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CITY OF ALBANY, SHIRE OF PLANTAGENET, SHIRE OF DENMARK & GREAT SOUTHERN DEVELOPMENT COMMISSION

SOUTH COAST INDUSTRIAL ECOLOGY MAPPING AND INDUSTRY ATTRACTION STRATEGY

FINAL REPORT

CITY OF Albany

Shire of Plantagenet

SHIRE OF DENMARK

OCTOBER 2015

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pracsys.

PERTH: 23 Lyall Street South Perth Western Australia 6151 • t (08) 9367 1511 • f (08) 9367 4066
MELBOURNE: Cannons House Level 7, 12-20 Flinders Lane Melbourne Victoria 3000 • t (03) 9654 5775
e admin@pracsys.com.au • www.pracsys.com.au

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1.0

1 INTRODUCTION

The Great Southern has been an important region for Western Australia since the State's inception. The Region is known for its resilience and has been steadfast in its growth throughout its history. Though the growth has been slightly slower than the rest of the State in recent times, the Region is well placed to capitalise on its many competitive advantages.

Regional development in Western Australia has historically resulted from a region being able to take advantage of natural resources to facilitate trade with external markets. Ultimately through direct, indirect and induced activity, this leads to local economic and population growth. Unlike other regions within the State, many of which have become increasingly reliant on the exploitation of mineral resources, the Great Southern has had to find other ways to build its economy and sustain its population. This has meant that instead of a historical pattern of booms and falls that has been observed in mineral resource-dependent regions, the Great Southern has seen steady growth over the years.

The Industrial Ecology Mapping and Investment Attraction Strategy for the City of Albany and Shires of Denmark and Plantagenet (this geographic area is referred to within the Strategy as the South Coast) provides the various stakeholders of Great Southern businesses and industries with an oversight of potential opportunities to enhance economic development within the study area. This is based upon a clear understanding of the following three principles:

- Regional capacity - how can the Region best prepare itself to capture future opportunities and benefit from future investment?
- Building on existing activity – where are the best opportunities to facilitate growth from within the Region?
- Attraction of external investment and activity – what are the most attractive opportunities to attract investment from outside the Region?

This report has been prepared in the context of the Great Southern Development Commission's Draft Regional Blueprint, with a specific focus on supporting the following project areas:

- Growing Value: Premium food production and value adding;
- Access to Energy: Providing regional energy security;
- Water for Growth: Providing water security; and
- Avenues to Opportunity: Transport and industry hubs connecting to markets.

As such, it focuses on factors that impact upon the Great Southern's industrial ecology. This means that other critical elements of the economy, such as tourism and commercial activity centre performance, sit outside of the scope of this work.

This report specifically concentrates on the industrial ecology of six key export industries. These industries were chosen based on ecology mapping and interviews with key stakeholders in the Region. They are:

- Horticulture;
- Forestry;
- Dairy;
- Livestock;

- Viticulture; and
- Grain.

These industries show the most potential for growth based on the Region's natural resources and potential future demand in local, national and international markets. This report highlights key opportunities associated with these industries and concludes with future steps to be taken in order to capitalise on these opportunities in the future.

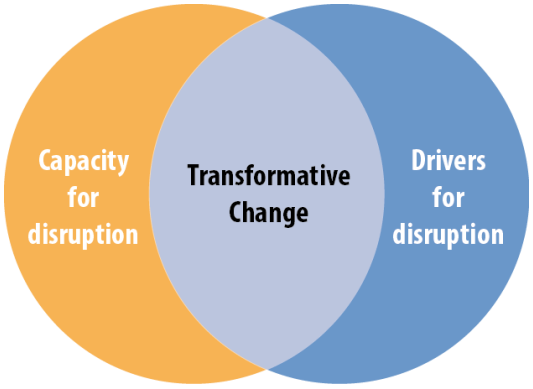
2.0

2 A MODEL OF REGIONAL DEVELOPMENT

This chapter provides an understanding of the factors affecting regional economic development.

Central to the understanding of a regional economy's current and future economic performance are the interrelated concepts of 'capacity' and 'drivers' of transformation (see Figure 1).

Figure 1. Capacity-Driver Model for Transformative Change



Source: Pracsys 2015

Drivers refer to the trends and behaviours that determine demand for goods and services. Capacity, on the other hand, describes the ability of an area to take advantage of these drivers for the benefit of the local economy. The capacity of, and drivers for, transformation away from a 'business as usual' path of development in a regional economy need to be considered in order to understand its future potential for a competitive advantage, and to support achievement of that region's strategic aspirations.

3.0

3 GREAT SOUTHERN REGIONAL PERFORMANCE

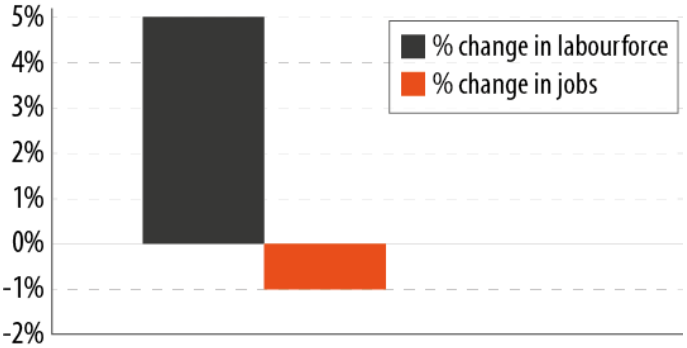
This chapter provides a snapshot of the current state of the Great Southern economy to provide a baseline understanding of where opportunities may exist to build capacity or take advantage of local or external drivers. The information collated in this section includes both information specific to the Great Southern as a whole as well as the three South Coast municipalities that form the study area deemed to be relevant. This forms the basis for understanding where proactive interventions by agencies may be desirable.

3.1 THE GREAT SOUTHERN ECONOMY

The Great Southern economy contributes around 1.7% of the total Gross State Product, with a value of $4.2B in 2012-13[1]. Of this, agriculture is the largest industry with production valued at $1.04B.

After examining employment data for the Region, the challenges for employment are quite clear. Despite an increasing labourforce, opportunities for employment in the Great Southern decreased between 2006 and 2011 (see Figure 2). This led to an increase in unemployment, with the percentage of unemployment in 2011 for the Region being 4.86%, marginally higher than the State average of 4.25%.

Figure 2. Changes in Great Southern Employment Conditions 2006-2011



Source: ABS Census 2006, 2011

The extent of the employment challenge in the Great Southern is exemplified by its industry profile (see Figure 3). Of the top 10 industries by employment, eight are predominately population-driven, servicing the demands of the local population (e.g. retail, healthcare and education). These jobs typically saturate at around 30-35% of the total market in a regional economy.

Figure 3. Top 10 Industries by Employment (2011)

Category	Jobs	Percentage of Total Employment
Sheep, Beef Cattle and Grain Farming	2,849	13.09%
School Education	1,641	7.54%
Hospitals	767	3.53%
Cafes, Restaurants and Takeaway Food Services	720	3.31%
Supermarket and Grocery Stores	583	2.68%
Local Government Administration	574	2.64%
Residential Care Services	484	2.22%
Accommodation	482	2.22%
Public Order and Safety Services	469	2.16%
Meat and Meat Product Manufacturing	428	1.97%

Source: Pracsys 2015, ABS Census 2011

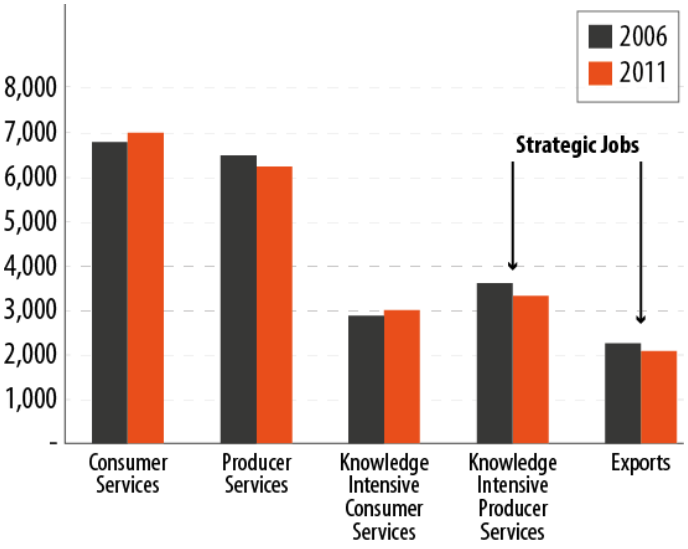
The two industries that are strategic in nature are Sheep, Beef Cattle and Grain Farming and Meat and Meat Product Manufacturing. These are considered strategic as they focus on trading goods and services with external

1 Regional Snapshot, Department of Regional Development (2013)

markets, although they may also provide some goods and services to the local market.

In total, only 13% of employment within the Region in 2011 was considered strategic, compared to a State average of 22% strategic employment. Whilst this was an increase from the 2006 percentage of 11%, the overall drop in the amount of employment within the Region resulted in an overall decrease in the actual number of strategic jobs (see Figure 4).

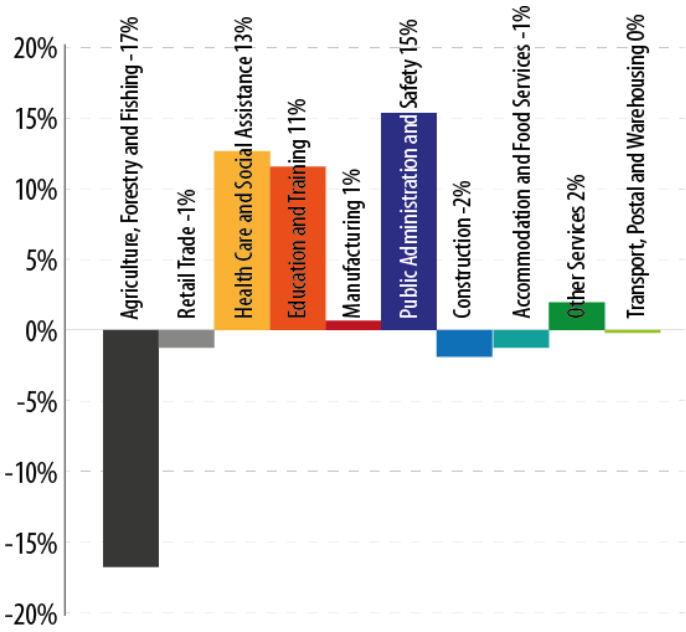
Figure 4. Employment quality in the Great Southern Region



Source: Pracsys 2015, ABS Census 2011

This decrease is confronting, as most of the jobs lost were in the agricultural sector, with a 17% drop in the number of agricultural jobs from 2006 to 2011 (see Figure 5). While it is still the top industry in terms of overall employment, the jobs that were lost in this sector will not be easily replaced.

Figure 5. Top 10 industries % change in the Great Southern (2006-2011)



Source: Pracsys 2015, ABS Census 2011

Examining the data at a more detailed level, it is clear that most of these agricultural jobs were lost in the Sheep, Beef Cattle and Grain farming industry. The loss of jobs in this industry is a key set back for the Region's economy, due to the positive externalities that are associated with strategic jobs and the barriers to entry for prospective investors. One factor that contributed to these job losses was the restructuring and consolidation within the agriculture industry.

When considering Great Southern employment concentration factors (ECF), compared to other regions in the State (excluding the Perth Metropolitan Region), it is evident that the Great Southern has a greater presence of consumer services than other regional areas. In fact, half of the most concentrated industries

proportionately are population driven (see Figure 6). Strategic industries are highlighted separately in the figure.

Figure 6. Great Southern Industry Concentrations

Industry	ECF 2011
Deer Farming	14.22
Pulp, Paper and Converted Paper Product Manufacturing, nfd	9.48
Superannuation Funds	8.53
Life Insurance	7.59
Publishing (except Internet and Music Publishing), nfd	7.11
Textile, Leather, Clothing and Footwear Manufacturing, nfd	5.69
Meat and Meat Product Manufacturing	3.59
Waste Collection, Treatment and Disposal Services, nfd	3.56
Data Processing, Web Hosting and Electronic Information Storage Services	3.56
Clothing and Footwear Manufacturing	3.45
Retail Commission-Based Buying and/or Selling	3.28
Cleaning Compound and Toiletry Preparation Manufacturing	3.24
Forestry and Logging	3.19
Administrative and Support Services, nfd	2.84
Furniture, Floor Covering and Other Goods Wholesaling	2.74

Source: Pracsys 2015, ABS Census (2006, 2011)

3.2 CAPACITY

3.2.1 Infrastructure Capacity

Capacity refers to a region's ability to meet the needs of industry. As new opportunities present themselves, the Great Southern must be able to facilitate their implementation. If nothing is done, prospects may arise but the Region may not be able to capitalise on them. Alternatively, if too much capacity is created in the absence of drivers for investment and development, this will likely result in a waste of resources without economic gains.

Albany Highway

Based upon the consultation conducted with Great Southern industry stakeholders, one of the most significant capacity restraints for the Region is currently Albany Highway. As the main passage for road transport to Perth, it plays a crucial role for many businesses in various industries. It currently presents many challenges, with issues related to capacity, safety and efficiency. This means that the high level of reliance on the road for transport of goods is a significant risk factor for many enterprises. In the first quarter of 2015 alone, there were at least four occasions where accidents and truck rollovers caused costly delays and detours for companies who rely on Albany Highway to transport their products to Perth. Costs incurred include time loss and expenses, such as fines for not arriving at Fremantle Port by a designated time. While there has been some progress made with extra passing lanes installed in recent times, a more strategic look at the future structure of the highway would be beneficial for road safety and for local industries.

Communication

In the modern era communication is key for the survival of any business. The Great Southern, being such a geographically isolated region, is faced with a need for better telecommunications infrastructure to supply coverage to local businesses and also transporters along Albany highway. National Broadband Network (NBN) fixed wireless infrastructure is planned for each of the three South Coast municipalities; however, in 2015 services were only available along a narrow corridor surrounding Albany Highway, near Mount Barker.

Electricity

A common constraint mentioned by industry stakeholders was the inconsistent supply of electricity, especially to the Shire of Denmark. In many industries, a sustained power outage can have a devastating effect. The main concern is the real and perceived risk that this creates when considering investing in an enterprise in the South Coast. For larger businesses, having on site generators or other sources of energy is generally financially viable and mitigates the risk, although it may form a considerable capital and operational expense. This risk or additional cost acts as a barrier for local businesses looking to expand their current operations, or for outside prospects considering the Region as a place to invest.

There are also considerable expenses involved in funding new transmission infrastructure to lots, both within industrial areas and throughout the rural zoned land of the various South Coast municipalities. During consultation it was reported that regional export opportunities, including a piggery and zoned industrial land infrastructure, have been delayed or abandoned due to the costs, time and difficulty associated with supplying electricity to a lot. Understandably, it is not feasible to prepare all land in the Region for growth, however targeted infrastructure and working with infrastructure agencies to provide procedural pathways that help facilitate the supply of infrastructure would potentially remove a significant capacity constraint that may inhibit inter/intra regional investment.

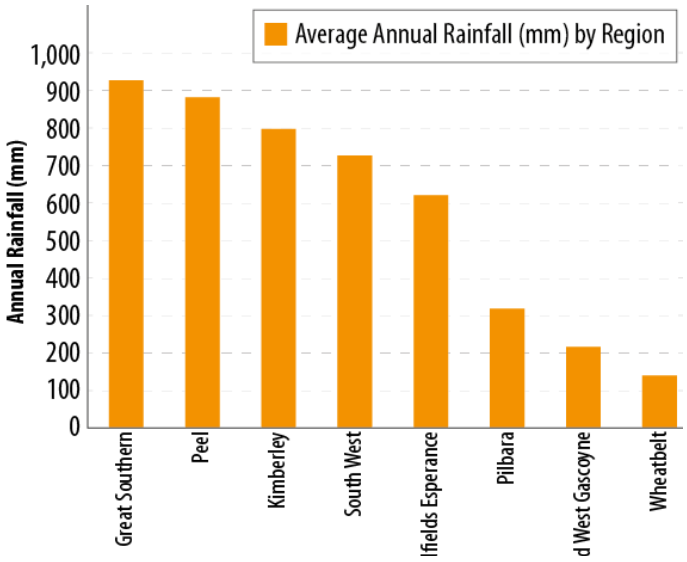
Finally, the expansion of renewable energy within the Great Southern has potential to play an important role in the Region's economic future. Anecdotally, the price of installing wind turbines or solar panels in large enough quantities for industries such as food processing has historically been found to prohibitively high. A contributing factor is that generally per-unit costs increase with decreased use of grid-supplied electricity. This results in an offset of potential savings from renewable energy sources. While there is an established basis for the current system, as existing large scale power generation infrastructure ages it would be advantageous for local governments in the Region to take a leadership role in facilitating greater development of renewable energy sources, and to guide pricing and legislation that encourages their installation and use. In addition to the environmental benefits, the sustained development of infrastructure in this area has the potential to anchor businesses to the Region for the foreseeable future.

Water

Water plays an important role in all four industries of focus. While the Great Southern is fortunate enough to have some of the highest and most consistent yearly rainfalls in Western Australia (Figure 7), the quality of the ground water in certain areas is not able to meet the needs of some industries.

For the horticultural and agriculture industries one concern with water in the Region is the high salinity level. While it is possible to find fresh water, a significant proportion of the South Coast's groundwater has not been tested for quality. This creates additional risk and expense for investors, who are generally not willing to cover the cost of speculative ground water testing themselves. In addition, despite having some of the highest rainfalls in the State, a warming and drying climate presents risks to industries in the Region. The 2014 winter was one of the driest on record for both the Shire of Denmark and the City of Albany, indicating the need for planning to provide a water supply that is less seasonally dependent.

Figure 7. Average Annual Rainfall by Region



Source: Pracsys 2015, ABS Census 2011

Port

The Albany Port services important industries in the Region, the main customer being the grain industry. Unfortunately the port is naturally constrained for size. Stakeholder consultations identified that there are certain constraints that could be addressed and corrected. Three main issues arose: a lack of storage on site, the inability to handle shipping containers and poor road infrastructure leading to the port.

3.2.2 Industrial Land Capacity

The Region currently has two sites that are highlighted for use as strategic industrial land[2]:

- The Yerriminup industrial zoned land; and
- The Mirrambeena industrial zoned land.

Currently the strategic industrial sites at Yerriminup and Mirrambeena are constrained due to the cost of servicing them. They provide tactical locations for future projects with access to Albany highway, railways and proximity to the airport (Mirrambeena is perhaps constrained by its proximity to the airport).

In addition to the strategic industrial land there is an abundance of rural zoned land that can be used for multiple purposes. This land makes it easier for businesses to locate themselves in the Region with lower land costs and sufficient space for buffers; it does not, however, guide industrial land uses into strategic locations.

2 WAPC 2007, 'Lower Great Southern Strategy', Seen at: http://www.planning.wa.gov.au/dop_pub_pdf/Lower_Great_Southern_Strategy.pdf

4.0

4 STRATEGIC INDUSTRY PROFILES

This chapter identifies the global industries that will play an important role in the future development of the Great Southern economy. It outlines their current characteristics and introduces broad opportunities for the Region in these areas.

Six global industries were identified during the context analysis and consultation as being significant to the study area's economy, and having the potential for transformation and growth. These were:

- Horticulture;
- Forestry;
- Dairy;
- Livestock;
- Viticulture; and
- Grain.

All of these industries represent significant opportunities to leverage the productive assets of the Great Southern to produce food-related products that play a large part in the regional, and even the Western Australian economy. These opportunities, as well as constraints affecting future performance, were examined for each industry.

4.1 HORTICULTURE INDUSTRY

Horticulture is defined as the science and art of growing fruits, vegetables, flowers, and/or ornamental plants[3].

4.1.1 Horticulture - Current Characteristics

With a temperate climate and consistent yearly rainfalls in most areas, the Great Southern has a large capacity to grow food for human consumption. The majority of horticultural activities take place in the Local Government Areas of the City of Albany and the Shires of Plantagenet, Denmark and Cranbrook (see Figures 8 and 9).

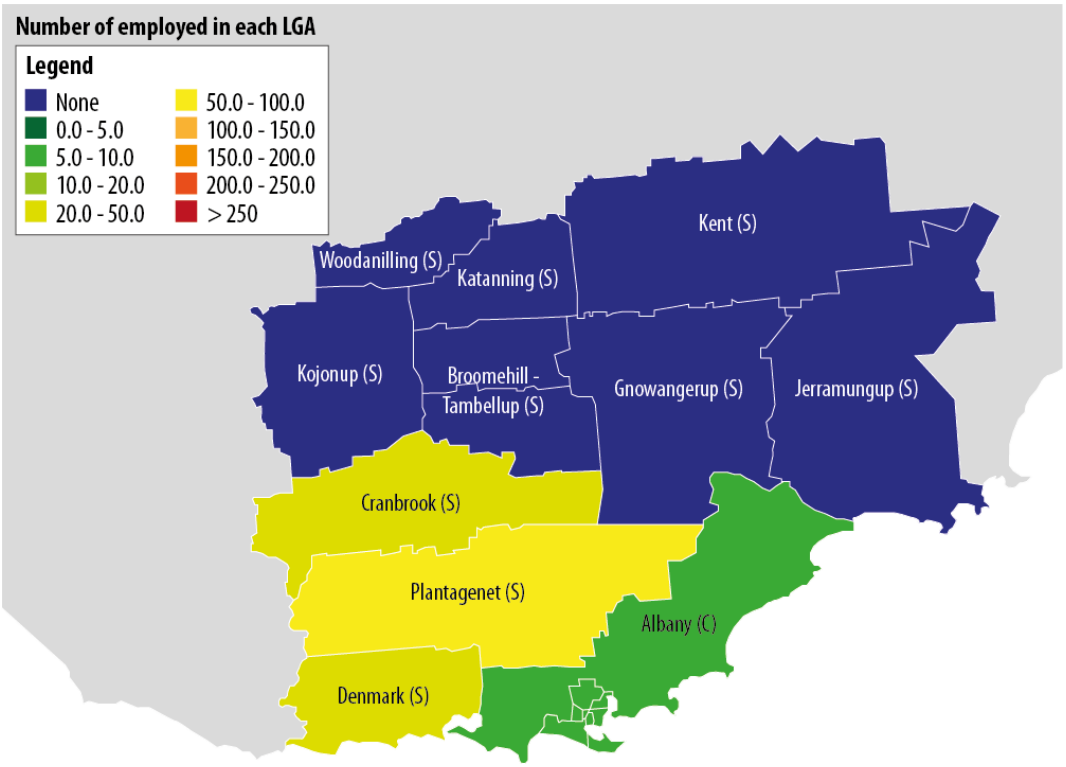
Currently, the distribution of horticulture farms is fragmented; spread across these LGAs with many small farms creating a relatively large overall supply. The Region produces more than 30% of WA strawberries, approximately 70% of WA asparagus and nearly 70% of WA's seed potatoes[4]. While the farms are producing a satisfactory amount of food, in some cases the dispersion of farms creates certain challenges for the Region.

