construction Machinery Wholesaling	Wholesale Trade
Other Specialised Industrial Machinery and Equipment Wholesaling	Wholesale Trade
Professional and Scientific Goods Wholesaling	Wholesale Trade
Computer and Computer Peripheral Wholesaling	Wholesale Trade
Telecommunication Goods Wholesaling	Wholesale Trade
Other Electrical and Electronic Goods Wholesaling	Wholesale Trade
Other Machinery and Equipment Wholesaling nec	Wholesale Trade
Car Wholesaling	Wholesale Trade

Commercial Vehicle Wholesaling	Wholesale Trade
Trailer and Other Motor Vehicle Wholesaling	Wholesale Trade
Motor Vehicle New Parts Wholesaling	Wholesale Trade
Motor Vehicle Dismantling and Used Parts Wholesaling	Wholesale Trade
General Line Grocery Wholesaling	Wholesale Trade
Meat, Poultry and Smallgoods Wholesaling	Wholesale Trade
Dairy Produce Wholesaling	Wholesale Trade
Fish and Seafood Wholesaling	Wholesale Trade
Fruit and Vegetable Wholesaling	Wholesale Trade
Liquor and Tobacco Product Wholesaling	Wholesale Trade
Other Grocery Wholesaling	Wholesale Trade
Textile Product Wholesaling	Wholesale Trade
Clothing and Footwear Wholesaling	Wholesale Trade
Pharmaceutical and Toiletry Goods Wholesaling	Wholesale Trade
Furniture and Floor Covering Wholesaling	Wholesale Trade
Jewellery and Watch Wholesaling	Wholesale Trade
Kitchen and Diningware Wholesaling	Wholesale Trade
Toy and Sporting Goods Wholesaling	Wholesale Trade
Book and Magazine Wholesaling	Wholesale Trade
Paper Product Wholesaling	Wholesale Trade
Other Goods Wholesaling nec	Wholesale Trade
Commission-Based Wholesaling	Wholesale Trade
Trailer and Other Motor Vehicle Retailing	Retail Trade
Motor Vehicle Parts Retailing	Retail Trade
Tyre Retailing	Retail Trade
Hardware and Building Supplies Retailing	Retail Trade
Garden Supplies Retailing	Retail Trade
Non-Store Retailing	Retail Trade
Road Freight Transport	Transport, Postal & Warehousing

Interurban and Rural Bus Transport	Transport, Postal & Warehousing
Urban Bus Transport (Including Tramway)	Transport, Postal & Warehousing
Rail Freight Transport	Transport, Postal & Warehousing
Postal Services	Transport, Postal & Warehousing
Courier Pick-up and Delivery Services	Transport, Postal & Warehousing
Freight Forwarding Services	Transport, Postal & Warehousing
Other Warehousing and Storage Services	Transport, Postal & Warehousing
Heavy Machinery and Scaffolding Rental and Hiring	Rental, Hiring & Real Estate Services
Building and Other Industrial Cleaning Services	Administrative & Support Services
Automotive Electrical Services	Other Services
Automotive Body, Paint, and Interior Repair	Other Services
Other Automotive Repair and Maintenance	Other Services
Other Machinery and Equipment Repair and Maintenance	Other Services