Farms with a large enough harvest rely on market agents to distribute their product in Perth. This means that profit margins are lowered for the farmers and they have less control over the marketing and branding of their product at its final point of sale. Smaller farmers tend to rely on local markets, specialty stores and even street selling (e.g. in the cherry industry) to get their products to market. The

3 Meriam-Webester Dictionary, 'Horticulture' : http://www.merriam-webster.com/dictionary/horticulture

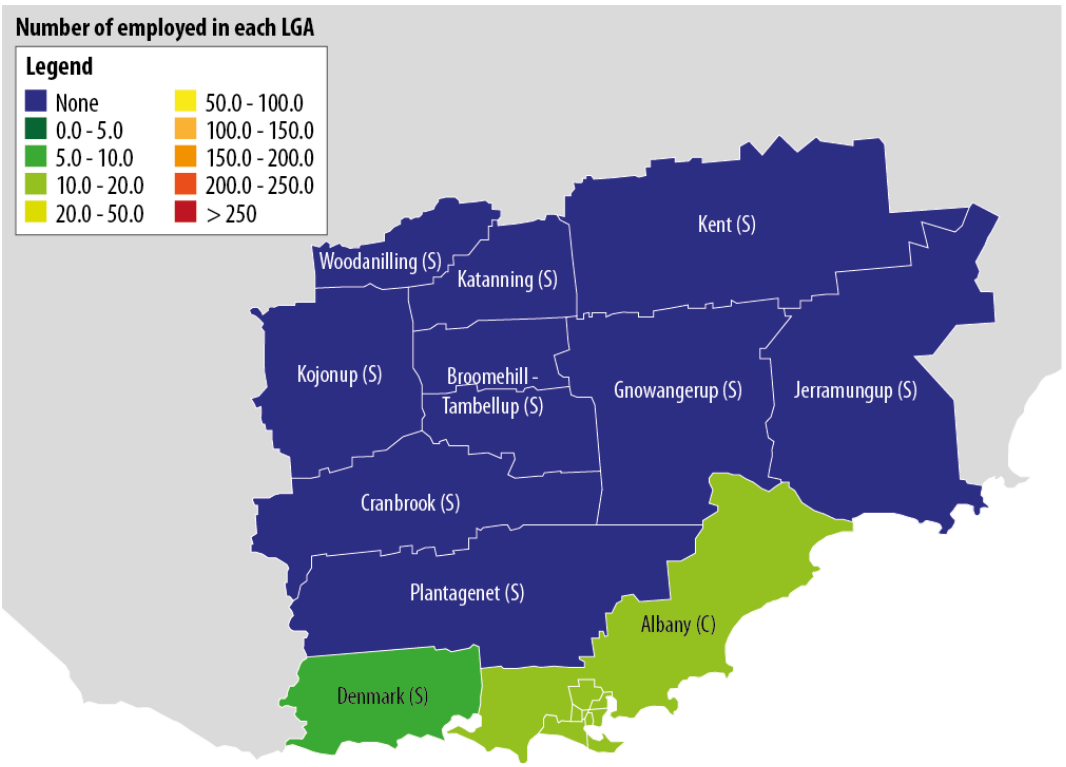
4 RDA, Great Southern 'Our Region's Industry':http://www.rdagreatsouthern.com.au/our_region_industry.html

Figure 8. Heat Map of Employment in Horticulture (Fruits) 2011



Source: ABS 2011; Pracsys 2015

Figure 9. Heat Map of Employment in Horticulture (Vegetables) 2011



Source: ABS 2011; Pracsys 2015

scattered nature of the farms also means that there is no clearly defined regional brand that is attached to the produce they sell.

To add to these challenges, there is no governance structure to ensure only the best quality produce goes to market. This is an issue that is apparent across the State. According to the agricultural experts consulted, Western Australia currently exhibits a lack of consistent quality in certain produce items, such as cucumber and capsicum. This has lead to the need to outsource purchase of such produce outside the State, from countries such as New Zealand. In New Zealand, farmers operate through cooperative structures that employ stringent quality control measures, ensuring a high level of quality and consistency of product to fulfil the requirements of export markets. This has lead to inflated prices in WA for certain produce and indicates a market gap that South Coast farmers could potentially fill.

The general characteristics of the Great Southern supply chain for horticulture are outlined in Figure 10. This shows the most important flows of inputs and outputs to and from South Coast industries.

4.1.2 Horticulture - Potential Opportunities

Industry Ecology Findings

When investigating the ecological construction of the horticulture industry it became apparent that there were two notable links missing in the supply chain. These were:

- The Great Southern has no local activity in the fruit processing industry; and
- The Great Southern has no local activity in the vegetable processing industry;

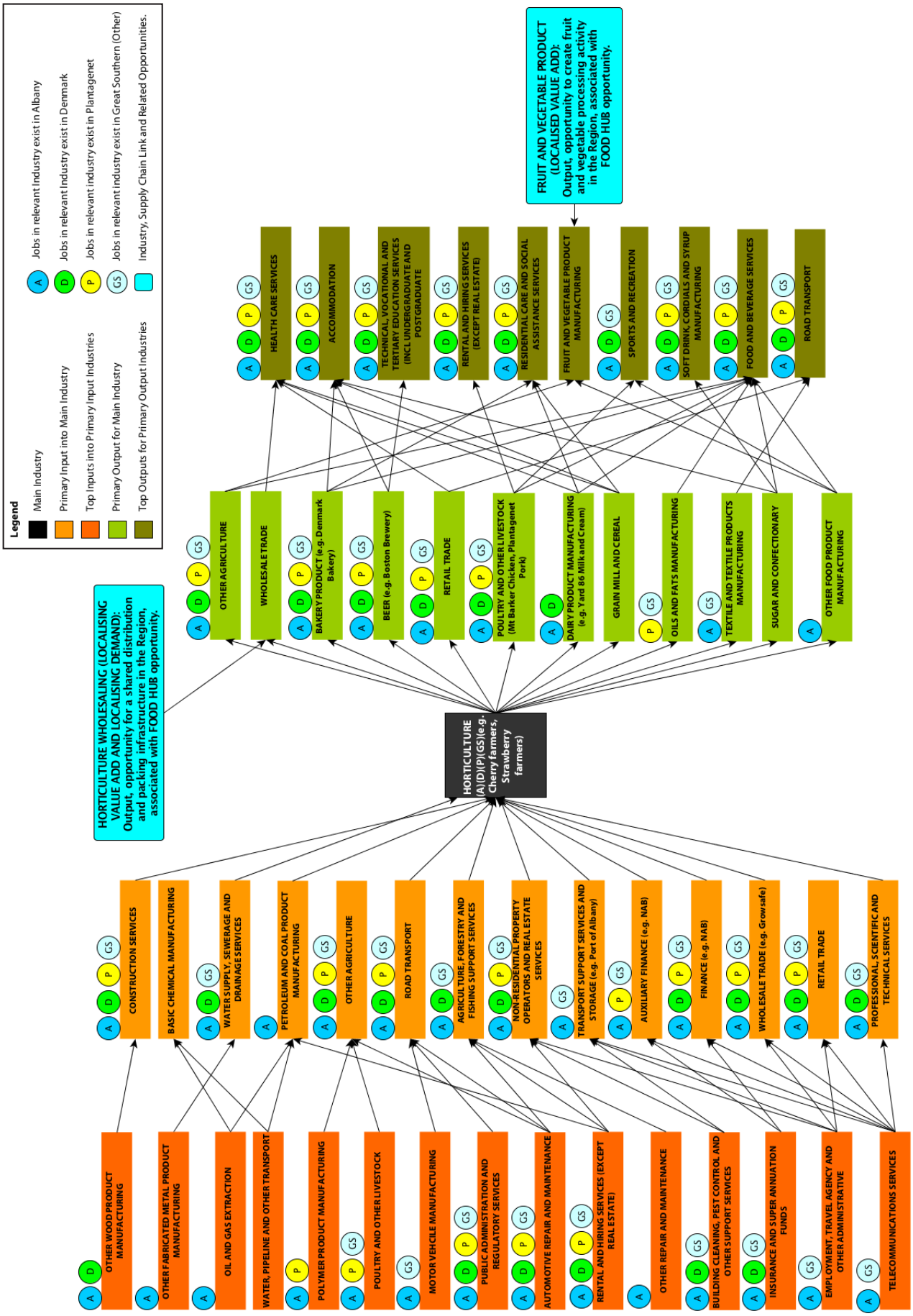
Food processing jobs tend to be strategic in nature and can contribute a substantial amount of Gross Value Add (GVA) to a region. Part of the reason behind these missing links comes from the dispersed nature of the horticulture industry. Many small farms have neither the drive nor the capacity to introduce processing into the Region. The Region has an opportunity to vertically extend the horticulture supply chain. This could be done through the introduction of a **Food Hub.**

Development of a Great Southern Food Hub

A food hub is a versatile organisation that has the ability to fill many gaps that are present in the Great Southern Horticulture industry. The results of the industry ecology findings indicated that the introduction of a food hub into the Region could be used to stimulate the growth of fruit and vegetable processing industries in the Region. In addition, food hubs often provide a physical location for shared infrastructure that allows for processing activities to be undertaken by smaller producers or groups of producers. This not only creates value add in the Region, but also enables local producers to expand their offering.

Stakeholder consultations with various Mt Barker farmers identified a number of additional regional needs that may be met by a food hub. Farms have typically been family owned and passed from generation to generation which has created a general aversion to risk in farming practices. This means that there is a slow take-up of technological advancements in the various agricultural industries. A food hub would serve as a knowledge base for farmers, providing information on tested and proven-effective new technologies, how they are ideally applied, and ways to mitigate risks in their adoption. This approach would potentially

Figure 10. Horticultural Supply Chain Map



Source: Pracsys 2015

lead to more efficient farming practices in the Great Southern while also lowering environmental impact from farming activities. A food hub also has potential to operate as a cooperative venture, providing support to producers and ensuring that the produce sent to market is of the highest quality. Such a hub has already been successfully initiated in the Shire of Manjimup.

The other issue that became apparent during stakeholder consultations was the difficulty transporting produce to market. A food hub can act as a middleman for smaller individual or even multiple producers allowing for local organisation of transport and packing allowing for creation of economies of scale.

The Food Hub would potentially fulfil an important role for more than just the horticulture industry. The opportunity as a whole is discussed and assessed in Chapter 5.

4.2 FORESTRY

Forestry is defined as the science and practice of caring for and cultivating forests[5].

4.2.1 Forestry - Current Characteristics

Forestry is an important part of the existing agriculture industry in the Great Southern (see Figure 11). When compared to other WA regions (excluding the Perth Metropolitan Region), four out of the fifteen most concentrated industries in the Region are oriented around forestry. Whilst the industry was hit hard by the collapse of the Great Southern Group agri-business corporation in 2009, great potential exists for growth in forestry going into the future, especially through the utilisation of forestry outputs to create carbon neutral products, including energy.

Forestry and Logging jobs are seven times as prevalent in the Great Southern compared to the rest of the State. The Region's woodchip industry was estimated to be worth around $89 million[6] in 2013. The industry is continuing to develop and has potential for higher future production value, with the opportunity for bio-fuel production and use in the Region.

In addition, the South Coast Natural Resources Management Multi-Criteria Analysis Shell for Spatial Decision Project Final Report (SCNRM MCAS) suggests that there is a great deal of land that can be used to plant carbon forests. This land has been found to be of low productivity for agricultural purposes, making carbon forests a more likely, profitable use of the land. In addition to gaining carbon credits, the forests can also generate income from harvesting the timber. The land can then be reused for a new carbon forest (assuming appropriate end use of the original timber).

The general characteristics of the Great Southern supply chain for forestry are outlined in Figure 12. This shows the most important flows of inputs and outputs to and from South Coast industry players.

4.2.2 Forestry - Potential Opportunities

Industry Ecology Mapping

The forestry industry in the Great Southern has an ecology containing 85[7] jobs. Our mapping revealed the following missing link in the Forestry supply chain:

- Bio-fuel as a source for local energy generation

Bio-Fuel

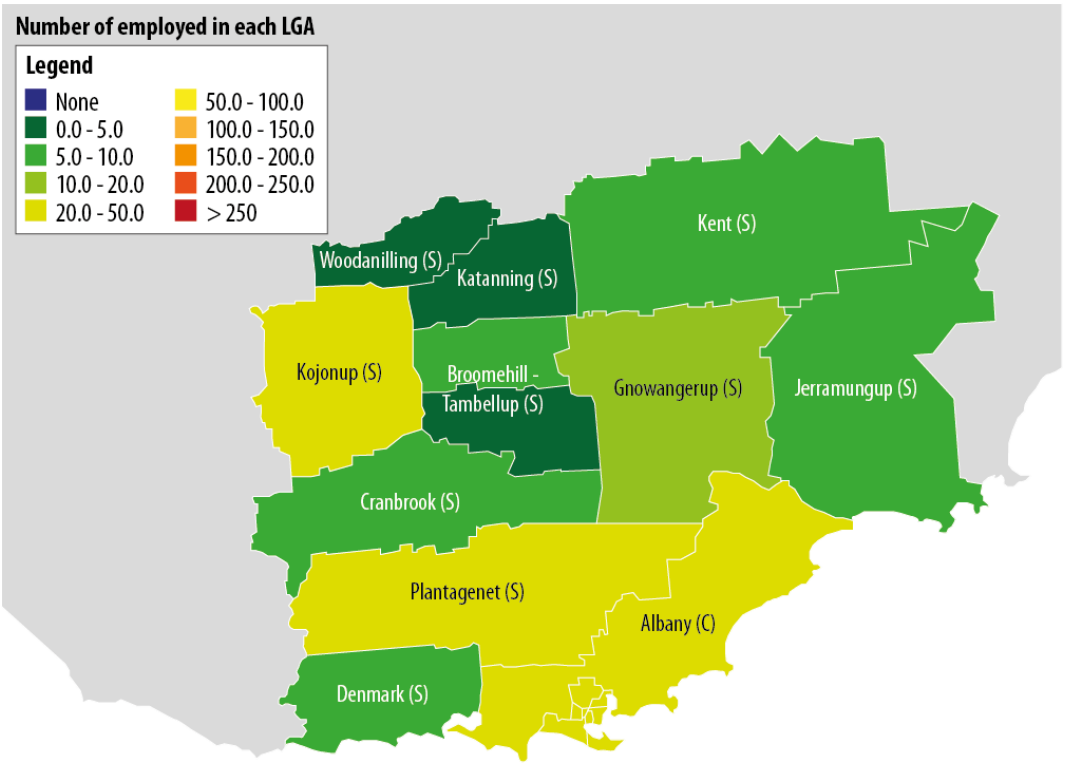
To take advantage of the Great Southern's capacity for growth in the forestry industry, there needs to be a driver. The Region has a strategic opportunity stemming from the forestry industry; this opportunity is based in Bio-Fuels production. The bio-fuel plant in Albany creates wood pellets (generally waste from wood processing) for use as bio-fuel. After the global financial crisis, the rising strength of the Australian dollar against the US dollar forced the plant shut down. With the improvement of economic conditions and the exchange rate in recent times, the owners have plans to reopen the plant in mid-late

5 Meriam-Webester Dictionary, 'forestry': http://www.merriam-webster.com/dictionary/forestry

6 GSDC 2014, ' A Region in Profile', Seen at: http://www.gsdc.wa.gov.au/sites/www.gsdc.wa.gov.au/files/pdf/Great%20Southern%20Region%20in%20Profile%202014.pdf,

7 ABS Census 2011

Figure 11. Heat Map of Employment in Forestry 2011



Source: ABS 2011; Pracsys 2015

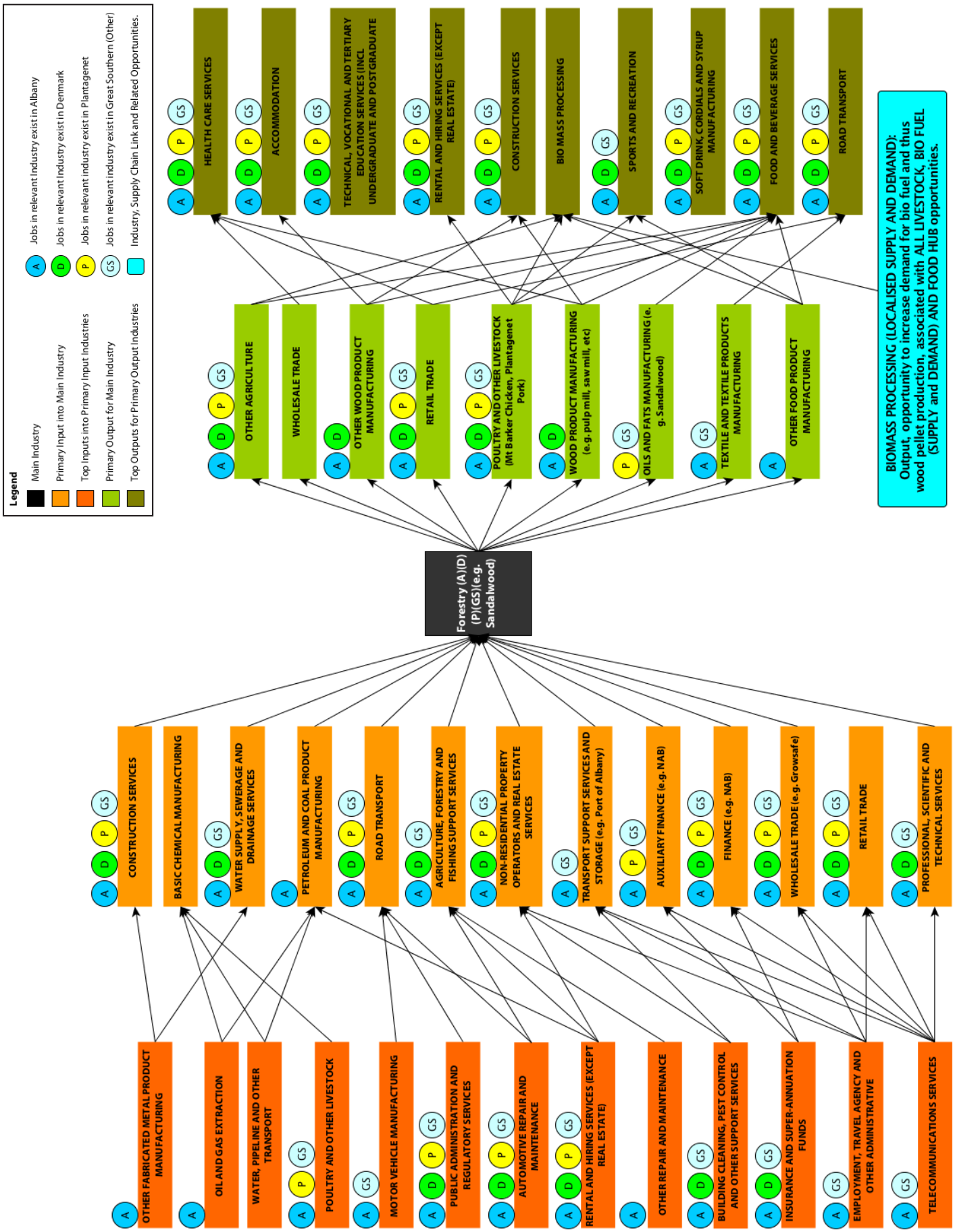
2015. The bio-fuel industry has the capacity to expand and could create a substantial demand for increased tree farming. A strategy could be developed in order to facilitate this extra demand while also ensuring the demand is sustainable. Currently there are two significant opportunities associated with bio-fuel:

- Increasing local demand for bio-fuels, leading to an increase in production which also helps mitigating risks for bio-fuel exporters, such as fluctuating foreign exchange rates; and
- Increasing supply of wood to the Region's bio-fuel plants, allowing them to increase production and thus increasing output of the forestry industry.

While there is talk of a natural gas pipeline, the lack of a major private investor means that project is most likely not feasible in the near future. Bio-fuel may prove to be an alternative to natural gas that can help the Region increase its energy self-sufficiency, and in doing so, secure the local future of bio-fuel manufacturing and tree farming. The increase in wood farming could also help support the Port of Albany Land Management Plan's goal of supporting increased wood product exports through the port[8], while also helping to meet the Regional Blueprint's goal of having a quarter of the volume of wood product being used in secondary processing in the Region by 2040.

8 Dept of Planning, 'Regional Planning And Infrastructure Framework Draft', Seen at:
http://www.planning.wa.gov.au/dop_pub_pdf/Great_Southern_RPIF_draft.pdf

Figure 12. Forestry Supply Chain Map



Source: Pracsys 2015

4.3 DAIRY

Dairy activity is defined as:

a) The department of farming or of a farm that is concerned with the production of milk, butter, and cheese; and

b) A farm devoted to such production.

4.3.1 Dairy - Current Performance

Dairy farming is an industry ideally suited to the Great Southern, and even more specifically to the South Coast (see Figure 13). Rainfall, a cool, consistent climate and fertile lands for grazing provide the necessary ingredients for a strong dairy industry. The employment concentration factor for dairy in the South Coast is 5 times that of the rest of Western Australia, and the Region produces approximately 10% of Western Australia's milk[9]. Nevertheless the dairy industry is far from maximising its potential. According to Western Dairy, the industry in the South Coast could produce much greater quantities of milk with the main constraint being a lack of processing capacity. The only milk processing in the Region is undertaken by boutique dairy farms that almost exclusively service the local market. Large dairy producers are forced to sell their milk mainly to processing facilities in the South West, such as Harvey Fresh and Lion. In addition, analysis revealed a number of dairy farms in the Great Southern have ceased operations in recent years due to industry consolidation and other reasons that remain unclear. This being said, farms are now taking innovative steps to increase production and grow the local industry through initiatives including roboticised dairies. Initiatives of this type have the potential to allow the Region to capitalise on its productive potential into the future.

The general characteristics of the Great Southern supply chain for dairy are outlined in Figure 14. This describes the most important flows of inputs and outputs to and from South Coast industry players.

4.3.2 Dairy - Potential Opportunities

Industry Ecology Findings

One clear gap was found with regards to the Great Southern Dairy industry:

- No dairy processing activity exists in the Region.

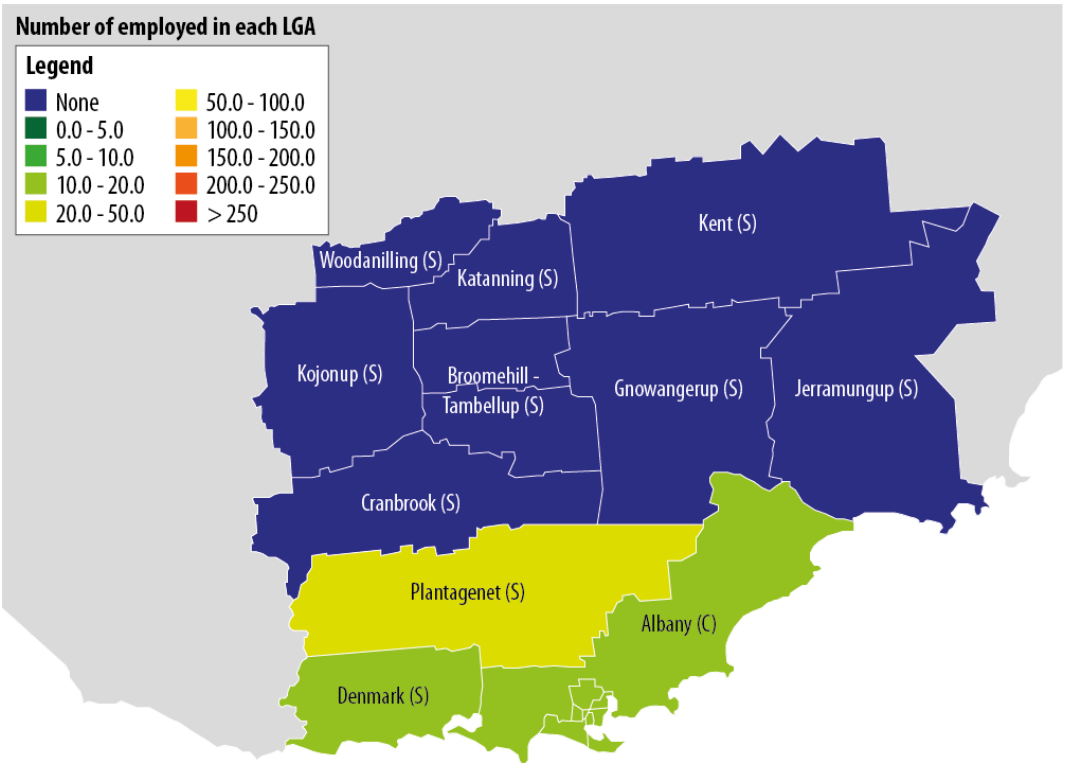
Milk Processing

On a small scale there exists a future opportunity to expand dairy production in the Region through the Bannister Downs milk processing plant. The South West's proximity to the South Coast sub-region, where a large proportion of milk in the Great Southern is produced, is advantageous. The $20 million project plans to increase production capacity by four times the current levels. Suppliers in that area are not expected to be able to meet the total processing capacity this would create, leaving the door open for Great Southern producers to expand their production.

While there are opportunities outside of the Great Southern to increase production, this would not maximise the Region's dairy potential. Within the Region there is the chance to grow production with transformative investment in processing infrastructure. This infrastructure would service mainly South Coast

9 Peggs A, 2015, 'Pre-Feasibility Study into Significantly Increasing Milk Production on the South Coast of Western Australia'.

Figure 13. Heat Map of Employment in Dairy 2011



Source: ABS 2011; Pracsys 2015

dairy farms, producing Great Southern branded milk products. According to Western Dairy, farms in the South Coast have the capability to meet a far greater demand than they currently do within a relatively short time period, given the right supporting infrastructure. A recent Great Southern Development Commission feasibility study also proposes that dairy farming in the South Coast sub-region would be more lucrative than in the South West region, thus a more attractive investment for prospective dairy farmers[10].

Recent investment in the Smithton processing infrastructure in Tasmania has facilitated industry-leading growth for milk production in that State. The $80 million plant can produce 300 million litres of milk product per year[11], underpinning a rapid transformation in production quantity as producers now perceive dairy production to be a safe investment. There is potential for the Great Southern to attract investment in a plant of a smaller scale to that of the Smithton facility, built to de-risk the dairy farming industry in the South Coast sub-region.

10 Peggs A, 2015, 'Pre-Feasibility Study into Significantly Increasing Milk Production on the South Coast of Western Australia'.

11 Australian Manufacturing, '$80 million Tasmanian dairy factor officially opens at Smithton': http://www.australianmanufacturing.com.au/6971/80million-tasmanian-dairy-factory-officially-opens-at-smithton

Creating a 'dairy friendly' climate similar to that in Tasmania could help to see rapid growth in milk production, allowing producers to meet local demand, and even international demand when advantageous. Such a facility would be ideally located near a port, such as Albany, for easy access to shipping.

Export Markets

The Chinese market for high quality milk products has undergone a vast transformation in recent years[12]. There is currently a lull in the price for dairy milk, in large part due to an over supply of milk to the Chinese market; however, it is expected that in the long-term, Chinese demand for milk products will out weigh the supply[13]. The Great Southern's close proximity to China suggests that in the future there is likely to be the opportunity for South Coast dairy producers to expand their offering into China. Even with lower milk prices, the South Coast is better situated than most other milk producing regions around the world to meet milk demand in places such as China, as its proximity and potential productivity will potentially lower transport costs and increase margins.

Food Hub

A food hub could play a vital role in introducing the Great Southern's high quality milk to external markets. The marketing arm of the food hub would promote milk from the South Coast under the premium Great Southern brand that it would develop. The Food Hub would also help build a relationship with the Chinese market that the local dairy industry could capitalise on once production and processing levels were sufficient.

Robotic Dairy Farms

The South Coast sub-region of the Great Southern has had some of the first robotic milking machines in the State introduced into the Hicks dairy Farm, located in Denmark. In addition the WA College of Agriculture in Denmark has commissioned two robotic dairies for training purposes, giving the region a competitive advantage in robotic dairies[14]. Through stakeholder consultation, there was a firm belief that this could be of great potential to the Region in the future, allowing for greater production from smaller farms. Current machines are capable of milking up to 200 cows, suiting many of the smaller farms in the area. The development or improvement of similar production technologies could be a focus of the Science and Technology Park project, discussed in Section 5.2, creating a stronger competitive advantage for the Region.

Albany Port

In order to create the necessary demand for container shipments from the Albany Port, processed milk exports to Asian countries are key[15]. The opening of export opportunities for the dairy industry could support development of economies of scale that will demand containerisation of the Port in the long-term.

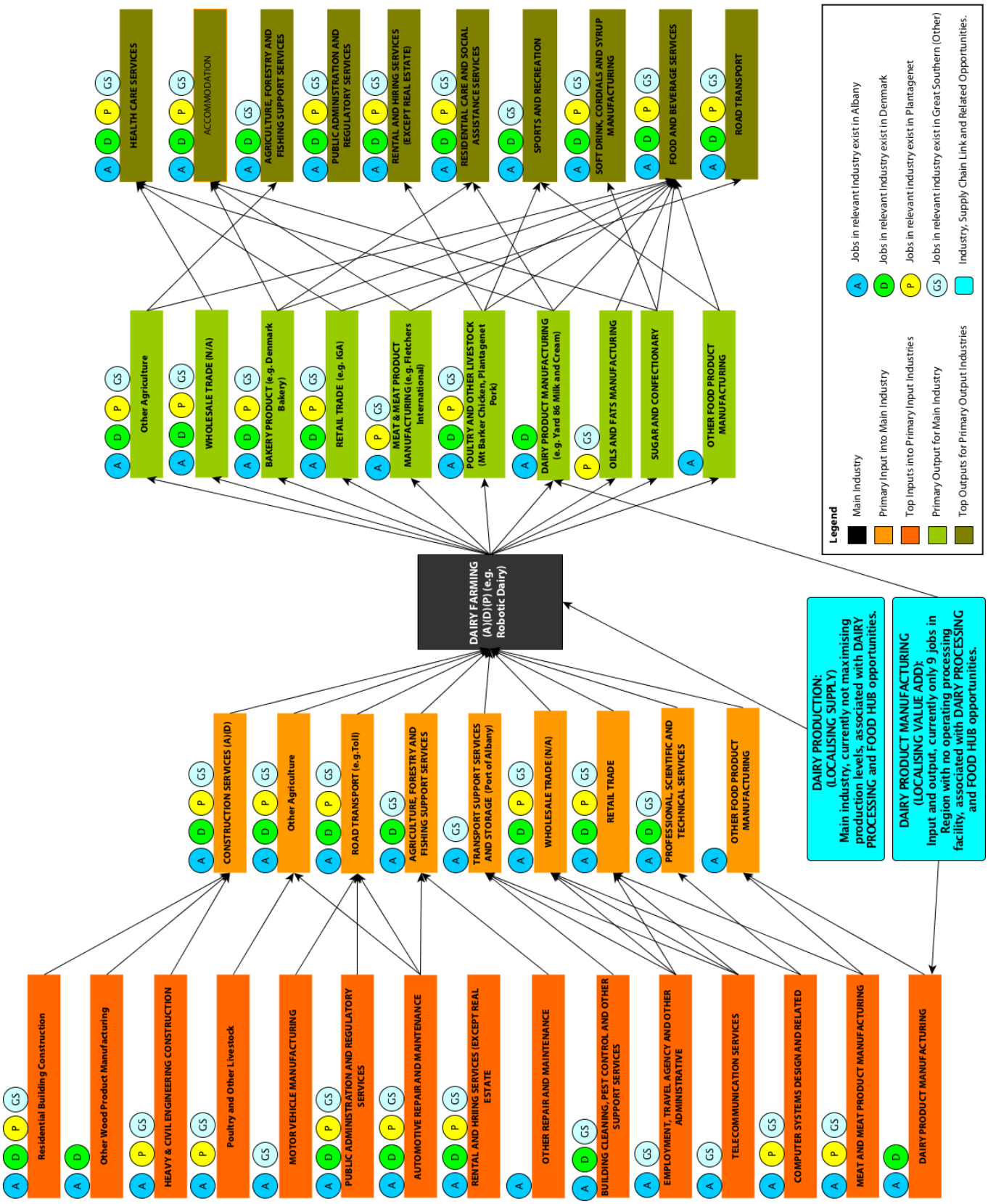
12 Criterion Conferences, ' China's milk boom: does Australia have what it takes?': https://blog.criterionconferences.com/government/chinas-milk-boom-australia-takes/

13 Agrimoney 2015, 'Chinese Market To Fall Back Into Deficit', Seen at: http://www.agrimoney.com/news/chinese-milk-market-to-fall-back-into-deficit--8108.html

14 The West Australian Newspaper 2014, 'College Commissions Robotic Dairy Farms', seen at: https://au.news.yahoo.com/thewest/regional/great-southern/a/24300557/college-commissions-robotic-dairy/

15 Tim Hoffman 2015, 'Albany Container Trade Feasibility'.

Figure 14. Dairy Supply Chain Map



Source: Pracsys 2015

4.4 LIVESTOCK AND MEAT PROCESSING

Livestock and Meat processing is defined as:

The 'raising and processing of farm animals (such as cows, sheep, and pigs) that are kept, raised, and used by people'.[16]

4.4.1 Livestock and Meat Processing - Current Characteristics

Livestock is one of the biggest industries for the Great Southern, contributing over 35% of the Gross Regional Product,[17] with 16% from disposals and 21% coming from products such as wool (see Figure 15 and Figure 16). There exist burgeoning opportunities for growth in this industry, even as an established industry in the Great Southern, especially around animals farmed for disposal. There is also a demand for increased production of a variety of animals that are in demand in both domestic and international markets.

A very significant challenge raised by stakeholders associated with livestock processing is the availability of stock. Fletchers International currently has the potential to expand production to meet the demands of its exclusively international customer base from one work shift to two, but is constrained simply by the availability of sheep. Likewise, Milne Feeds expansion plans are contingent on the significant scaling up of the regional supply of pig and chicken stock.

Experts at Department of Agriculture and Food of Western Australia (DAFWA) suggested that there exists significant potential for expansion of the livestock industry within the South Coast sub-region, particularly in the pork farming industry. To capture this opportunity, Plantagenet Pork has developed a free-range on-farm 'franchise' model where infrastructure and stock are provided to the farmer who operates the piggery.

A significant challenge that will need to be addressed in the expansion of livestock-related activity in the South Coast will be the proximity of farms to processing facilities. Currently larger livestock are shifted by road to abattoirs in locations such as Harvey for processing, contributing to the cost of production and congestion on major arterial routes. In addition, smaller livestock and livestock from more niche species (e.g. deer) grown outside of the supply chains of major producers are also required to transport their animals outside of the South Coast.

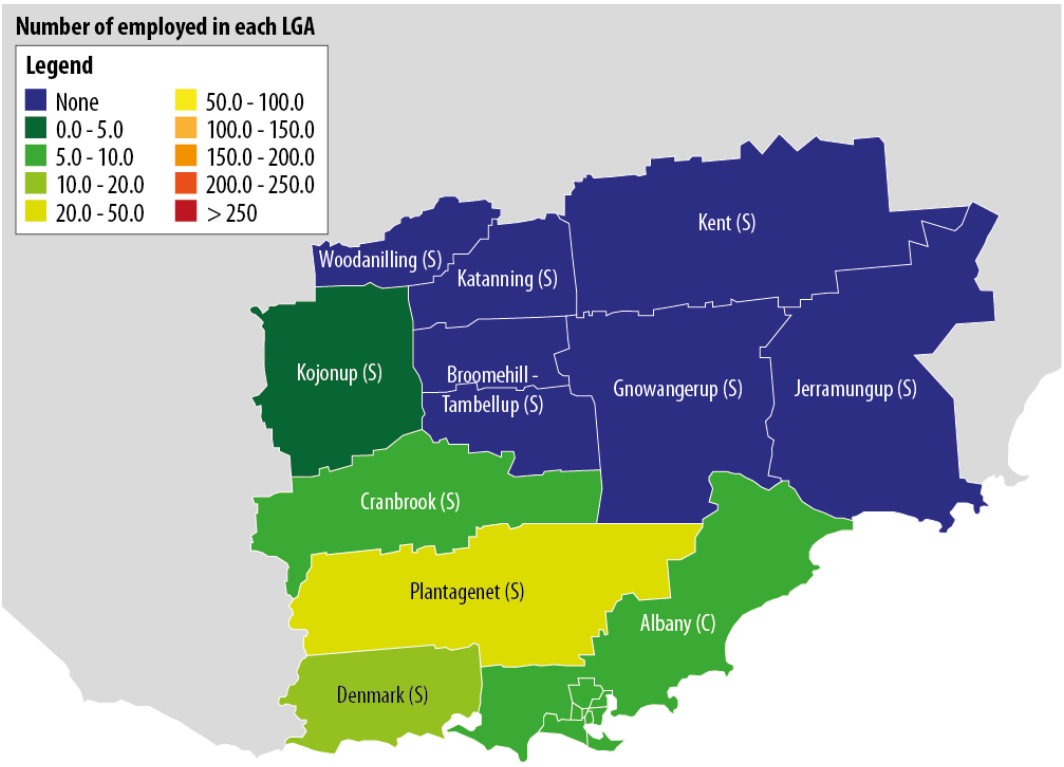
Stakeholder consultations with the livestock industry identified concern associated with the safety of road infrastructure leading to Perth. Whilst safety is of paramount importance, accidents are also costly for local businesses. Multiple truck rollovers on Albany Highway have already occurred this year, leading to costly delays for local businesses. Fletchers International described how such an event proved costly for them earlier this year as they missed their allocated time slot at Fremantle port, thus leaving their produce stranded and also incurring them a fine.

The general characteristics of the Great Southern supply chain for livestock are outlined in Figure 17. This figure describes the most important flows of inputs and outputs to and from South Coast industry players.

16 Merriam-Webster Dictionary, 'Livestock': http://www.merriam-webster.com/dictionary/livestock

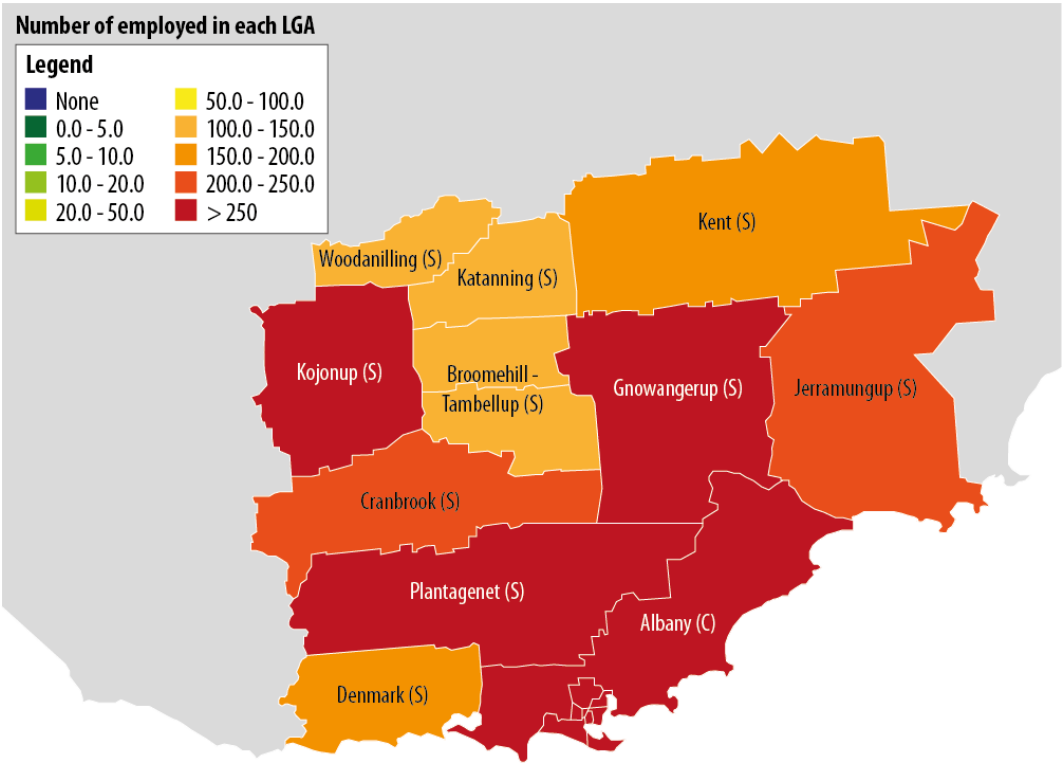
17 Regional Snapshot, Department of Regional Development (2013)

Figure 15. Heat Map of Employment in Other Livestock 2011



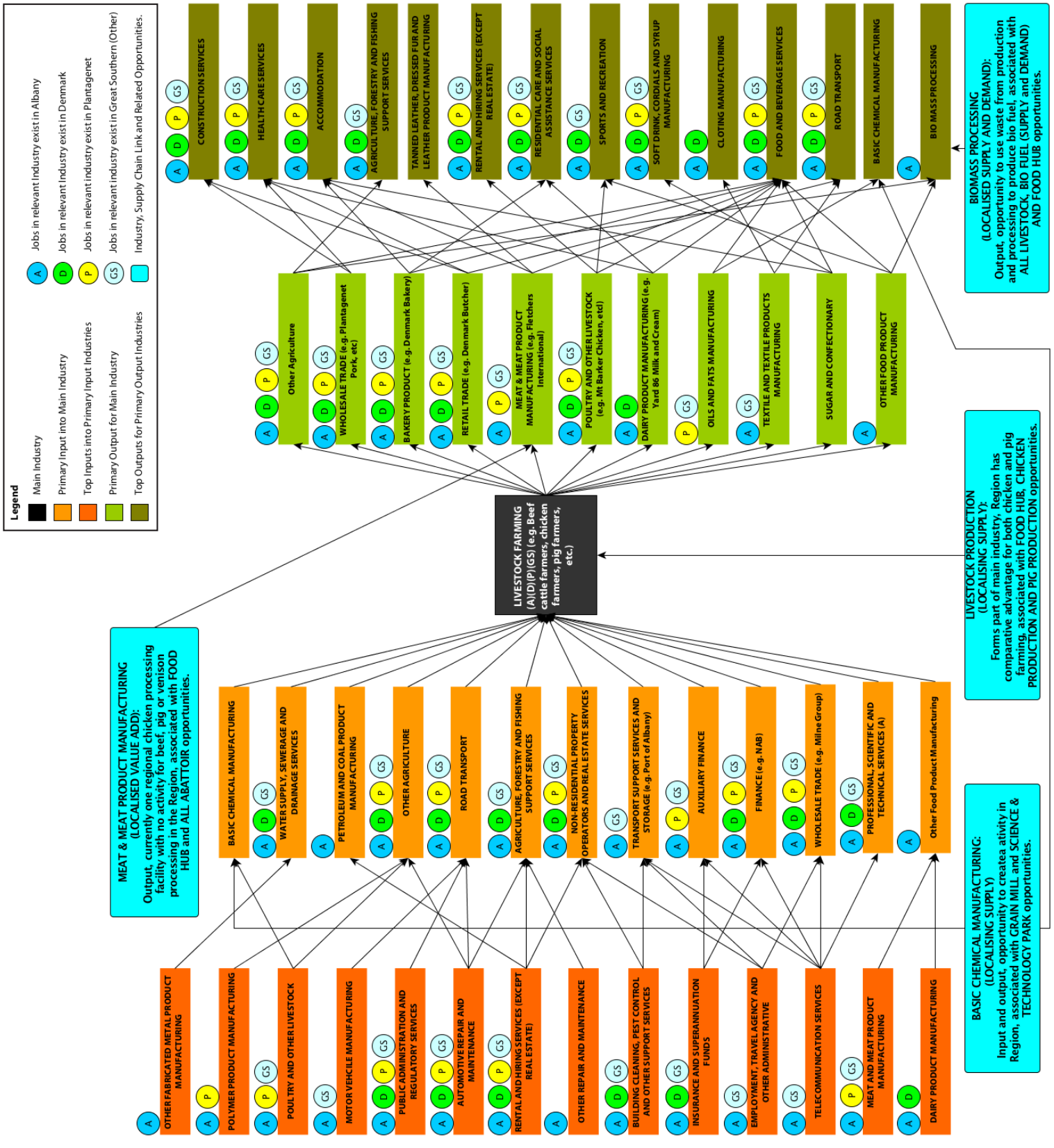
Source: ABS 2011; Pracsys 2015

Figure 16. Heat Map of Employment in Sheep and Beef Cattle 2011



Source: ABS 2011; Pracsys 2015

Figure 17. Livestock and Meat Processing Supply Chain Map



Source: Pracsys 2015

4.4.2 Livestock and Meat Processing - Potential Opportunities

Industry Ecology Findings

The livestock industry has many branches of which some have clear ecology gaps. These are:

- No local activity in pig or venison processing;
- No local activity in cattle processing; and

Expansion of Supply

Stakeholder consultations identified that opportunities exist to support the expansion of supply of a variety of livestock species within the South Coast and greater Great Southern. In particular, land-use planning systems should work to understand the opportunities and constraints associated with particular species and farming models, allowing for greater predictability and efficiency in the decision-making processes. This could also potentially be combined with the land-optimisation modelling undertaken by SCNRM to inform the decisions of new industry players/farmers.