Appendix D – Employment forecasts

Table App - 3 Employment forecasts, all industries, St Arnaud

Industry sector	Scenario	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Agriculture, Forestry & Fishing	Central	64	63	62	60	59	57	56	55	54	53	52	52	51	50	49	49	48	47	47	46
Mining	Central	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Manufacturing	Central	107	106	104	103	102	101	100	99	98	98	97	96	96	95	95	95	95	94	94	94
Elec., Gas, Water & Waste Services	Central	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Construction	Central	28	28	28	28	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
Wholesale Trade	Central	23	22	22	21	21	21	20	20	20	20	19	19	19	19	19	19	19	18	19	19
Retail Trade	Central	143	140	136	133	129	126	123	120	118	116	114	112	110	108	107	105	104	103	102	101
Accommodation & Food Services	Central	66	65	64	63	62	61	61	60	60	59	59	58	58	57	57	57	57	56	56	56
Transport, Postal & Warehousing	Central	48	47	46	45	44	44	43	42	42	41	41	40	40	39	39	39	38	38	38	37
Info. Media & Telecomm.	Central	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2
Financial & Insurance Services	Central	15	15	15	15	15	15	15	14	15	14	14	14	14	14	14	14	14	14	15	15
Rental, Hiring & Real Estate Services	Central	8	8	8	8	8	8	8	9	9	9	9	9	9	9	10	10	10	10	10	10
Prof., Scientific & Tech. Services	Central	42	41	41	40	39	38	38	37	37	36	35	35	34	34	33	33	33	32	32	32
Administrative & Support Services	Central	30	30	29	29	29	28	28	28	28	27	27	27	27	27	27	26	26	26	26	26
Public Administration & Safety	Central	55	54	53	52	51	50	49	49	48	47	47	46	46	45	45	45	44	44	44	43
Education & Training	Central	70	70	70	69	67	66	65	64	63	62	61	60	59	58	57	57	56	55	55	54
Health Care & Social Assistance	Central	250	252	254	255	256	257	259	260	263	264	266	267	269	271	273	276	278	280	283	286
Arts & Recreation Services	Central	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Services	Central	49	48	47	47	46	45	44	44	43	43	42	42	41	41	41	41	40	40	40	40
Total	**Central**	**1,005**	**997**	**986**	**975**	**961**	**952**	**944**	**935**	**932**	**924**	**918**	**912**	**906**	**902**	**900**	**898**	**896**	**894**	**895**	**894**
Agriculture, Forestry & Fishing	High	65	65	64	64	62	62	61	60	59	59	58	57	57	56	56	55	55	54	54	54
Mining	High	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Manufacturing	High	110	111	111	111	111	112	112	112	112	112	112	112	113	113	113	114	114	115	115	116
Elec., Gas, Water & Waste Services	High	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	7	7	7
Construction	High	29	29	29	29	29	29	30	30	30	30	30	31	31	31	31	32	32	32	33	33

Industry sector	Scenario	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Wholesale Trade	High	23	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	25	25	25
Retail Trade	High	146	146	145	144	142	141	140	139	138	137	136	135	134	134	133	133	133	132	132	132
Accommodation & Food Services	High	67	68	69	69	69	69	69	69	69	69	69	69	69	69	70	70	70	70	71	71
Transport, Postal & Warehousing	High	49	49	49	49	48	48	47	47	47	47	46	46	46	46	46	46	46	46	46	46
Info. Media & Telecomm.	High	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Financial & Insurance Services	High	16	15	16	16	16	16	16	16	16	16	16	16	16	16	17	17	17	17	17	17
Rental, Hiring & Real Estate Services	High	8	9	9	9	10	10	10	10	11	11	11	11	12	12	12	12	12	13	13	13
Prof., Scientific & Tech. Services	High	44	45	45	44	43	42	42	41	41	40	39	39	38	38	38	37	37	37	36	36
Administrative & Support Services	High	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
Public Administration & Safety	High	56	56	56	56	55	55	54	54	54	54	53	53	53	52	52	52	52	52	52	52
Education & Training	High	72	75	75	74	72	71	70	69	68	67	66	65	64	63	63	62	61	61	60	60
Health Care & Social Assistance	High	254	262	267	272	275	280	284	288	293	298	302	306	310	315	320	325	330	335	340	345
Arts & Recreation Services	High	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Services	High	50	51	51	51	51	51	51	51	51	51	51	51	51	52	52	52	52	53	53	54
Total	**High**	**1,027**	**1,045**	**1,050**	**1,051**	**1,047**	**1,047**	**1,048**	**1,048**	**1,052**	**1,053**	**1,055**	**1,056**	**1,058**	**1,061**	**1,065**	**1,071**	**1,075**	**1,081**	**1,088**	**1,093**
Agriculture, Forestry & Fishing	Low	64	61	59	57	55	53	52	50	49	47	46	45	44	43	42	41	40	39	39	38
Mining	Low	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Manufacturing	Low	105	100	97	94	92	90	88	86	85	83	82	80	79	78	77	76	75	74	73	73
Elec., Gas, Water & Waste Services	Low	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3
Construction	Low	28	27	26	26	25	25	25	24	24	24	23	23	23	22	22	22	22	22	21	21
Wholesale Trade	Low	22	21	20	19	18	17	17	16	16	15	15	15	14	14	13	13	13	13	12	12
Retail Trade	Low	140	132	126	120	114	109	104	99	95	91	87	83	79	76	72	69	66	63	60	57
Accommodation & Food Services	Low	64	61	59	58	56	54	53	52	51	50	49	47	47	46	45	44	43	43	42	41
Transport, Postal & Warehousing	Low	47	45	44	42	41	40	39	38	37	36	35	34	33	33	32	31	30	30	29	29
Info. Media & Telecomm.	Low	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Financial & Insurance Services	Low	15	14	14	14	13	13	13	13	13	13	13	13	12	12	12	12	12	12	12	12
Rental, Hiring & Real Estate Services	Low	8	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Prof., Scientific & Tech. Services	Low	39	37	36	35	34	33	33	32	32	31	31	30	29	29	28	28	28	27	27	27
Administrative & Support Services	Low	30	29	28	27	26	26	25	25	25	24	24	23	23	23	22	22	22	22	21	21