The Region should focus on specific livestock industries such as poultry and pigs. It is in the Region's best interests to facilitate the expansion of these industries in particular as Mt Barker Chicken and Plantagenet Pigs are already trying to establish a franchise model farm for both species.

Abattoir

As demonstrated through the industry ecology analysis, there is a clear opportunity to increase value add in the Region through the introduction of meat processing facilities for various livestock. Stakeholder consultations identified that a proponent has previously been interested in the potential and viability of processing a range of alternative livestock in the Region. A recent feasibility study, jointly commissioned by the GSDC and the Shire of Plantagenet[18], has assessed the feasibility of a beef abattoir in the Region and the best location for such a facility. Currently all pigs, venison and beef cattle are exported outside the Region to be slaughtered. While there is already a chicken abattoir in the Region, Mt Barker Chicken has expressed interest in opening a new processing facility once their chicken farms have reached a high enough capacity.

There will be different requirements for land size and infrastructure, depending on the nature and location of abattoirs. Abattoirs are generally associated with certain negative externalities, particularly in regard to odours and nutrient export, meaning that they tend to be located away from populated and environmentally vulnerable areas. This will again require adequate preparation and regional land use planning systems to best accommodate such facilities while also situating them in the most opportune areas for both the Region and the private investor.

Some concerns have been raised about insufficient livestock within the Region and competition from large facilities in the South West. There is evidence however that the Region's farmers would be interested in supplying a local abattoir as there would be lower transport costs and the possibility of additional services[19]. A further solution would be to install a multi-species abattoir, although this would encounter certain additional challenges and costs.

18 GHD, 2015, 'Abattoir Feasibility Study'.
19 GHD, 2015, 'Abattoir Feasibility Study'.

4.5 VITICULTURE AND WINERIES

Viticulture is commonly defined as:

- The cultivation or culture of grapes especially for wine making.

Winery is commonly defined as:

- Where wine is made.

4.5.1 Viticulture and Wineries – Current Situation

The Great Southern has a climate ideally suited to the growing of grapes meant for wine production. The Region currently sustains 40 wineries with a variety of grapes being produced, including: Riesling, Pinot Noir, Sauvignon Blanc, Shiraz and Cabernet Sauvignon[20]. Vineyards in the Region are highly technical with many having drip irrigation and other leading edge technologies[21]. The Region's vineyards not only supply local wineries with grapes, but also some South West wineries as well. Unfortunately, according to Great Southern Wines, the main constraint for local vineyards and wineries alike is an over supply of wine in regional and state markets.. In fact according to Great Southern Wines the local wine industry at current demand levels could be more profitable if less grapes were grown, as there is not enough demand in to warrant the supply produced.

The wines in the Region are known for their quality. In August 2015, a cohort of wineries travelled to Singapore to start negotiating the sale of Great Southern wines as a premium product in the Singapore Market. At the time the Strategy was published, the outcome of the visit was not known.

20 Australia Wine 2015, 'Regional Overview', seen at: http://www.wineaustralia.net.au/en-PH/australia-archive/great-southern.aspx

21 Great Southern Wines

The wines in the Region are known for their quality. In August 2015, a cohort of wineries will travel to Singapore to start negotiating the sale of Great Southern wines as a premium product in the Singapore Market.

The general characteristics of the Great Southern supply chain for viticulture are outlined in Figure 19. This figure describes the most important flows of inputs and outputs to and from South Coast industry players.

4.5.2 Viticulture and Wineries – Potential Opportunities

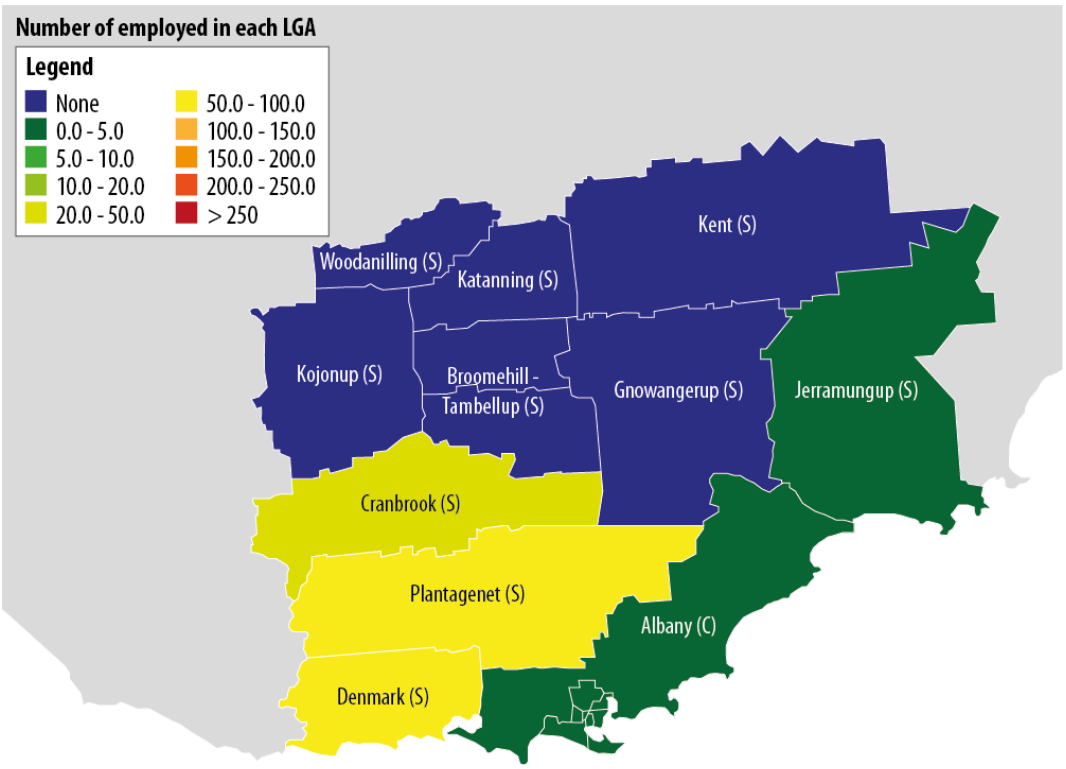
Industry Ecology Findings

Industry Ecology mapping and consultations revealed that the Region has a local supply of wine grapes that is greater than the demand for wine of local and even State markets. This gives the Region's wineries the opportunity to look for other export markets in which they can sell their product at a premium.

Export Markets

Stakeholder consultations identified that the Region has far more productive capacity than is currently being utilised. The wines from the Region are of a high quality and can be sold as a premium product meaning potential for a high return from a small increase in production. While regional wineries are taking steps to expand their markets, regional economic development institutions can play a role in facilitating relationships with export markets. In addition, the wine industry would benefit from a regional brand that promotes the quality and provenance of the Region's produce. This would create pathways for the industry to reach new and sometimes very competitive markets. Breaking into new markets would allow the wine industry to maximise its production

Figure 18. Heat Map of Employment in Beverage Manufacturing 2011



Source: ABS 2011; Pracsys 2015

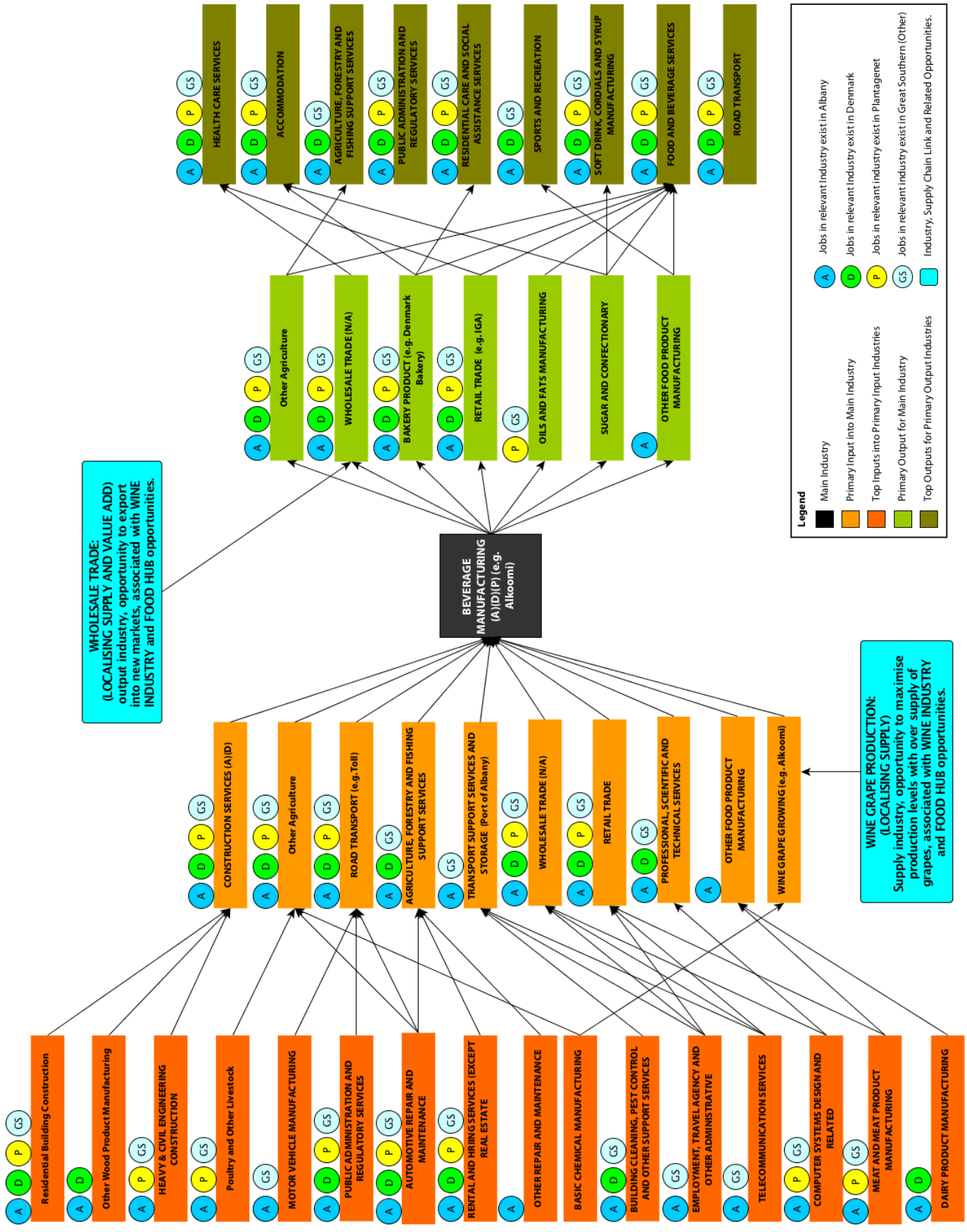
capabilities. Activities such as this, potentially stemming from a regional food hub, would also be able to build and maintain a regional brand recognised for high quality produce that would compliment the premium quality of the Region's wines.

Albany Port

In order to create the necessary demand for container shipments from the Albany Port, exports to Asian countries are key[22]. The opening of export opportunities for the wine industry could help create the economies of scale that will demand containerisation of the Port in the long-term.

22 Tim Hoffman 2015, 'Albany Container Trade Feasibility'.

Figure 19. Viticulture and Wineries Supply Chain Map



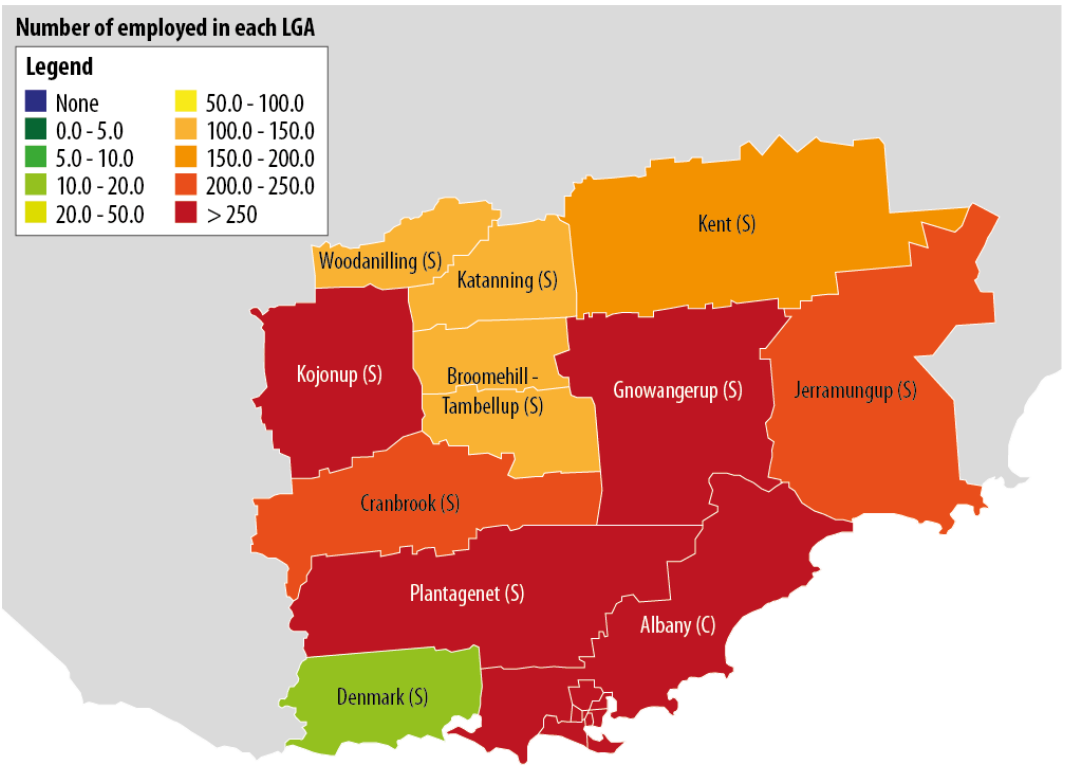
Source: Pracsys 2015

4.6 THE GRAIN INDUSTRY – CURRENT SITUATION

Grain has played an important role in the Great Southern economy. The Region currently grows around 12.3% of the State's total crops amounting to a total output of $680m in the fiscal year 2011-2012. CBH is the main organisation purchasing grain from the Region's farmers. Its yield is transported via rail by Watco and has dedicated storage facilities in close proximity to Albany port. Through our consultations we learnt that the grain industry was most concerned with the condition of the transport routes that lead to the port as well as the time consuming route trains have to take to reach Perth. There are also fears that the short stay accommodation built along the main access road to the port will affect current 24/7 access.

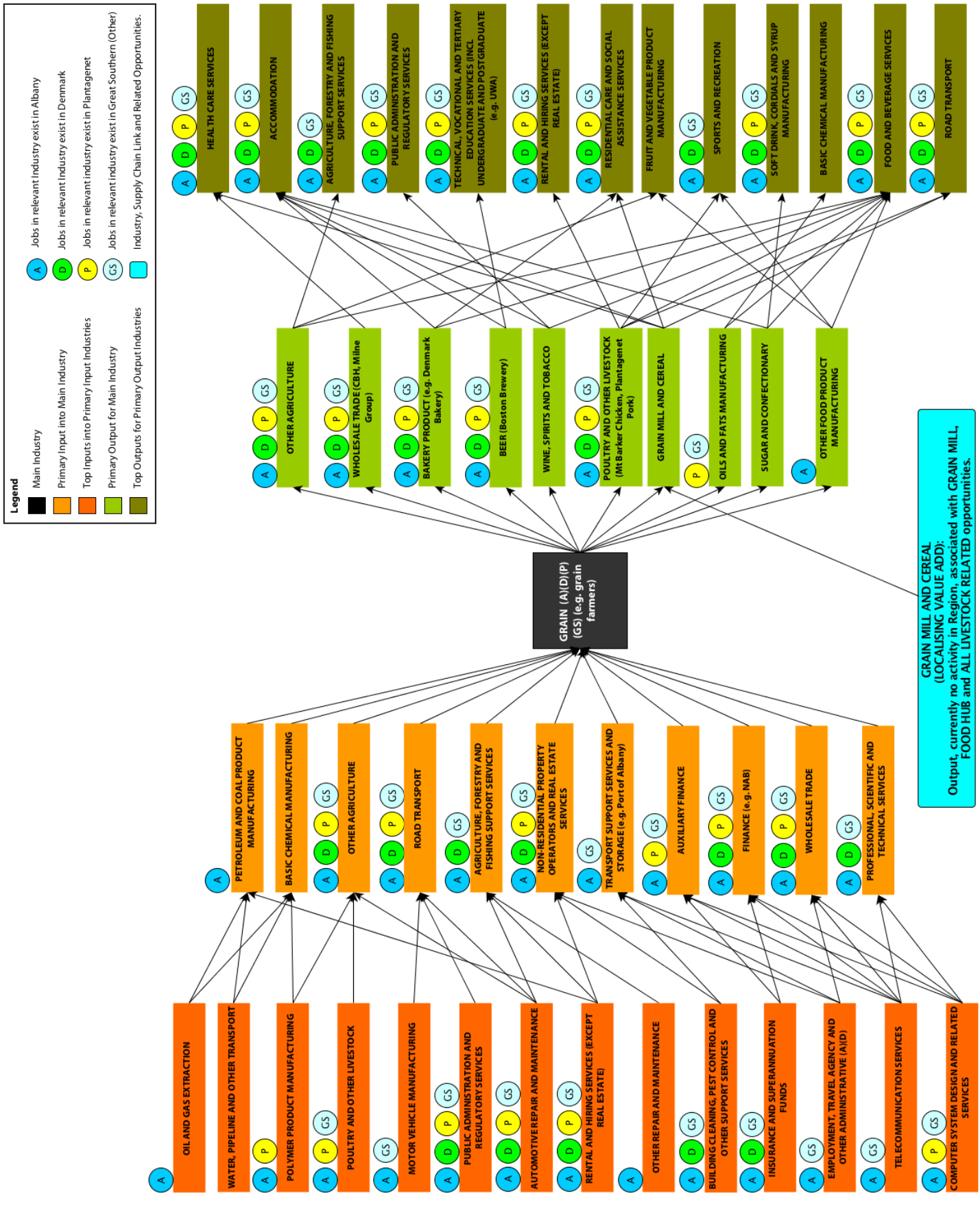
The general characteristics of the Great Southern supply chain for grain are outlined in Figure 21. This figure describes the most important flows of inputs and outputs to and from South Coast industry players.

Figure 20. Heat Map of Employment in Grain 2011



Source: ABS 2011; Pracsys 2015

Figure 21. Grain Supply Chain Map



Source: Pracsys 2015

4.7 GRAIN INDUSTRY – OPPORTUNITIES

Industry Ecology Findings

Ecology mapping identified an opportunity for intervention via supply side through the development of grain processing infrastructure in the Region:

- Currently there is no grain or cereal processing in the Region; and
- No basic chemical manufacturing activity.

Processing Jobs

Vertical expansion of the grain industry into processing has the potential to create enormous amounts of value add for the Region. This is due to the size of the industry and the versatility of the produce. One promising opportunity that currently exists is with processing grain for feed. The parent company of Mt Barker Chicken and Plantagenet Pork is looking to expand and has expressed interest in eventually installing a grain mill in the Region.

Infrastructure

As CBH has such a large presence in the Region, facilitating its transport, storage and export operations has positive implications for the local economy. Stakeholder consultations identified that certain roads were mentioned as possible areas for improvement, such as: Chesterpass Road, Great Southern Hwy and Albany Hwy. Improving the road conditions reduces the risk of accidents, creates time efficiencies and minimises delay-associated risks.

Port Infrastructure

Consultation with CBH highlighted the importance of the Albany Port and the need for certain improvements. A medium to long-term opportunity discussed was the introduction of containers at the port. This would allow for easier storage and transport to and from the storage areas and increase the ports capacity substantially; however, there is insufficient demand for this service at the moment[23]. Short-term improvements listed were the deepening of the port and improvement of the road infrastructure directly leading to the port. Most of these improvements will need to be instigated through private and public sector investment as the Port itself does not have control over the road infrastructure or shipping lanes that lead to it.

Basic Chemical Manufacturing

The ecology mapping found that an important part of the supply for grain was not provided from within the Region; basic chemical manufacturing[24]. Ecology mapping identified that basic chemical manufacturing facilities for crucial agriculture inputs such as crops were absent. This gap could easily be filled within the Region, especially with the possibility of research facilities in the potential Science and Technology Park. The Science and Technology Park is an important project for increasing the Region's strategic capacity and has the capability to serve other industries in addition to existing grain industries. It is discussed in more detail in Chapter 5.

23 Tim Hoffman 2015, 'Albany Container Trade Feasibility'

24 This is a broad industry categorisation, the specific nature of Basic Chemical Manufacturing in this case refers to chemical used in fertilisers and for other agricultural related uses.

5.0

5 OPPORTUNITIES FROM INDUSTRY ECOLOGY ANALYSIS

Through ecology mapping and follow-up consultation the supply chains of various industries were analysed. Based upon this analysis, a range of promising opportunities where identified and examined. These opportunities fall into three broad categories within the Industry Ecology of the Region. These are:

- The localisation of a demand link in an industry – An opportunity that localises demand may come from incentivising growth in an industry, which uses a resource that the Region already supplies, or it might entail promoting the local use of a Regional product creating demand in addition to any export demand;
- The localisation of a supply link in an industry – Localising supply generally revolves around development of local capabilities to meet regional supply of inputs into export industries.
- The vertical integration of a key value-add link – This involves the inclusion of an industry which is at a later stage in the supply chain, thus adding a certain value to the product. The more stages of the supply chain in the Region, the more value add there is.

5.1 THE GREAT SOUTHERN OPPORTUNITY TABLE

In order to quantify and rank priority projects for the Region the Great Southern Opportunity Table (The Table) was developed (Appendix 4). The Table outlines the following:

- The required level of government involvement that is anticipated;
- The approximate probability that an opportunity will be completed;
- Estimated dollar values for each opportunity;
- A risk adjusted value of the opportunity based upon probability and value; and
- An estimate of the number of jobs that the opportunity will create.

The Table rates the Region's capacity challenges in accommodating the opportunities listed, allowing for analysis of where the Region can make improvements in infrastructure. This was then incorporated into the mapping to allow for consideration of potential interventions and synergies. Figure 22 shows a summary of the table which ranks the opportunities by their risk adjusted values.

Figure 22. Great Southern Opportunity Table Summary

Opportunity	Level of Intervention	Probability	Risk Adjusted Value ($)	Value Rank
Boutique Abattoir – Beef	Transformation	49%	16m	1
Boutique Abattoir – Mixed Species	Transformation	49%	16m	2
Dairy Processing	Transformation	50%	15m	3
Wine Industry	Buy-In	80%	12.5m	4
Science & Technology Park	Transformation	45%	11m	5
Food Hub	Transformation	60%	8m	6
Grain Mill	Buy-In	51%	8m	7
Chicken Abattoir	Progress	55%	5m	8
Chicken Production	Progress	60%	4m	9
Bio Fuel – Localised Demand	Transformation	75%	3.5m	10
Pig Production	Progress	70%	2.5m	11
Bio Fuel – Localised Supply	Buy-In	65%	1.5m	12
Albany Port	Progress	60%	1.5m	13

Source: Pracsys 2015

5.1.1 Government Involvement

Three levels of intervention are anticipated across the set of opportunities. This was done to recognise that government has finite resources and must prioritise the use of its time and funding. The three levels of action are listed in Figure 23.

Projects that are market ready and that align to existing statutory processes require lower levels of intervention, (i.e. 'Progress'). Earlier stage projects or positive risk/impacting projects infer a greater role for agencies in building the case for investment for private and/or public stakeholders (i.e. 'Transformation').

Figure 23. Levels of Agency Involvement

Source: Pracsys 2015

5.1.2 Probability

The Table uses two overarching variables to determine the probability of an opportunity being realised, these are:

- The regional drivers for the opportunity; and
- The Region's capacity with regards to the industry that the opportunity lies in.

The drivers and capacity are given a subjective score out of five based on the findings of ecology mapping and consultation. The Drivers and Constraint ratings used to calculate the probability in Table were based upon qualitative information collected through workshops and consultations. This determines the probability that the Region is in a position to accommodate an opportunity. This is beneficial as it allows the Region to see where its strengths and deficiencies lie.

5.1.3 Estimating Value

Values were calculated using data from ABS input output tables and estimations regarding the employment that could be created through each project. The estimations regarding employment were based on consultations and secondary research. The value, and thus the number of jobs, is highest when transformational action is taken with regards to a certain opportunity. A risk-adjusted value is then calculated incorporating both the estimated value of the opportunity and the probability that the opportunity can be realised in the Region.

5.1.4 Key Stakeholders

The following table outlines some potential key stakeholders and what roles they might play with regards to the opportunities in Section 5.2. The roles prescribed are indicative only as further agreements and approvals would be required before they could be binding.

Figure 24. Key Stakeholders and their Potential Roles

Stakeholder	Role
Relevant LGAs	Play roles in: · Engaging local community · Reaching agreement with land owners · Facilitating land development as land owners · Facilitating guidelines, policies for industry development · Advocacy of projects · Advocacy of education · Small business incubator · De-risking projects for private investors · Identifying private investors · Upgrading road infrastructure · Seeking funding · Facilitating communication between parties
GSDC	Plays a role in: · Providing access to information on government programs and industry support services · Being a proponent for transformational change in the Region in line with the Great Southern Regional Investment Blueprint · Promoting investment opportunities that create employment and diversify the regional economy
Proponents	Play roles in: · Funding opportunities · Actively seeking projects to be realised · Seeking approvals
Private Investors	Play roles in: · Undertaking de-risked opportunities · Investing large sums of money
Albany Port	Plays a key role in: · Regional exports · Communicating with exporters · Help determine appropriate timelines for expansion · Indicate where/when opportunities lie for new export products.
Landcorp	Plays a role in: · Regional capacity for investment · Setting aside land for projects · Servicing land · Freeing strategic land
Western Power	Plays role in: · Regional capacity for investment · Servicing land · Providing power infrastructure
Watercorp	Plays role in: · Regional capacity for investment · Servicing land · Providing water infrastructure
SCNRM	Plays a key role in: · Land usage · Helping to pass appropriate regulations for agri-industrial activity · Educating the public · Environmental advice
UWA	Plays a key role in: · Developing a strategic workforce · Creating Science & Technology Park
Tertiary organisations	Play roles in: · Creating Science & Technology Park · Regional workforce capacity
Regional Farmers	Play roles in: · Communicating production capacity · Waste supply

Stakeholder	Role
Bio fuel companies	Play roles in: · Creating demand for bio fuels · Acquiring new supply for fuel production · Funding for infrastructure
Local Entrepreneurs	Play roles in: · Finding opportunities · Investing in opportunities · Governance of projects
MainRoads	Plays a key role in: · Upgrading road infrastructure
Regional Development Australia	Plays a key role in: · Funding Regionally significant projects
Brookfield Rail	Plays a key role in: · Rail transport
DAFWA	Plays a key role in: · Development of regional agriculture initiatives
Department of Planning	Plays a key role in: · Land use decisions
Tourism WA	Plays a key role in: · State wide tourism initiatives that add to the Region's tourism industry
Department of Transport	Plays a key role in: · Upgrading Road Infrastructure

Source: Pracsys 2015

5.1.5 Land Analysis

In order to attract the proposed opportunities there must be land suitable to the uses that are proposed. This is especially applicable to opportunities that include strategic industrial land uses. A parallel project to this report was commissioned by LandCorp to design the Industrial Land Online Management System (ILOMS). The first phase of this model (phase 1.1) was intended to provide LandCorp with an insight into the regional capacity to access future opportunities based on all industrial land demand forecasts (for further information regarding ILOMS please see Appendix 5). The following two sections include results from LandCorp's ILOMS Phase 1.1 and a snapshot of the current available industrial land in the South Coast sub-region.

Great Southern Land Forecasting - ILOMS

ILOMS phase 1.1 was completed using information from the Great Southern, specifically from the South Coast sub-region (the Study Area). The data provides an approximation of the land utilisation in the Study Area. As such, refinements through the use of on-the-ground data collection will be required in order to provide more accurate results around land utilisation that could potentially be used to create 'rule of thumb' profiles for future planning strategies. LandCorp, and others, intend to use the model both in terms of assessing future land demand and in inputting data, as it requires frequent updating to provide the most accurate results. Below is the current output that ILOMS has produced, which was presented to LandCorp upon completion of phase 1.1. These results, while illustrative of the forecast demand in the Great Southern, will require confirmation once the additional data from the Study Area has been input into the model.

ILOMS Results

The ILOMS results were applied to each of the three LGA's within the Study Area. Each area was assigned strategic opportunities based on suggestions during consultation. This does not represent a suggestion from Pracsys as to where the opportunities should be located. The results for strategic land provide a forecast of land demand based on both land required for various opportunities and WA Tomorrow Band C population growth forecasts[25]. Population

25 There is the option to use Forecast Id population estimated in the ILOMS model.

driven industrial land demand is assessed using WA Tomorrow Band C forecasts only. The results from ILOMS are derived by LGA and only include the opportunities identified by the industry ecology analysis.

Albany

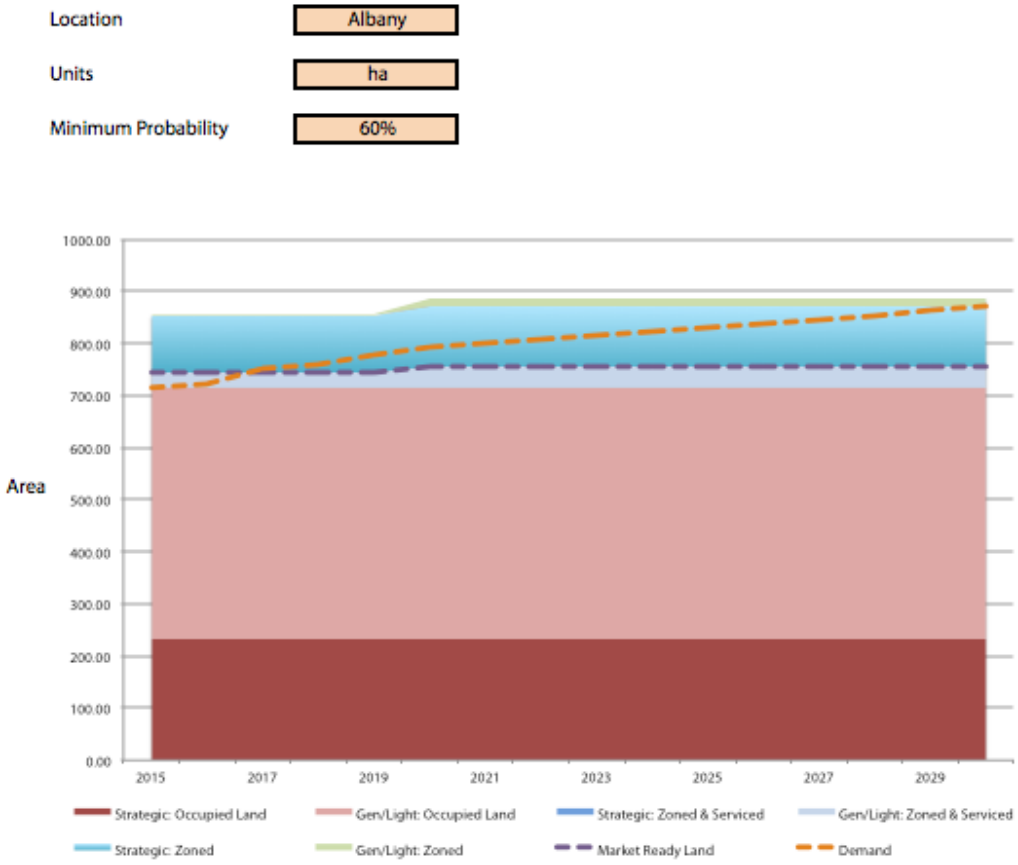
Strategic Industrial Land

The ILOMS model indicates that, even with job growth and opportunities identified by the industry ecology analysis, Albany has sufficient strategic land to meet forecast demand until 2031 (full ILOMS output in Appendix 6). There is no serviced strategic industrial land in the City of Albany.

General/Light Industrial Land

The supply of general/light industrial land within Albany appears to be sufficient to meet forecasted demand projections until 2022. The ILOMS supply audit indicates that there are a number of general/light businesses situated on land earmarked for strategic industrial development. Although demand for general/light industrial land may reach capacity at 2022 there may be sufficient strategic land to meet general/light requirements until 2031. Further data gathering and entry is required to confirm the ILOMS results on the demand and supply of strategic and general/light industrial land.

Figure 25. ILOMS results - Albany



Source: Pracsys 2015

Plantagenet

Strategic Industrial Land

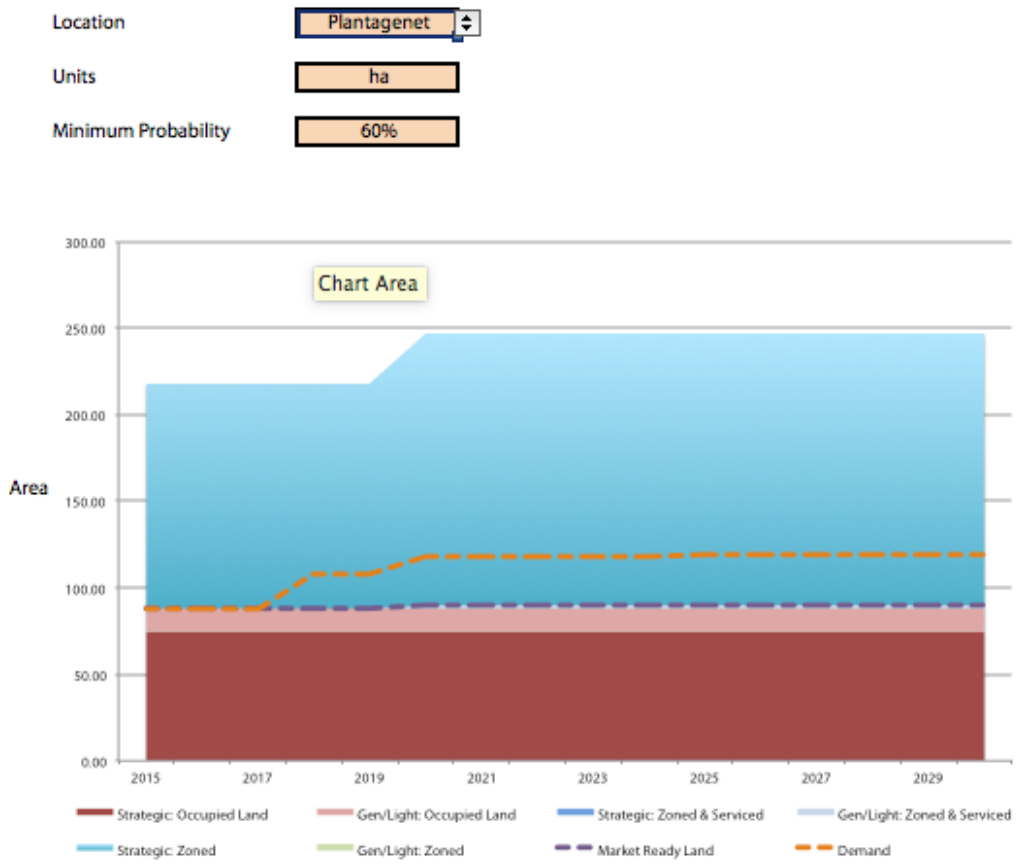
The ILOMS model indicates that even with multiple opportunities identified by the industry ecology analysis and population growth there would be sufficient strategic land in Plantagenet to meet forecast demand for the foreseeable future. There is no serviced strategic industrial land in the Shire of Plantagenet.

General/Light Industrial land

The ILOMS model suggests that, based on current population growth and demand for general/light industrial land within Plantagenet, the supply and availability of general/light zoned industrial land exceeds the demand in the forecasted date range.

Further data gathering and entry is required to confirm the ILOMS results on the demand and supply of strategic and general/light industrial land.

Figure 26. ILOMS results - Plantagenet



Source: Pracsys 2015

Denmark

Strategic Industrial Land

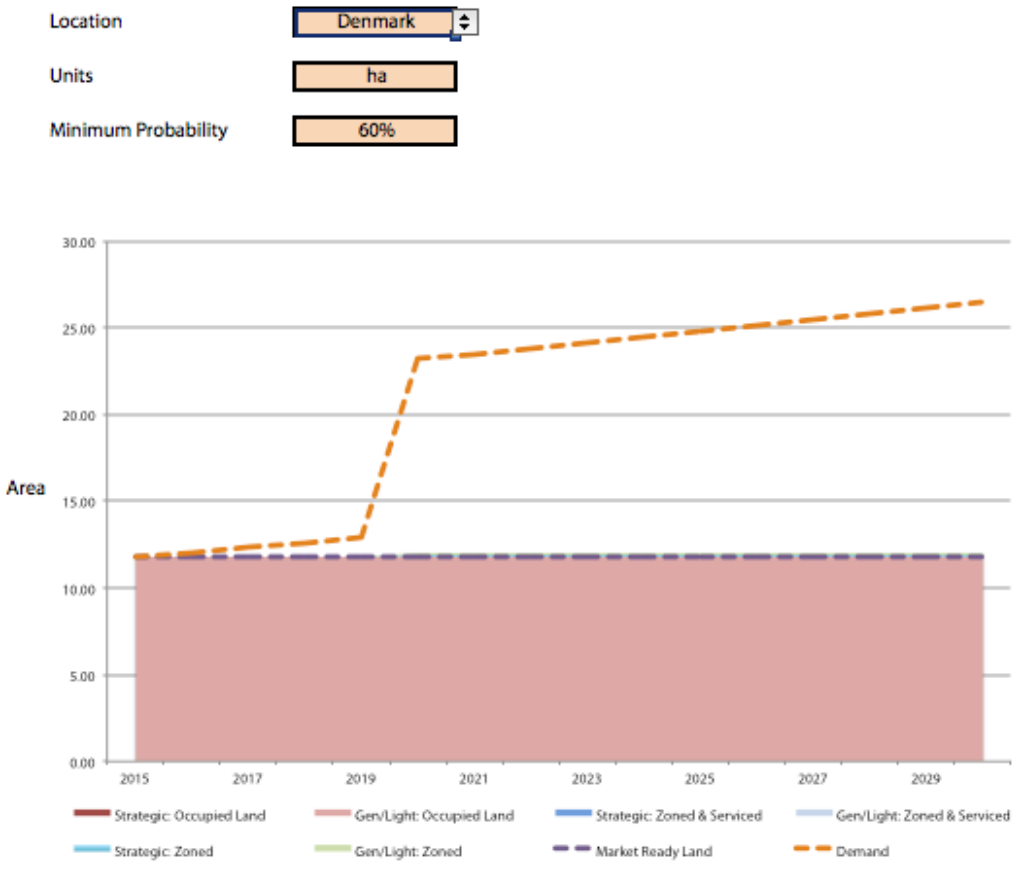
The model found that with only one opportunity identified by the industrial ecology analysis and population growth, Denmark does not have strategic industrial land capacity to meet land demand forecasts.

General/Light Industrial Land

The model indicates that Denmark would not have sufficient general/light industrial land to meet land demand forecasts.

Further data gathering and entry is required to confirm the results on the demand and supply of strategic and general/light industrial land.

Figure 27. ILOMS results - Denmark



Source: Pracsys 2015

Land Snapshot

There are two sites that are currently zoned as strategic Industrial land and could be used to attract the industries outlined in the opportunities. These sites have the attributes required to incorporate the various industrial land uses that are proposed in the opportunities listed in this report (Figure 28).

Figure 28. Strategic Industrial Land

Strategic industrial site	Size (ha)
Yerriminup (Plantagenet)	130
Mirrambeena (Albany)	110
Total Strategic Industrial Land	240

Source: Pracsys 2015, LandCorp 2011

Consultation was only able to attain estimates of land usage for the various opportunities. The following table gives an approximate lower and upper bound of project land requirements (Figure 29). These numbers are not precise, however the upper bound was used to compare opportunities that require industrial land with the known strategic industrial land available in the Region. This gives a conservative estimate of the Region's ability to accommodate these opportunities. Opportunities that require rural land were not addressed due to the abundance of rural land available in the Region.

Figure 29. Estimated Opportunity Land Requirements

Project	Land Requirements (ha)		Appropriate Land Type
	Lower Range	Upper Range	
Science & Technology Park	10	20	Industrial
Food Hub	2	4	Industrial
Pig Farms	300	500+	Rural
Chicken Farms	100	300+	Rural
Wine Industry	N/A	N/A	N/A
Biofuel (Local Supply)	5	10	Industrial
Biofuel (Local Demand)	5	10	Industrial
Boutique abattoir (Beef) or Boutique abattoir (Mixed Species)	12	20	Industrial
Chicken Abattoir	2	20	Industrial
Grain Mill	2	6	Industrial
Albany Port	5	10	Industrial
Dairy Processing	2	10	Industrial
Total Industrial Land Needed	45	110	
Remaining Strategic Industrial land	195	122	

Source: Pracsys 2015

As can be seen there is likely a sufficient amount of land available in the Region for the infrastructure requirements of all of the above opportunities. This being said, there are some challenges that would need to be addressed before locating all of these land uses in the same area. These include but are not limited to:

- Land buffers, especially for meat processing;
- Bio-security issues;
- Constructing appropriate access infrastructure to key transport routes (i.e. Albany Hwy);
- Best use of land;

- Ideal location for the opportunity based on other links in the relevant supply chain;
- Possible height and heat constraints at Mirrambeena due to proximity to the airport; and
- Environmental factors that might be incompatible with some land uses.

While all of these factors could possibly be addressed, there would likely be a significant cost associated with this endeavour. This being said, the benefit of developing these industries in proximity to each other (such as knowledge sharing and economies of scale) would likely outweigh the costs. Further research should be undertaken to identify all strategic land in the greater Great Southern in order to provide a better idea of possible locations for future opportunities.

5.2 THE OPPORTUNITIES

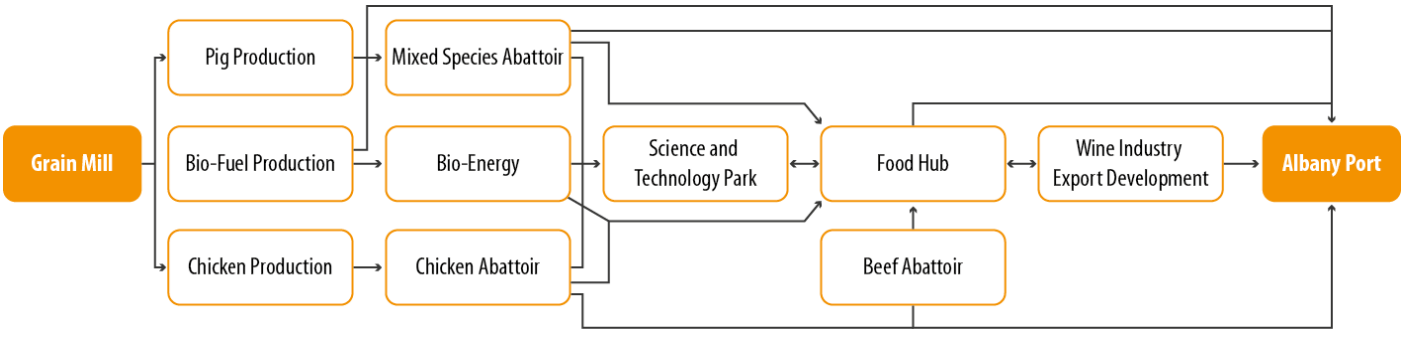
The Great Southern's opportunities are presented in this section (Figure 30). Certain key challenges were identified around the opportunities and are addressed with possible mitigation strategies (Figure 31). A high level assessment was conducted providing:

- A snap shot of each opportunity;
- Key actions that might be associated with individual opportunities; and
- Suggested stakeholders[26].

5.2.1 Problem Identification

The Opportunities that are identified will present various challenges with their implementation. Some of these challenges have been identified and listed according to relevant opportunity with possible mitigation strategies.

Figure 30. Interrelationships between opportunities



Source: Pracsys 2015

26 It should be noted that all stakeholders referenced for various actions are for illustrative purposes only. Further permissions and agreements will need to take place before any roles or actions become binding on any named party.