Industry sector	Scenario	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Public Administration & Safety	Low	53	51	49	48	46	45	44	43	42	41	40	39	39	38	37	37	36	35	35	35
Education & Training	Low	68	65	65	63	62	61	59	58	57	56	55	54	54	53	52	51	51	50	50	49
Health Care & Social Assistance	Low	246	242	241	239	236	234	233	232	232	231	230	229	228	227	227	227	227	226	227	227
Arts & Recreation Services	Low	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Services	Low	48	45	43	41	40	38	37	35	34	32	31	30	29	28	26	25	24	23	22	22
Total	**Low**	**983**	**946**	**920**	**897**	**872**	**853**	**835**	**817**	**803**	**788**	**773**	**758**	**744**	**732**	**721**	**712**	**701**	**692**	**684**	**676**

Table App - 4 Employment forecasts for industrial land by broad land use type, St Arnaud

Land use type	Scenario	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Heavy and/or large industry	Central	38	37	37	36	36	35	35	35	35	34	34	34	34	34	33	33	33	33	33	33
Light industry	Central	51	50	50	49	48	47	47	47	47	46	46	46	46	46	45	45	44	44	44	44
Retail and wholesaling	Central	42	42	40	40	40	39	37	37	36	36	36	36	34	34	34	34	34	32	33	33
Service Industry	Central	14	14	14	14	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12
Total	**Central**	**145**	**143**	**141**	**139**	**137**	**134**	**132**	**132**	**131**	**129**	**129**	**129**	**127**	**127**	**125**	**125**	**123**	**121**	**122**	**122**
Heavy and/or large industry	High	39	39	39	39	39	39	39	39	39	39	39	40	40	40	40	40	40	40	41	41
Light industry	High	52	52	52	52	52	52	52	52	52	52	52	52	53	53	53	53	53	53	54	54
Retail and wholesaling	High	44	44	44	43	43	43	43	43	43	43	41	41	41	41	41	41	41	41	41	41
Service Industry	High	14	14	14	14	14	14	14	14	14	14	14	14	14	15	15	15	15	15	15	15
Total	**High**	**149**	**149**	**149**	**148**	**148**	**148**	**148**	**148**	**148**	**148**	**146**	**147**	**148**	**149**	**149**	**149**	**149**	**149**	**151**	**151**
Heavy and/or large industry	Low	37	35	34	33	32	32	31	30	30	29	29	28	28	27	27	27	26	26	26	26
Light industry	Low	50	48	46	45	41	41	40	39	39	38	38	37	37	36	35	35	33	33	33	33
Retail and wholesaling	Low	42	40	38	37	35	33	33	32	31	29	29	28	27	25	25	24	24	23	22	22
Service Industry	Low	14	13	13	13	10	10	10	9	9	9	9	9	8	8	8	8	7	7	7	7
Total	**Low**	**143**	**136**	**131**	**128**	**118**	**116**	**114**	**110**	**109**	**105**	**105**	**102**	**100**	**96**	**95**	**94**	**90**	**89**	**88**	**88**