Figure 31. Opportunity Challenges

Relevant Opportunity (ies)	Challenge	Potential Mitigation
All	Need for private investment	De-risking through the provision of serviced land, joint ventures
All	Service infrastructure costs	Leverage funding from various regional development funds
All	Competitive markets	Building relationships with key governance in new markets, developing a premium brand, marketing, promotions
Industrial land use opportunities	Agreement between stakeholders as to location of various opportunities	Shared allocation of opportunities, assessment of greater regional benefit
All Meat Processing	Smell Pollution and Environmental concerns	Appropriate land Buffers, self-contained facilities, Waste reuse facilities, etc.
Meat Processing (Multi-Species)	Cross-contamination issues	Appropriate facilities, best practice technologies
Albany Port	Lack of demand	Help industries grow and
Bio-Fuel opportunities	Lack of demand	Incentivise use of renewable energy sources

5.2.2 Boutique Abattoir - Beef

Boutique Abattoir (Beef)	Action Required: TRANSFORMATION

Key Findings

- No Beef processing jobs of any meaningful size in the Region
- Private investors are interested in this opportunity

Meat processing presents the Great Southern with a substantial opportunity to create strategic activity while also localising a significant amount of value-add that currently exists outside the Region. Currently abattoir facilities are limited to sheep, goats and chicken, despite our consultation indicating there is a growing number of beef cattle farmers. There is an opportunity for the Government to take a transformational approach to support regional infrastructure for beef processing. This would likely be a boutique sized abattoir that could process relatively small numbers of cattle, although there should be enough capacity to allow for a growth in cattle production in the medium term. The Shire of Plantagenet and the GSDC have just completed the Abattoir Feasibility Study, a report that identifies the preferred location for a beef abattoir and undertakes a financial analysis to assess the viability of such a project[27]. The Study highlights Yerriminup industrial land as the most favourable site for a beef abattoir. While the abattoir is shown to have a negative return on investment under conservative estimates, the analysis demonstrated that this outcome was very sensitive to certain pricing and cattle number changes. De-risking the investment for potential investors in such a facility could also go a long way toward creating a positive return on investment while benefiting the Region and its beef cattle farmers. The value in this report is not based on a cashflow analysis and is not comparable with that in the feasibility study.

Beef Abattoir – Transformation

Opening a beef abattoir would be a strong opportunity to localise value add in the Region. Meat processing provides strategic jobs that are well paid and contribute substantially to the local economy. This provides a strong basis for the Region to be transformational in facilitating this opportunity. The Region has already started the process for installing a local abattoir and needs to continue taking this proactive stance on this opportunity. Already known for supplying high quality beef, localisation of the processing facility in the Region would provide even greater control over quality, particularly with a addition of a food hub. A local abattoir also offers the ability to attach a premium regional brand to the beef, giving the beef a clear Great Southern provenance. Furthermore, waste from the facility can be used as a feedstock for a bio-fuel plant, or for other downstream uses.

27 The Shire of Plantagenet and the Great Southern Development Commission (GSDC) 2015, 'Abattoir Feasibility Study'.

Opportunity Assessment

At its current capacity the probability that the Region could see the introduction of a beef abattoir is medium (Figure 32). There are key constraints on which the Region can focus in order to improve the probability of realising the opportunity.

Figure 32. Beef Abattoir Assessment

Boutique Abattoir – Beef	Score	Assessment
Probability	49%	Medium
Risk Adjusted Value	$16m (Per annum)	Ranked 1st
Jobs	90	This number could increase if there is an increase in beef production due to the processing facility.
Key Areas of Focus		
Site (Capacity)	3 (Average)	The Plantagenet Shire and GSDC Feasibility study has outlined the Yerriminup industrial land as the most suitable location for a boutique abattoir. The land is not serviced and agencies have the opportunity to de-risk investment.
Approvals (Capacity)	2 (Poor)	Agencies can take the opportunity to reform regulations that are over-burdensome and need to be addressed.
Energy (Capacity)	2 (Poor)	Beef processing facilities are energy intensive, this could be addressed through the bio fuel localised demand opportunity.
Water (Capacity)	2 (Poor)	Beef Processing facilities are water intensive. Government providing water service infrastructure would be important in de-risking the project for potential investors. There is the possibility of water reuse in the Mirrambeena industrial area.

Key Actions

According to consultation, the Region has previously had potential investors who were interested in developing an abattoir. There is the opportunity for transformative action on behalf of the Region to minimise the risks involved with an investor in this industry. The local benefit will be substantial as meat processing jobs are strategic and well paying. Further, such an abattoir could become an important employer for the Region. Steps the Region needs to take are:

Figure 33. Key Actions Beef Abattoir

Key Actions	Potential Key Stakeholders	Timeframes	Priority
Preparing clear guidelines for meeting environmental requirements and buffer zones;	SCNRM Relevant LGAs Abattoir proponents	0-6 months	High
Checks and measures to ensure these guidelines are met;	SCNRM Relevant LGAs Abattoir proponents	0-6 months	High
Consult with local beef cattle farmers to inform them of the project and assess their production capacities;	Relevant LGAs Beef cattle farmers Abattoir proponents	6-12 months	High
Create communication between cattle farmers and prospective investors;	Relevant LGAs Beef cattle farmers Abattoir proponents	6-12 months	Medium
Begin negotiating a possible contract with the possible investors to give the Region a guarantee that service infrastructure it installs will be used; and	Relevant LGAs Abattoir proponents	12-18 months	High
Based on the GSDC study, service the most suitable land for such a facility.	GSDC Relevant LGAs	18-24 months	High

5.2.3 Boutique Abattoir – Mixed Species

Boutique abattoir	Action Required: TRANSFORMATION

Key Findings

- **No Beef, Venison or Pork processing jobs of any meaningful size in the Region**
- **Private investors are interested in this opportunity**

(This Opportunity is to be seen as an option in place of the beef abattoir as it is unlikely there is enough livestock supply in the Region to sustain both[28])

Meat processing presents the Great Southern with a substantial opportunity to create strategic activity while also localising a significant amount of value-add that currently exists outside the Region. Activity in the Region currently revolves around sheep, goats and chicken processing. This is despite our consultation indicating there are a growing number of beef cattle and pig farmers, as well as a venison farm. There is an opportunity for agencies to take a transformational approach to the installation of infrastructure for mixed species processing. This would be a boutique sized abattoir that could process relatively small numbers of livestock, although there should be enough capacity to allow for growth in production in the medium and long-term. The Shire of Plantagenet and the GSDC have recently completed the Abattoir Feasibility Study, a report that assesses the viability of a beef abattoir. Further analysis should be undertaken to study the financial viability of a mixed species abattoir as there would likely be increased costs associated with a multi-species abattoir. The value in this report is not based on a cashflow analysis and is not comparable with that in the feasibility study.

Mixed Species Abattoir – Transformation

Opening a mixed species abattoir could be a strong opportunity to localise value add in the Region. Using a variety of livestock could mitigate the risk of insufficient beef cattle supply to a beef only abattoir. Meat processing provides strategic jobs that are well paid and contribute substantially to the local economy. This provides a strong basis for the Region to be transformational in facilitating this opportunity. The Region has already started the process for installing a local abattoir and needs to continue taking this proactive stance on this opportunity. As discussed, localisation of the processing facility in the Region would provide even greater control over quality, particularly with the addition of a food hub. A local abattoir also offers the ability to attach a premium regional brand to the meat, giving the meat a clear Great Southern provenance. Furthermore, waste from the facility can be used as a feedstock for a bio-fuel plant, or for other downstream uses.

28 The Shire of Plantagenet and the Great Southern Development Commission (GSDC) 2015, 'Abattoir Feasibility Study'.

Opportunity Assessment

The probability is medium that the Region, at its current capacity, could see the introduction of a mixed species abattoir (Figure 34). There are key constraints on which the Region can focus in order to improve the probability of realising the opportunity.

Figure 34. Mixed Species Abattoir Assessment

Boutique Abattoir – Mixed Species	Score	Assessment
Probability	49%	Medium
Risk Adjusted Value	$16m (Per annum)	Ranked 2nd
Jobs	90	This number could increase if there is an increase in beef production due to the processing facility.
Key Areas of Focus		
Site (Capacity)	3 (Average)	The Plantagenet Shire and GSDC Feasibility study has outlined the Yerriminup industrial land as the most suitable location for a boutique abattoir. The land is not serviced and agencies have the opportunity to de-risk investment.
Approvals (Capacity)	2 (Poor)	Potentially over-burdensome regulations need to be addressed.
Energy (Capacity)	2 (Poor)	Meat processing facilities are energy intensive, this could be addressed through the bio fuel localised demand opportunity.
Water (Capacity)	2 (Poor)	Meat Processing facilities are water intensive. Government providing water service infrastructure would be important in de-risking the project for potential investors. There is the possibility for water reuse in the Mirrambeena industrial area.

Key Actions

According to consultation, the Region has previously had potential investors who were interested in developing an abattoir. There is a need for transformative action on behalf of the Region due to the initial risks involved with an investor in this industry. The local benefit will be substantial however as meat processing jobs are strategic and well paying. Further, such an abattoir could become an important employer for the Region. Steps the Region needs to take are:

Figure 35. Key Actions Mixed Species Abattoir

Key Actions	Potential Key Stakeholders	Timeframes	Priority
Preparing clear guidelines for meeting environmental requirements and buffer zones;	SCNRM Relevant LGAs Abattoir proponents	0-6 months	High
Checks and measures to ensure these guidelines are met;	SCNRM Relevant LGAs Abattoir proponents	0-6 months	High
Consult with local livestock farmers to inform them of the project and assess their production capacities;	Relevant LGAs Other Livestock farmers Abattoir proponents	6-12 months	High
Create communication between livestock farmers and prospective investors;	Relevant LGAs Other livestock farmers Abattoir proponents	6-12 months	Medium
Begin negotiating a contract with the possible investors to give the Region a guarantee that the service infrastructure it installs will be used; and	Relevant LGAs Abattoir proponents	12-18 months	High
Based on the GSDC study, service the most suitable land for such a facility.	GSDC Relevant LGAs	18-24 months	High

5.2.4 Dairy Processing

Dairy Processing	Action Required: TRANSFORMATION

Key Findings

- No operating milk processing facility in the Region
- Potential to substantially increase regional milk production

With the South Coast Sub Region's ideal climate for milk production, the potential benefits from a milk processing facility could be substantial, not only for the industry but for the Region as a whole. The Region has long been known for producing high quality milk products although it does not process its own milk (other than private farms who produce small amounts of milk for local trade). This opportunity would see the Region instigate a transformational project to construct a milk processing facility which could produce a variety of milk variants (UHT, skim, powder, etc.). This would help spur economic growth through vertical expansion of the supply chain, which brings substantial value add, while also allowing for greater production from current and future dairies. Our consultations with Western Dairy revealed that the dairies in the Region could greatly increase capacity if there was enough processing demand (as was witnessed in Tasmania). This opportunity would also allow the Region's dairy industry to not only increase its share of the WA market but also look at expanding into global markets including the Chinese market.

Dairy Processing – Transformation

This is a project that could not only see a great amount of value add but also create capacity that maximises the regional dairy industry's production capability. As such it is recommended that the Region take a transformative approach to this opportunity. This would see the agencies either take the initiative and invest in processing infrastructure or engage in a joint venture with private investors to see the project to fruition.

Opportunity Assessment

The probability is medium that the Region, at its current capacity, could accommodate a milk processing facility (Figure 36). There are key constraints on which the Region can focus in order to improve the probability of realising the opportunity.

Figure 36. Dairy Processing Assessment

Dairy Processing	Score	Assessment
Probability	50%	Medium
Risk Adjusted Value	$15m (Per annum)	Ranked 3rd
Jobs	45	This is an estimate of initial jobs in farming and the facility, indirect employment could grow well beyond this.
Key Areas of Focus		
Entrepreneur (Capacity)	2 (Poor)	Limited evidence as to whether the Region has the entrepreneurial capacity to see endogenous private investment develop a facility that will maximise the economic benefit for the Region.
Site (Capacity)	2 (Poor)	A site for such a facility needs to be strategically located. Yerriminup and Mirrambeena are possible sites although neither is serviced. Agencies have the opportunity to de-risk investment.
Water (Capacity)	2 (Poor)	The facility will require water serviced to the site. Opportunity to de-risk for private investors.

Key Actions

The dairy industry has the potential to provide the regional economy with an enormous return on investment in this opportunity. The transformation of the dairy industry from solely producing to processing will fill a key link in the ecology of the local supply chain. The following steps should be taken:

Figure 37. Key Actions Dairy Processing

Key Actions	Potential Key Stakeholders	Timeframes	Priority
Approach Western Dairy and discuss the ideal size and requirements for the facility;	Dairy farmers Western Dairy Relevant LGAs GSDC Potential investors	0-6 months	High
Approach foreign investors;	GSDC Potential investors Western Dairy Relevant LGAs	6-12 months	Medium
Set aside land required;	Relevant LGAs Private investors	12-18 months	High
Have plans for facility drawn up;	Relevant LGAs Private investors Western Dairy	12-18 months	High
Service land; and	Private investors Relevant LGAs Watercorp Western Power	18-24 months	High
Construct facility.	Private investors Relevant LGA Western Dairy	24-30 months	High

5.2.5 Wine Industry

Wine Industry	Action Required: BUY-IN

Key Findings

- The Wine Industry already has the capability to increase production
- Members of the industry are currently looking for new export markets

The Great Southern wine industry opportunity is critically important for the Region due to its role as a beverage exporter as well as a hallmark of the Region's tourism infrastructure. The fact that the Region is already producing more grapes than it needs for wine sales in its current markets means that there is a viable opportunity to increase export sales in the near future. Great Southern Wines who represents over 40 wineries has indicated that a group of 12 wineries have travelled to Singapore in August to negotiate possible exports of their premium product into the Singapore market. At the time the Strategy was published, the outcome of the visit was not known. The Great Southern's suitability for growing high quality grapes and the technologies that it already has in place make this industry one that is primed for growth. There are strong links between this opportunity and the Food Hub. The wine industry needs help breaking into new and very competitive export markets. The industry is attempting to create premium regional branding, which will potentially tie in with the regional branding initiative. The Food Hub can play the role of marketer and promoter of the Region's premium wines, helping create awareness around the product in export markets.

Wine Industry – Buy-In

There is an opportunity for the Region to take a buy-in approach to dealing with the wine industry opportunity. While there are proponents already in the process of enabling this opportunity, agencies should still be proactive in helping them gain greater exposure in foreign markets. The reasons for this approach are strategic; promoting Great Southern wine in other regions will help increase the production of wine and can also help the Region increase production of other goods, as well as tourism. The high quality of the wines being marketed would establish recognition of the Great Southern as a producer of premium quality produce making it easier for other Great Southern industries to enter into these new markets. Assuming a food hub is introduced to the Region, including Great Southern wines as a part of the Great Southern brand will be key in fulfilling the Regional Blueprint's goal of establishing the Region as a premium quality producer.

Opportunity Assessment

The probability is very high that the Region, at its current capacity, could see the expansion of the wine industry (Figure 38). There are also key constraints on which the Region can focus in order to improve the probability of realising the opportunity.

Figure 38. Wine Industry Assessment

Wine Industry	Score	Assessment
Probability	80%	Very High
Risk Adjusted Value	$12.5m (Per annum)	Ranked 4th
Jobs	20	This is a medium term projection. Long-term Jobs could amount to as many as 30 and thus a 50% increase in value.
Key Areas of Focus		
Market readiness (Driver)	3 (Bankable Ready)	The wine industry is ready to expand, agencies can help open new export markets for it to do so.
Albany Port (Capacity)	3 (Average)	Work with industries that might consider using the port in the future and incentivise investment in container capacity, which could create the potential for direct export to foreign markets.

Key Actions

There is already a proponent who has started to explore this opportunity. Therefore, the Region should adopt a buy-in approach in order to capitalise on the benefit of this project. The Region needs to help discover export markets for its wine industry while also facilitating relationships between parties involved. This would include:

Figure 39. Key Actions Wine Industry

Key Actions	Potential Key Stakeholders	Timeframes	Priority
Ascertain great southern wineries' production capacity;	Wineries LGAs GSDC	0-6 months	High
Facilitate communications between local wineries and WA wine exporters;	Wineries Exporters Relevant LGAs GSDC	0-6 months	High
When possible markets are found, contact officials who oversee that market and creating relations with them and between them and great southern wineries;	Relevant LGA's GSDC Exporters	0-12 months	High
Facilitate the introduction of wine as an export product through the Albany port.	Albany Port City of Albany Relevant LGAs Wineries Other industries that interested in using the port	6-12 months	Medium
Incorporate wine as a key element of the Food Hub premium brand positioning (based upon provenance and quality)	Wineries Food Hub GSDC Relevant LGAs	12-24 months	High

5.2.6 Science & Technology Park

Science & Technology Park	Action Required: TRANSFORMATION

Key Findings

- Strong support for Park
- Key project for the Great Southern

The Science & Technology Park (the Park) project is more than just an opportunity for the Great Southern. It has the potential to create synergies between industries and other opportunities alike. The Region needs a strategic hub from which to create a competitive advantage for local food industries. This project would attract strategic workers to the Region while also helping to increase the job opportunities for tertiary educated employees. The Park could incorporate certain meat processing facilities (e.g. enclosed chicken abattoir in Osborne Park), a Food Hub, a grain mill and even milk processing facilities (depending on the final location). This sort of agglomeration adds value through economies of scale, and knowledge sharing; both of which can be incredibly valuable. It is the most important project for the Region and should be approached as such. One example of a competitive advantage the Park could bring is food provenance.

Development of Regional Food Provenance Systems

A Science & Technology Park could potentially house infrastructure to accommodate the local research and testing required to develop and maintain a multi-faceted food provenance system for the South Coast and Great Southern as a whole. Consumer expectations and technological advances have meant that there are now significant opportunities to provide surety to the market as to the quality and locational source of a food product. This 'paddock to plate' movement represents a significant opportunity for the Great Southern that already has a recognisable position as a clean, desirable location for food production. Western Australian technologies, including genetic tracing of meat products and mass spectrometer analysis of trace elements in food, represent opportunities to build integrity around a Great Southern brand for a range of food produce. This could be particularly important as the food export supply chains become more complex, introducing influences that potentially are beyond the control of individual exporters.

Science & Technology Park – Transformation

It is recommended that the Region take a transformative approach to developing a Science & Technology Park. This would see government agencies and LGA's working closely with various tertiary organisations in order to develop the project to the scale that is optimal for the Region. There is already land that can be used for the Park in various areas within the Region; however, without strong intervention with regards to securing tenure and service infrastructure the timeframes for development are likely to be long-term at best. Working to secure a major proponent as an 'anchor' tenant would make the Park feasible in the short to medium term.

Opportunities Assessment

The Region, at its current capacity, has a medium probability of acheiving the development of a Science & Technology Park (Figure 40). There are key drivers and constraints on which the Region can focus in order to improve the probability of realising the opportunity.

Figure 40. Science & Technology Park Assessment

Science & Technology Park	Score	Assessment
Probability	45%	Medium
Risk Adjusted Value	$11m (Per annum)	Ranked 5th
Jobs	150	This assessment does not take into account the benefits that the Science & Technology Park will have for other industries of the Region
Key Areas of Focus		
Market Readiness (Driver)	1 (Concept)	For the relevant industries this is no more than a concept. Opportunity would probably move a lot faster if potential users of the Park knew of government's commitment to the project and the benefits for them. They would then create their own demand for the Park.
Entrepreneurial (Capacity)	1 (Development)	This study did not find enough endogenous investment capacity to develop the park. The government will have to take the lead in de-risking and incentivising the initial stages of the project.

Source: Pracsys 2015

Key Actions

The Nature of this project requires a transformative approach from the Region. The possibility of agglomerations of economy and adding links in the supply chains of multiple industries is invaluable to the Great Southern. The steps that are recommended going forward are:

Figure 41. Key Actions Science and Technology Park

Key Actions	Potential Key Stakeholders	Timeframes	Priority
Secure tenure of the site for the future Science and Technology Park	Relevant LGA's GSDC LandCorp	6-12 months	High
Secure anchor tenant for the Park	Relevant LGA's LandCorp Various tertiary institutions	12-18 months	High
Work with public and private research and education institutions to develop understanding of: · Potential shared infrastructure that may be attractive to users · Opportunities for co-location and collaboration · Opportunities for integration with other initiatives – especially a potential future food hub	Relevant LGA's GSDC LandCorp Various tertiary institutions	12-18 months	High
Work with service delivery agencies to ensure adequate capacity in networks to achieve science and technology park objectives	Relevant LGA's LandCorp Main Roads Watercorp Western Power GSDC	12-18 months	High
Work with decentralised infrastructure providers (e.g. Biomass renewables) to understand and pre-empt the investment conditions required for their investment	Relevant LGA's LandCorp GSDC Bio plant proponent	12-18 months	Medium
Develop a detailed Masterplan for the Science and Technology Park site	Relevant LGAs LandCorp	6-12 months	High
Identify and scope in detail a minimum of two catalytic projects around which the Park will develop (e.g. Food Hub)	Private investors Relevant LGA's LandCorp GSDC	12-18 months	Medium
Work with State and Federal agencies to attract core funding for catalytic projects	WA Government Relevant LGA's LandCorp GSDC Private investors	18-24 months	High

5.2.7 Great Southern Food Hub

The Food Hub – Vertical Integration	Action Required: TRANSFORMATION

Key Findings

- Introduces Fruit and Vegetable Processing to the Region
- Provides quality control and a local middle man for horticultural produce
- Creates a marketing platform for a regional brand

With a strong and established presence in the Great Southern, the agriculture industry has the room for significant value-add. One way to help facilitate this value-add is through a Great Southern Food Hub; a versatile piece of multi-user infrastructure that can be introduced to fulfill needs for regional producers and manufacturers.

While this opportunity is 6th in terms of adjusted value, the opportunity is the most significant for the Region as it offers many benefits that have not been quantified. These include: increased production in Great Southern agriculture industries and value add for small local farmers, among others. Recently the State Government announced that it would be developing a specialised food centre in Albany. This food centre will have particular focus towards the organics industry, helping to optimise advantages and create efficiencies through shared costs, technologies, promotions and marketing development[29].

The next step for the Great Southern is to identify the most suitable form of food hub for the Region as a whole. The State Government's initiative delivers the Region the opportunity to take transformative measures in the development of a food hub in alignment with the transformational Growing Value project listed in the Great Southern Blueprint: "Premium Food Production and Value Adding: Further expand production, value adding and international marketing of the Region's food products"[30]. In alignment with the specialised food centre, one of the specific functions that a food hub could fulfill is detailed below. It is an opportunity in its own right that was discovered through our consultations.

Free range and organic farming

Around the world there is a growing demand for free range and organic food[31]. This is exemplified in the success of the Plantagenet Pork and Mt Barker Chicken brands. There is a great opportunity to differentiate Great Southern produce through food provenance practices. This opportunity is not limited to livestock, with a significant opportunity for the Region to differentiate itself through encouraging a region-wide adoption of free-range and organic farming. This could be supported by the Food Hub, which would perform two roles: It would help introduce a model that can be used by farmers in order to facilitate organic farming, and it would monitor the use of proper practices helping build a regional brand that is identified and trusted as free range/organic. While the costs of producing such food are higher, they also

29 Government of Western Australia, 'Food hubs to help regional businesses flourish', Seen at: https://www.mediastatements.wa.gov.au/Pages/Barnett/2015/08/Food-hubs-to-help-regional-businesses-flourish.aspx

30 Great Southern Development Commission. 'Great Southern Regional Blueprint', Seen at: http://www.gsdc.wa.gov.au/sites/www.gsdc.wa.gov.au/files/pdf/GS%20Blueprint%20Feb2015.pdf

31 AFN, 'Australias appetite for organic foods at record levels', Seen at: http://ausfoodnews.com.au/2014/12/10/australias-appetite-for-organic-foods-at-record-levels.html

command a higher price at market[32]. With the aggregation of marketing, distribution and possibly processing, the value creation would potentially be significant.

Food Hub – Transformation

Food hubs have become a valuable tool for agricultural regions around the world. There are three typical roles that a food hub can play:

- A packing facility which also offers distribution services through which small local farms can get their produce to market;
- A shared infrastructure provider with facilities for regional farmers to process their food; and
- An organisation that markets regional produce, grows regional food businesses and sustains a premium regional brand.

The recent announcement of State Government funding appears to propose an organisation that fulfills the third role of a food hub. It is recommended that the Region implement a transformation approach, taking advantage of the State Governments initiative. Based on consultation and analysis it is suggested that a food hub incorporating all three roles listed above would bring the most benefit to the Region. First it would serve as a shared facility for small farms in the Region with amenities for washing, sorting and packing. It would also play the role of a middleman with distribution infrastructure. This is an important role as it creates economies of scale that could not otherwise be attained by individual farms. It also allows for greater control over the quality control of the produce that reaches the market and how the produce is presented. This is, in a sense, localising a link in the supply chain, creating local value add.

To capitalise on the Region's horticulture industry, the food hub would also incorporate kitchens and shared processing facilities for fruits and vegetables; currently there is no vegetable or food processing activity in the Region. This puts the food hub in a position where it could create an estimated $14 M worth of value add.

The final role of the Food Hub would be incorporated into the specialised food centre and contribute to many industries including Wine, Horticulture, Livestock, and Dairy. Essentially it would become an agent which supports the marketing needs of food related industries in the Region while also being the proponent and champion for a premium regional brand. This would entail offices and display areas, which would showcase the Region's agri-industries. This is a very important addition, as it would help to develop the Region's food industry as a whole, leading to a substantial increase in output, while also placing the Region's produce at a higher price point.

While this is a general picture of the functions the Food Hub could perform, the Food Hub needs to be designed with local farmers in mind. The Region should commission a feasibility study that seeks to adapt a transformational Food Hub (incorporating the specialised food centre) to the needs of the Great Southern. A study, which incorporates the Region's agricultural community, is the first step in ensuring that the final organisation provides services that meet the demands of local agriculture industries, creating the most benefit for the Region.

32 ABC, ' Comparing the cost of organic versus conventional produce': http://www.abc.net.au/local/stories/2008/08/29/2350525.htm

Opportunity Assessment

The probability is quite high that the Region, at its current capacity, could see the development of a food hub (Figure 42). There are key drivers and constraints on which the Region can focus in order to improve the probability of realising the opportunity.

Figure 42. Food Hub Assessment

Food Hub	Score	Assessment
Probability	60%	High
Risk Adjusted Value	$8m (Per annum)	Ranked 6th
Jobs	20	This assessment does not take into account the benefits that the Food Hub will have for the greater agricultural industry of the Region
Key Areas of Focus		
Market Readiness (Driver)	1 (Concept)	For the relevant industries this is no more than a concept. Opportunity would probably move a lot faster if users of the food hub knew of government's commitment to the project and the benefits for them. They would then create their own demand for the food hub.
Proponent Ready (Driver)	2 (Development)	The concept is in the early stages of development and needs to be progressed at a faster rate.
Entrepreneurial (Capacity)	2 (Poor)	Consultation was not able to find the necessary amount of entrepreneurship in the Region to realise this opportunity. Region needs to invest in attracting the right people to implement the food hub.

Source: Pracsys 2015

Key Actions

The Region will have to be proactive in the steps it takes to create a transformational project such as the Food Hub. This is a key opportunity due to the synergies it creates between multiple industries. The Government will have to incentivise and de-risk the opportunity for investors, as the food hub is essentially an organisation whose aim is to benefit the Region. The next key steps for the Region to take are:

Figure 43. Key Actions Food Hub

Key Actions	Potential Key Stakeholders	Timeframes	Priority
Commission	Relevant LGAs GSDC	0-6 months	high
Identify key stakeholders who have the entrepreneurial capacity & drive to develop and manage such an organisation;	Relevant LGA's GSDC Local agri-entrepreneurs	6-12 months	High
Create a strategic plan with contingencies to help establish a process;	GSDC Relevant LGA's Interested entrepreneurs	6-12 months	Medium
Develop a detailed concept to sell to Stakeholders, industry and community;	GSDC Relevant LGA's Interested entrepreneurs	6-12 months	High
Create a governance structure that empowers local entrepreneurs to take ownership of the project;	Relevant LGA's GSDC Local entrepreneurs	12-18 months	High
Resource development of a project business case to use for further funding;	GSDC Relevant LGAs Entrepreneur that will manage food hub	12-18 months	High

Key Actions	Potential Key Stakeholders	Timeframes	Priority
Acquire tenure to land that could be suitable for a food hub, keeping in mind that it will need storage and processing facilities (potentially within Science and Technology Park);	GSDC Relevant LGA's Land owners	18-24 months	High
Seek project funding;	Relevant LGA's GSDC	18-24 months	High
Consider and make any changes required to land zoning to locate desired agri-industries.	Relevant LGA's State Government	18-24 months	High
Start to prepare land (Approvals followed by servicing); and	Relevant LGA's GSDC Main Roads Western Power Watercorp	24-30 months	High
Negotiate agreements with farmers with regards to use of shared processing facilities and storage and transport services.	Entrepreneurial developer and manager Relevant LGA's Local Farmers	24-30 months	Medium

5.2.8 Grain Mill

Grain Mill	Action Required: BUY-IN

Key Findings

- Proponent intends to install a mill when economies of scale are reached
- Currently no grain processing activity in the Region

Grain production being one of the Great Southern's biggest industries suggests that grain processing activity has the potential to be a lucrative investment. There is a proponent who envisages building a local mill to provide feed to regional farms due to the expected increase in local farming activity. This mill, as a new industry for the Region, has the potential to create a substantial amount of localised value add. Mills produce considerable local benefit due to the strategic and well paying nature of processing jobs.

Grain Mill – Buy-In

It is recommend that the Region adopt a buy-in stance with regard to this opportunity. This would include facilitating demand through the adoption of both the chicken and pig farming modules to help speed up the timeline for the mill. A buy-in approach would see the Region set aside land appropriate for a mill, which is also located in an area beneficial for the local grain industry. Agencies would also de-risk the land through incentives such as contributing land and/or servicing the land. One possible outcome is a mill situated in the food hub, thus taking advantage of shared structures and agglomeration economies. This mill would produce animal feed to supply the Region's livestock farmers. This feed would ideally be processed using Great Southern grain.

Opportunity Assessment

The probability is medium that the Region, at its current capacity, could see the introduction of a grain mill (Figure 44). There are key constraints on which the Region can focus in order to improve the probability of realising the opportunity.

Figure 44. Grain Mill Assessment

Grain Mill	Score	Assessment
Probability	51%	Medium
Risk Adjusted Value	$8m (Per annum)	Ranked 7th
Jobs	10	This is an estimate of initial jobs in the facility, employment could be as much as 100 in the long-term
Key Areas of Focus		
Site (Capacity)	3 (Average)	The Region has the potential to service the most appropriate site for a grain mill, thus de-risking the investment. Two possible sites exist at Yerriminup and Mirrambeena.
Approvals (Capacity)	2 (Poor)	Potentially over-burdensome regulations need to be addressed.
Energy (Capacity)	2 (Poor)	Grain mills are energy intensive, this could be addressed through the co-location with the bio mass infrastructure in the food hub.
Water (Capacity)	2 (Poor)	Water infrastructure delivered to the door of a site for a grain mill would de-risk the investment for proponents

Key Actions

The proponent has already indicated its intentions of installing a grain mill when economies of scale can be reached in the Region's farms and as such a buy-in approach is suggested. This being said, there are regional capacity issues that need to be addressed before the project can be implemented. Steps the Region needs to take are:

Figure 45. Key Actions Grain Mill

Key Actions	Potential Key Stakeholders	Timeframes	Priority
Preparing clear guidelines for meeting environmental requirements and buffer zones;	SCNRM Relevant LGAs Mill proponents	0-6 months	High
Checks and measures to ensure these guidelines are met;	SCNRM Relevant LGAs Mill proponents	0-6 months	High
Consult with the farmers to discuss feed production requirements for the mill;	Relevant LGAs Livestock farmers Mill proponents	6-12 months	High
Finalise land requirements and identify land that meets these requirements;	Relevant LGAs Mill proponents	6-12 months	High
Begin negotiating a possible agreement with the mill proponent to give the government a guarantee that any land it sets aside and services will be used; and	Relevant LGAs Mill Proponents	12-18 months	Medium
Service land to the requirements of the mill.	Relevant LGAs Western Power Watercorp	18-24 months	High

5.2.9 Chicken Abattoir

Chicken Abattoir	Action Required: PROGRESS

Key Findings

- Proponent looking to expand through franchised farming module
- Need to another abattoir when production hits a critical mass

With a climate that has already seen enough success in chicken farming to warrant a processing facility, the escalation of production due to new prospective farms could mean a significant opportunity to increase chicken processing capacity in the Great Southern. As is presented in the Chicken Production opportunity, proponents are looking to increase the number of farms in the Region through a franchised farming module currently under development. Once these new modular farms have reached a certain level of production, there will be a need for an increase in processing capacity. When this occurs, another abattoir will be required in the Region near the Mt Barker farms. This is advantageous information for the Region as it can set aside the most appropriate land for the facility to be installed on.

Chicken Abattoir – Progress

It is recommended that agencies take a progress approach to this opportunity. The Region can facilitate investment by ensuring up take of the chicken farms through proactive planning and preparing for the future need for land by allocating the most appropriate land for eventual use in this project.

Opportunity Assessment

Despite having a proponent interested in a facility to serve its own eventual needs the probability is medium that the Region, at its current capacity, could see the introduction of a chicken abattoir (Figure 46). There are key constraints on which the Region can focus in order to improve the probability of realising the opportunity.

Figure 46. Chicken Abattoir Assessment

Chicken Abattoir	Score	Assessment
Probability	55%	Medium
Risk Adjusted Value	$5m (Per annum)	Ranked 8th
Jobs	25	This is an estimate of initial jobs in the facility, employment could be as much as 100 in the long-term
Key Areas of Focus		
Site (Capacity)	3 (Average)	The Abattoir could possibly locate itself at Yerriminup or Mirrambeena. The land is not serviced and agencies have the opportunity to de-risk investment.
Approvals (Capacity)	2 (Poor)	Potentially over-burdensome regulations need to be addressed.
Energy (Capacity)	2 (Poor)	Chicken processing facilities are energy intensive, this could be addressed through co-location with the bio mass infrastructure.
Water (Capacity)	2 (Poor)	Chicken processing facilities are water intensive. As Chicken abattoirs are small and contained, government could designate certain industrial land that is easier to service for an abattoir, de-risking the project.

Key Actions

A proponent has already made clear its intentions of installing an abattoir when its current facilities are at capacity. For this reason a progress approach is suggested for the Region. This being said there are regional capacity issues that need to be addressed before the abattoir can be developed. As with the other forms of abattoir, local benefit will be substantial due to the strategic and well paying nature of processing jobs. Steps the Region needs to take are:

Figure 47. Key Actions Chicken Abattoir

Key Actions	Potential Key Stakeholders	Timeframes	Priority
Preparing clear guidelines for meeting environmental requirements and buffer zones;	SCNRM Relevant LGAs Abattoir proponents	0-6 months	High
Checks and measures to ensure these guidelines are met;	SCNRM Relevant LGAs Abattoir proponents	0-6 months	High
Consult with proponents to discuss land servicing requirements;	Relevant LGAs Abattoir proponents	6-12 months	High
Identify land that meets these requirements; and	Relevant LGAs GSDC SCNRM	6-12 months	High
Begin negotiating a possible agreement with the proponent to give the Region a guarantee that any land and/or services it sets aside will be used.	Relevant LGAs Abattoir proponents	12-18 months	High

5.2.10 Chicken Production

Chicken Production - Localised Supply	Action Required: PROGRESS

Key Findings

- Chicken Farms are already seeing success
- New farming module similar to Pork is being developed
- Government has the opportunity to facilitate their uptake

The opportunity for success with poultry farming in the Great Southern has already been proven as it is one of the few meat industries to already have a processing facility in the Region. Similar to pork production, there is a proponent in the process of developing a franchise model, which will enable a quick and easy take up of poultry farming in the Region. The model is looking to build on the Region's current success with poultry and introduce a simple and efficient farming method that will capitalise on the Region's suitability while simplifying the farmers' job. This is another export industry and could provide a substantial amount of output to the Region. The consumption of chicken meat rose by more than 30% from 2000 to 2011[33] and demand continues to grow. As with pigs, there is a growing niche for free range chicken, which fits well with the Region's desire to grow premium quality produce. The model, which will only farm ethically bred poultry, has already seen an expression of interest from Coles to sign a national supply contract. This opportunity has links with the opportunity of opening another chicken abattoir in the Region once there are sufficient economies of scale (see Chicken Abattoir Opportunity, Section 5.2.9). While there is already a proponent that is investing in chicken production there is an opportunity to facilitate growth in the industry. There are currently some roadblocks that potential poultry farmers face, including community misconceptions, legislative hurdles and service infrastructure issues.

Chicken Production – Progress

We recommended that the Region take a progress approach to the uptake of poultry farms seeing as there is market readiness and a proponent who is taking the initiative to invest. The short-term investment could see an estimated eight to ten farms, with a possible total of around twenty-five in the long-term. Government needs to allow private investment to take its natural course and be reactive to the needs of the industry. While the franchised farming model has not been finalised the Region can take steps to not impede this investment. The Key Actions for poultry farms will outline the steps that the Region can take to facilitate the creation of the farms while also maintaining surety over the process that needs to be followed for environmental and community concerns.

33 Australian Chicken Meat Federation, 'Industry Facts And Figures', seen at: http://www.chicken.org.au/page.php?id=4

Opportunity Assessment

The probability is high that the Region at its current capacity could see the development of more chicken Farms (Figure 48). There are also key constraints on which the Region can focus in order to improve the probability of realising the opportunity.

Figure 48. Chicken Production Assessment

Chicken Farms	Score	Assessment
Probability	60%	High
Risk Adjusted Value	$4m (Per annum)	Ranked 9th
Jobs	30	This is a short-term projection. Long-term Jobs could amount to as many as 60, thus doubling the annual value.
Key Areas of Focus		
Approvals (Capacity)	2 (Poor)	Pre-empt demand by working with stakeholders including SCNRM to identify areas unlikely to be environmentally or socially constrained.
Albany Port (Capacity)	2 (Poor)	Work with industries that might consider using the port in the future and incentivise investment in container capacity, which could create the potential for direct export to foreign markets.

Key Actions

The Region already has a proponent who is prepared to deliver on this opportunity. Therefore, a progress approach can be taken with the main focus being the facilitation of the farming model and creating a clear legislative pathway for those who want to start a chicken farm. This would include:

Figure 49. Key Actions Chicken Production

Key Actions	Key Stakeholders	Timeframes	Priority
Work with environmental agencies and industry stakeholders to prepare clear guidelines for meeting environmental requirements and buffer zones;	SCNRM GSDC Relevant LGAs Chicken farmers	0-6 months	High
Develop checks and measures that ensure these guidelines are met (Could be done in conjunction with proponents);	SCNRM Key Proponents Relevant LGAs	0-6 months	High
Create procedures for attaining water and power infrastructure approval;	SCNRM GSDC Relevant LGAs Chicken farmers Watercorp Western Power	6-12 months	Medium
Work with industries to educate concerned residents about measures taken to ensure the pig farms will be beneficial to the community without adverse effects on the surrounding areas; and	Community GSDC Relevant LGAs Chicken farmers SCNRM Proponents	6-12 months	Medium
Outline land areas which would be most advantageous for this industry to be situated in.	SCNRM Relevant LGAs	6-12 months	Medium

5.2.11 Bio Fuel – Localised Demand

Biofuel (Localised Demand)	Action Required: TRANSFORMATION

Key Findings

- Wood pellet factory is reopening
- Factory is capable of increasing output beyond previous levels
- Bio fuel is not used locally

There is a significant opportunity for the Great Southern to increase local demand for bio-fuel as a means to build production capacity across the economy and create a viable form of affordable, decentralised energy. It would not affect the amount of bio-fuel that is exported, merely creating a new market, allowing for increased supply of the product.

The demand could be met through various sources. There is a bio fuel plant reopening in Albany, which produces wood pellets for use as bio fuels. Through our consultations we were able to speak with the company that runs the Bio Fuel plant. They indicated that there could even be the capacity for an increase in production over previous levels. Another company, Biomass Renewables uses waste products from various agricultural activities to produce energy. They are actively seeking places to open new plants and can provide a range of products, from tanked fuel to direct heat (for neighbouring facilities). Maximising the production capacity would require an increase in local demand for bio fuel. This is feasible in the short to medium term as there is currently no gas pipeline to the Region and locally supplied renewable energy sources could be less expensive than current gas services. An increase in local use would also mitigate the risk of another shut down of the Albany biofuel plant which is currently dependent upon favourable exchange rates.

This opportunity should be implemented in conjunction with the Bio-Fuel – Localised Supply opportunity to maximise the benefits for both the Region and bio-fuel industries.

Bio Fuel – Transformation

Local bio fuel sources offer a substantial opportunity for the Region. This is why it is recommended that the Region take a transformational approach, encouraging local use of these renewable energy sources. This would see the uptake of bio fuel as a replacement for gas; wood pellets offer almost the same efficiency as gas but are a renewable resource that is predicted to maintain a steady price level[34], further, bio fuels can be delivered off grid, making it very cost effective when agglomerations are formed.

At first, agencies would seek to locate another bio fuel plant in the area that uses by-products to make fuel,. Local business would be the main target for a quick and steady increase in demand, followed by promoting use for residential applications; further minimising the Region's reliance on gas. Through our consultations, there were already local businesses such as Fletchers International who where introducing wood pellet boilers into their infrastructure. With regards to the new bio fuel plant, it would ideally be located in a strategic location that would allow it to receive supply with minimal transport costs taking advantage of all the agri-byproducts that are produced in the Region. It would also be advantageous to locate it in proximity to the Food Hub and/or meat processing facilities to make use of 'off the grid' energy and heat.

34 Enviro Heat Australia, '*Wood Pellet vs Gas* Heating', Seen at: http://enviroheat.net.au/pellets/wood-pellet-vs-gas-heating/

Opportunity Assessment

The probability is high that the Region, at its current capacity, could see an increase in demand for bio fuel products (Figure 50). The Region is already in need of an energy resource other than gas and bio fuels present a possibly cheaper and more efficient source of renewable energy. There are some key constraints on which the Region could focus in order to maximise the potential of the project.

Figure 50. Bio Fuel - Localised Demand Assessment

Bio Fuel – Localised Demand	Score	Assessment
Probability	75%	High
Risk Adjusted Value	$3.5m (Per annum)	Ranked 10th
Jobs	20	These are in addition to the 15 jobs that reside at the factory upon commencement.
Key Areas of Focus		
Workforce (capacity)	2 (Poor)	There will be a need for a local workforce who can sell and provide services for renewable energy products and services.
Albany Port (Capacity)	3 (Average)	If production capacity surpasses the new demand created there is the potential for increased exports of bio fuels to foreign markets

Key Actions

While there is an investor that is already prepared to start operations they are not capable of fulfilling the opportunity at the level that would be optimal for the Region. For this reason the government must be transformational in its actions to create local demand for the use of wood pellets. This would include:

Figure 51. Key Actions Bio Fuel localised Demand

Key Actions	Potential Key Stakeholders	Timeframes	Priority
Approach high energy businesses who currently use gas and present the feasibility of alternative energy sources;	Bio fuel plant Other Biomass producers High energy industries Relevant LGAs	0-6 months	High
Devise incentives for other local businesses to adopt the bio fuel source;	Relevant LGAs GSDC Local businesses Bio fuel proponents	0-6 months	High
Approach bio fuel proponents regarding a facility to be incorporated into the Food Hub;	Relevant LGAs Bio fuel proponents Food Hub GSDC	0-6 months	High
Identify regulations that are unnecessary or over-burdensome and might impede the installation of a bio fuel plant in the food hub, and implement reforms;	Relevant LGAs Bio fuel proponents Farmers Food Hub	0-12 months	High
Draft a marketing strategy for residential wood pellet and waste product energy in the Region;	Community Relevant LGA's Proponents	6-12 months	High
Approving incentives for renewable energy us such as lower tax brackets; and	Relevant LGAs Proponents	6-12 months	High
Create the impetus for local retailers to sell renewable energy appliances such as wood pellet burners.	Relevant LGAs Proponents Local hardware sellers	6-12 months	High
Ensure the development of the bio fuel plant is an integral part of the final design for the food hub.	Relevant LGAs GSDC Bio fuel proponent Food Hub	12-18 months	High

5.2.12 Pig Production

Pig Production – Localised Supply	Action Required: PROGRESS

Key Findings

- **Pig Farm franchise module is already seeing success**
- **Government has the opportunity to facilitate their uptake**

Pig farming is an industry with potential for large growth in the Great Southern. According to DAFWA the Great Southern is perfectly suited for pig farming due to its temperate climate and consistent rainfalls. Currently, Plantagenet Pork is employing a franchised farming model in the Region and is looking to expand, envisaging upwards of 20 farms under its brand[35]. Pig farming is an export industry for the Region and as such it can have an important economic impact.

The Region is fortunate to be in a position where there is an established proponent who is already in a situation to deliver on this opportunity. Plantagenet Pork farms are free range only, which aligns itself with the Regional Blueprint's aim to grow premium food production. The company already has a supply contract with Coles as a national supplier of free range pork. In addition, the Craig Mostyn Group (CMG) has invested in a farm near Albany with plans to introduce more farms. Woolworths has shown interest in using the CMG farms much as Coles does; for national supply of free range pork. While there are already proponents that are investing in pig production there is an opportunity to facilitate growth in the industry. There are currently some roadblocks that potential pork farmers face, including: community misconceptions, legislative hurdles and service infrastructure issues.

Pig Production – Progress

It is recommended that the Region take a progress approach to the uptake of pig farms. This is possible as there is market readiness and proponents who are taking initiative. This could see an increase of five to six pig farms in the short-term with a possible total increase of more than twenty in the long-term. Essentially, progress entails that the government allows private investment to take its natural course, managing processes to ensure that whilst natural and community well-being is maintained, statutory processes do not unduly act as a barrier to investment. The Key Actions for pig farms will outline the steps that the Region can take to facilitate the creation of the farms while also maintaining surety over the process that needs to be followed to address environmental and community concerns.

35 The West Australian, 'Pork Deal For Milne A Winner', Seen at: https://au.news.yahoo.com/thewest/countryman/a/24365420/pork-deal-for-milne-a-winner/

Opportunity assessment

The probability is high that the Region at its current capacity could facilitate significant expansion of pig production (Figure 52). There are key constraints on which the Region can focus in order to improve the probability of realising the opportunity.

Figure 52. Pig Production Assessment

Pig Farms	Score	Assessment
Probability	70%	High
Risk Adjusted Value	$2.5m increasing to $7m (Per annum)	Ranked 11th
Jobs	45	This is the long-term projection for activity from pig production.
Key Areas of Focus		
Approvals (Capacity)	2 (Poor)	Pre-empt demand by working with stakeholders including SCNRM to identify areas unlikely to be environmentally or socially constrained.
Albany Port (Capacity)	2 (Poor)	Work with industries that might consider using the port in the future and incentivise investment in container capacity, which could create the potential for direct export to foreign markets.

Key Actions

Seeing as there already exists a proponent prepared to deliver on this opportunity, the Region can take a progress approach. It should make its main focus the facilitation of the farming model and create a clear legislative pathway for those who want to start a Pig farm. This would include:

Figure 53. Key Actions Pig Production

Key Actions	Potential Key Stakeholders	Timeframes	Priority
Work with environmental agencies and industry stakeholders to prepare clear guidelines for meeting environmental requirements and buffer zones;	SCNRM GSDC Relevant LGAs Pig farmers	0-6 months	High
Develop checks and measures that ensure these guidelines are met (Could be done in conjunction with proponents);	SCNRM Key Proponents Relevant LGAs	0-6 months	High
Create procedures for attaining water and power infrastructure approval;	SCNRM GSDC Relevant LGAs Pig farmers Watercorp Western Power	6-12 months	Medium
Work with industries to educate concerned residents about measures taken to ensure the pig farms will be beneficial to the community without adverse effects on the surrounding areas; and	Community GSDC Relevant LGAs Pig farmers SCNRM Proponents	6-12 months	Medium
Outline land areas which would be most advantageous for this industry to be situated in.	SCNRM Relevant LGAs	6-12 months	Medium

5.2.13 Bio Fuel – Localised Supply

Biofuel (Local Supply)	Action Required: BUY-IN

Key Findings

- **Wood pellet factory is reopening**
- **Factory is capable of increasing output beyond previous levels**

The rise of bio fuels as an alternative to gas places the Great Southern in a position to be able to vastly increase its energy self-sufficiency. At the core of this opportunity is the agriculture industry. As discussed above, the company that runs the bio fuel plant indicates that there could be the capacity for an increase in production, meaning an increase demand for feedstock from forestry.

Companies such as Biomass Renewables are also actively seeking areas to build their plants, which take the waste products from various farming activities and turn them into both energy and fertiliser. The transformational Bio Fuel – Localised Demand project would create the demand needed for such an increase in production. This would then require a greater supply of wood and other by-products, which would be satisfied by the local forestry/ agricultural industries. There are many strategic advantages to this opportunity:

- Tree farming has the benefit of desalinating water tables, allowing for other agricultural produces to be farmed;
- According to the SCNRM, there is a lot of land that would maximise its productivity through carbon tree farming
- Most agriculture by-products that are usually treated as waste could become a localised supply for energy; and
- A biomass fuel plant would be a strategic imperative maximising benefit by locating near energy intensive facilities, such as an abattoir.

Bio fuel – Buy-In

This project combined with the bio fuel demand project presents the Great Southern with the opportunity to create sustainable infrastructure for a renewable energy source. It is recommended a buy-in intervention be used for this opportunity with the target of maximising the reuse of waste products, not only allowing for potentially cheaper energy but also increased production from the Region's main industries. The Region has the chance to be proactive in attracting a new fuel plant to be located in the Food Hub, giving the plant a predictable source of byproducts and the Food Hub an 'onsite' energy source. Agencies will also have to facilitate relationships between the bio fuel plants and agriculture industries in order to maximise production levels, this includes encouraging incentives for the introduction of carbon tree farms on appropriate land, creating a carbon positive energy source.

Opportunity Assessment

The probability is high that the Region, at its current capacity, could create a local supply of waste products for the bio-fuel industry (Figure 54). There are also key constraints on which the Region should focus in order to maximise the potential of the project.

Figure 54. Bio Fuel - Localised Supply Assessment

Bio Fuel – Localised Supply	Score	Assessment
Probability	65%	High
Risk Adjusted Value	$1.5m (Per annum)	Ranked 12th
Jobs	10	These are medium term projections. Long-term Jobs could total 20, a 30% increase in forestry jobs in the Region. This does not taken into the consideration the value of creating a supply of waste for a bio-fuel facility.
Key Areas of Focus		
Market Readiness	2 (Development)	Agencies can help the local agriculture industry build the capacity to store and facilitate distribution of their waste in a means that would suit the needs of the bio fuel plant.
Entrepreneurial (Capacity)	2 (Poor)	The Region has an opportunity to grow local entrepreneurship through the expansion of the bio fuel industry and encouraging the growth of support industries around it.

Key Actions

There are investors that are already prepared and interested in starting operations. Agencies will need to involve themselves in order to benefit from the opportunity at the level that would be optimal for the Region. For this reason the Region needs to adopt a buy-in strategy with regards to encouraging the increase of waste supply for bio fuels in the Region. This would include:

Figure 55. Key Actions Bio Fuel Localised Supply

Key Actions	Potential Key Stakeholders	Timeframes	Priority
Approach various agri-industries and acquire their waste production capacities;	Relevant LGAs Farmers	0-6 months	High
Work with SCNRM to find suitable land for carbon tree farming;	SCNRM Tree farmers Bio fuel proponents	0-6 months	Medium
Facilitate communication between bio fuel companies and suitable waste producing agri-industries;	Relevant LGAs Bio fuel proponents Farmers	6-12 months	High
Help farmers with infrastructure for proper storage and disposal of waste for bio fuel requirements; and	Relevant LGAs GSDC Farmers Bio fuel proponents	12-18 months	Medium
Ensure the development of the bio fuel plant is an integral part of the final design for the food hub.	Relevant LGAs GSDC Bio fuel proponent Food Hub	12-18 months	High

5.2.14 Albany Port

Albany Port	Action Required: PROGRESS

Key Findings

- Road infrastructure needs to be addressed
- Port upgrades should be led by private investment

An iconic emblem of the Great Southern, the Albany Port is an important part of the regional economy and the potential benefits from upgrading it are substantial. This opportunity revolves around upgrading the Port infrastructure to allow increased storage capacity and to accommodate a greater variety of goods,, perhaps in the long-term creating the capacity for containers (a goal also outlined by the Regional Blueprint under 'Safe and efficient transport links'). At present, the port mainly services the grain industry, with wood products being the next largest export. Neither these industries nor other industries that might use the port have sufficient demand to require a pressing change in port infrastructure. Consultations have indicated however that there is an opportunity for an upgrade to the road infrastructure leading to the City of Albany and its port. Therefore this opportunity should be seen in two parts: address road infrastructure in the short-term, setting port upgrades as a medium to long-term goal where the Region can react when industries are ready. These changes need to be effected by LGA's, State and other governing bodies as the Port itself does not control or have the capacity to implement the opportunities.

Albany Port – Progress

In the short-term there is a need for improvements of the road infrastructure leading to the port. There is currently a proposed Ring Road, which would facilitate heavy haulage to the Port, and as such it is recommended that agencies adopt a progress stance with regards to port upgrades. This would require agencies to be reactive to market needs; when industry shows signs of being constrained by the Port the Region would work with relevant industries to encourage private investment in future necessary upgrades. The City already has industrial zoned land that could be appropriated for storage and it would do so as demand for increased storage develops[36]. As there is currently a market need for upgrades to road infrastructure leading to the port, the relevant governing bodies need to ensure the implementation of these upgrades. There is no urgency in any industry to require transformative action to upgrade the Albany Port. The containerisation of the Port will likely rely on the future export of products to Asian countries, specifically China. Certain opportunities identified in this report have the potential to help create the necessary demand; however, this is seen as a long-term opportunity.

36 Dept of Planning, 'Great Southern Regional Planning and Infrastructure Framework', Seen at: http://www.planning.wa.gov.au/dop_pub_pdf/Great_Southern_RPIF_draft.pdf

Opportunity Assessment

The probability is high that the Region, at its current capacity, could accommodate upgrades to road and storage infrastructure around the Albany Port (Figure 56). There are key constraints on which the Region can focus in order to improve the probability of realising the opportunity.. One of the constraints is the road infrastructure, which is also part of the opportunity.

Figure 56. Albany Port Assessment

Albany Port	Score	Assessment
Probability	60%	High
Risk Adjusted Value	$1.5m to $20.5 (Per annum)	Ranked 13th
Jobs	10	This is an estimate of initial jobs in the facility, employment reach as high as 40 in the long-term. This could more than double the port revenue per year* **
Key Areas of Focus		
Site (Capacity)	2 (Poor)	The Albany Port has a lot of natural constraints that will limit the eventual capacity of the port.
Approvals (Capacity)	2 (Poor)	Some upgrades to the port would be benefited by additional work to deepen the shipping lanes, this however will have environmental implications that will need special attention.
Road (Capacity)	2 (Poor)	There is an opportunity to improve road infrastructure in the short run improving safety and creating time efficiencies.

* Albany Port, 'Financial Report 2013', Seen at: http://www.albanyport.com.au/images/annrpt13.pdf

** This estimate is based on ABS National Input/Output data and the average Full Time Equivalent output in the port industry. The possible increase in employment is multiplied by the average output in order to arrive at an estimated future output of the port.

Key Actions

The Region should separate this opportunity into two parts: road infrastructure and port upgrades.

The Road infrastructure actions that should be taken are:

Figure 57. Key Actions Albany Port (Road Infrastructure)

Key Actions	Potential Key Stakeholders	Timeframes	Priority
Consult with major export industries to identify problem roads and intersections;	Major Exporters Albany Port Relevant LGAs GSDC	0-6 months	High
Identify what action would be best to address the main issues that industries are facing; and	Major Exporters Relevant LGAs Albany Port GSDC Mainroads	0-6 months	High
Work with LGAs and main roads to undertake the necessary road upgrades.	Mainroads Relevant LGAs Albany Port	6-18 months	High

The port upgrades will happen on an as needed basis. This means the Region should take the following steps:

Figure 58. Key Actions Albany Port (Port Upgrades)

Key Actions	Potential Key Stakeholders	Timeframes	Priority
Keep open communications with the grain and forestry industries (especially CBH: grain)	Major exporters Albany Port Relevant LGAs	Indefinite	High
Identify projects in other industries that might need port access and approach these industries to learn when they expect to have this need;	Potential exporters Albany Port Relevant LGAs	0-12 months	Medium
Prepare industrial land to be used for storage; and	Major and potential exporters Relevant LGAs Albany Port	After 12 months as need arises	Medium
Have all necessary approvals for Port upgrades resolved and ready for private investment	Albany Port City of Albany	After 12 months as need arises	High
Port upgrade to container capacity	Major exporters Potential exporters Albany Port Relevant LGAs GSDC	After 24 months as need arises	Low

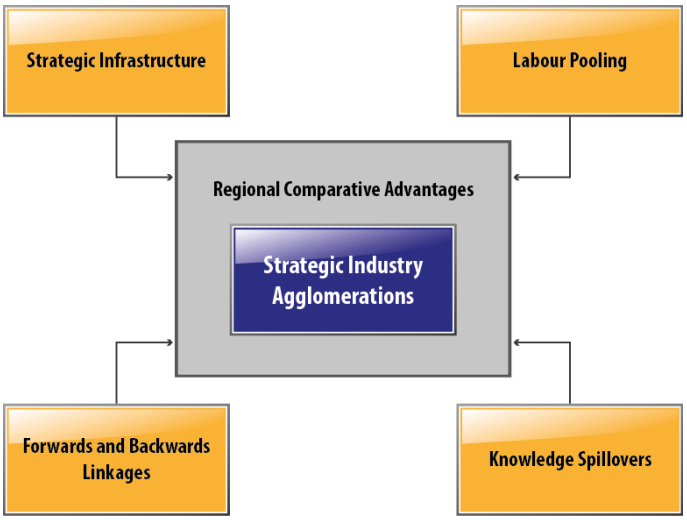
6.0

6 STRATEGIC FRAMEWORK FOR SOUTH COAST INVESTMENT

This chapter outlines the recommended strategic framework for investing in South Coast industry development. It seeks to provide a strategic context for each of the identified opportunities thereby potentially providing the basis for future intervention and reasoning.

The recommendations contained within the following sections of the Strategy flow from the analysis, research and consultation conducted over the duration of the project. They broadly reflect a finding that sustained investment will most likely result from the development of strategic sub-regional agglomerations of economic activity within the Great Southern South Coast that produce goods and services that are of value to external state, national and international markets. These agglomerations will develop as a result of four interlinked factors (see Figure 59).

Figure 59. Factors Contributing to Strategic Agglomerations of Activity



Source: Pracsys 2015

Strategic Infrastructure represents key elements of local capacity around which industries (as opposed to individual firms) build sustained competitive advantages. These infrastructure components often link natural assets with critical productive elements of the regional economy to produce opportunities to add significant value to baseline products.

Labour Pooling represents an economy's ability to attract a critical mass of labour, which enterprises compete for access to. Development of skilled labour pools in regions means developing multiple opportunities for skilled labour within a given economy. This means that labour does not just have one option for quality employment. This creates conditions that encourage skilled labour to invest in an area, as they perceive it to offer a range of opportunities for professional development over time.

Forwards and Backwards Linkages represent the extent that supply chains are located within a given region. A region with strong forwards and backwards linkages within a given supply chain contains a significant assortment of suppliers, collaborators and customers that all relate to each other in a variety of formal and informal relationships. This is one key area where knowledge spillovers can occur.

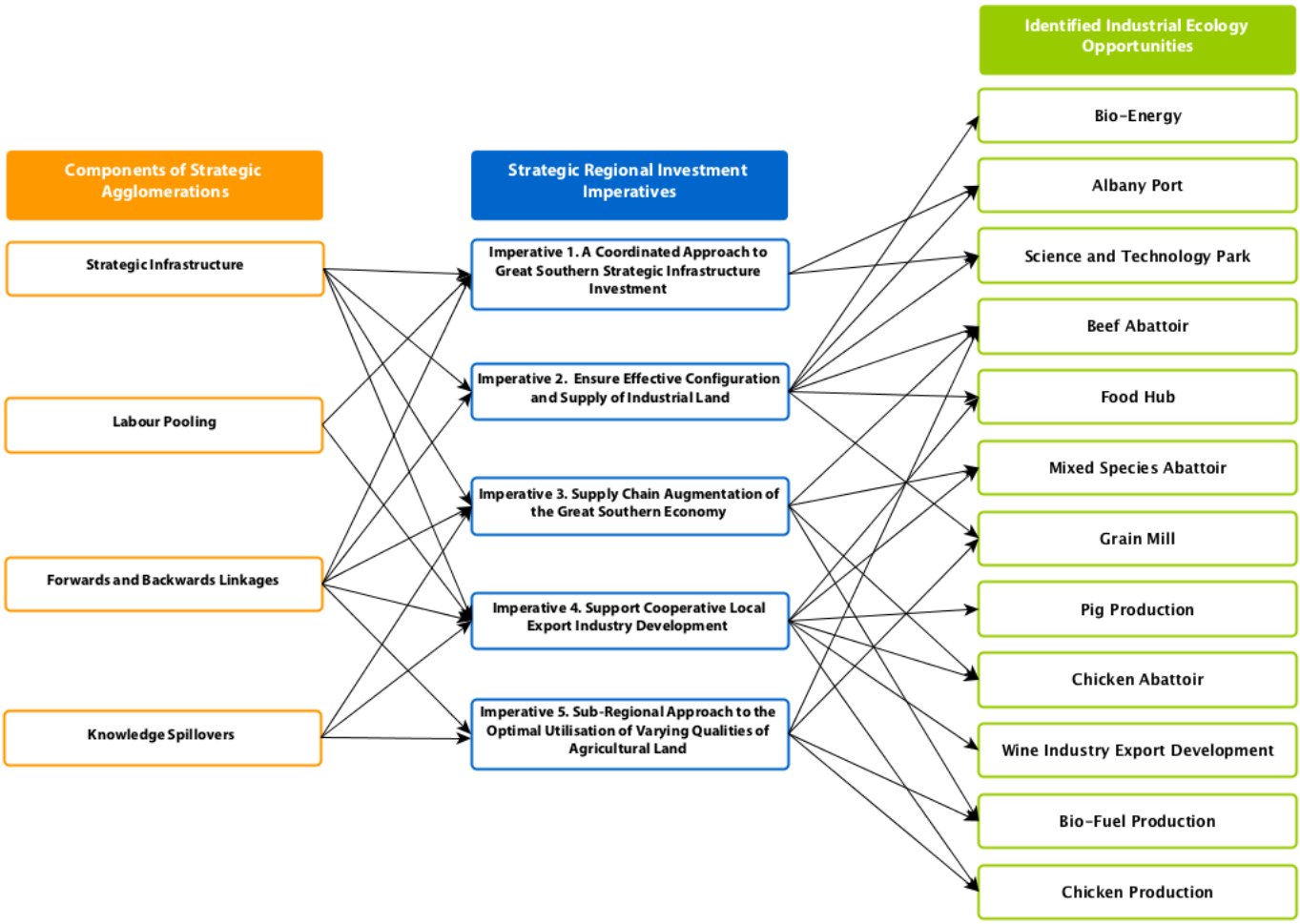
Knowledge spillovers represents the development and dissemination of value adding information within the network of key actors within a given supply chain or industry. Importantly, knowledge spillovers represent the creation of understandings that improve the value proposition and competitiveness of multiple actors within regional strategic industries, i.e. it is not knowledge that is kept internal to an individual enterprise.

Recognising the importance of each of these, five strategic regional investment imperatives have been identified that specifically support the development of one or more factor. These imperatives are:

- Imperative 1 - A coordinated approach to Great Southern South Coast strategic infrastructure investment;
- Imperative 2 – Ensure effective configuration and supply of industrial land in the Great Southern South Coast;
- Imperative 3 – Supply chain augmentation of the Great Southern South Coast Economy;
- Imperative 4 – Support cooperative sub-regional export industry development; and
- Imperative 5 – Sub-regional approach to optimal utilisation of varying qualities of agriculture land.

The relationships between these imperatives and the factors that support the development of strategic agglomerations of activity are outlined in Figure 60.

Figure 60. Relationship Between Factors of Agglomeration and Strategic Regional Investment Initiatives



Source: Pracsys 2015

Each strategic imperative includes a rationale that outlines its importance to the South Coast, and key actions that have been identified during the analysis, research and consultation conducted during preparation of the Strategy.

6.1 IMPERATIVE 1. A COORDINATED APPROACH TO GREAT SOUTHERN STRATEGIC INFRASTRUCTURE INVESTMENT

6.1.1 Rationale

The significant barrier to investment posed by the adequacy of supply, costs and risks associated with elements of service infrastructure was consistently given as feedback from stakeholders across all subject industries. How decision makers respond to these changes will have a strong bearing on the long-term economic buffers and benefits felt by the Great Southern.

A laissez-faire approach to addressing industry needs will continue to act as a significant barrier to investment. This will occur as regional enterprises limit their expansion due to real or perceived service constraints, and external investors find locations where basic infrastructure can be easily accessed, or where servicing issues are already addressed.

The Great Southern Development Commission's Regional Blueprint process represents a significant opportunity to coordinate public and private investment across a range of production inputs and infrastructure including water, power, waste management, housing, industrial land development, transport and ICT. A focused and targeted approach should address factors including:

- Utilisation of various pools of capital (including Royalties for Regions) to bring forward or de-risk service infrastructure projects that are required by the Region to facilitate investment;
- Assessment of the costs and benefits of alternative infrastructure servicing solutions that may result in a greater impact for less investment; and
- Identification of areas of underutilised capacity across service infrastructure with consideration of how this capacity may be utilised for the benefit of the Region.

Decision-making for key infrastructure often occurs in the context of short-term budgetary constraints, with industry being seen as a ready and easy source of capital for projects as the obvious short-term beneficiaries. This decision-making criterion has been used with varying degrees of success with resource-related projects, where the opportunity cost of development makes the requirement for services urgent. In the case of longer-term, slower growth and less cyclical industries like those that are predominant in the Great Southern's South Coast, this can represent a deal breaker for investment. Industry may not have the ready capital nor the short-term potential profits to make a business case for investment stack up. Such decision-making structures therefore have the potential to inflict long-term opportunity costs to regional economies including:

- The lost opportunity to capture investment to improve competitiveness of the overall economy;
- Lost opportunities to capture services for the benefit of local residential communities; and
- Lack of access to key infrastructure by other existing or future enterprises that

may have used it to develop a competitive business (e.g. utilisation of air transport to deliver premium quality 'jet fresh' food produce to market).

It is therefore important that the Great Southern South Coast has a coordinated approach to leveraging the infrastructure needs of growth industries for the long-term benefit of the sub-region.

6.1.2 Key Actions

The following key actions have been identified to develop a coordinated approach to strategic infrastructure investment:

- Develop an overarching Great Southern South Coast Infrastructure Development Strategy that presents a systematic, costed plan for addressing the significant infrastructure challenges that the Region faces in the context of its strategic aspirations (as articulated within the Great Southern Regional Blueprint);
- Establish a multi-agency taskforce that is tasked with advocating for systematic infrastructure investment in priority projects over a sustained period;
- Actively advocate for ongoing improvements to Albany Highway, both within the Region and to Perth, to ensure that the Region's major road connection does not become a larger barrier to investment due to real and perceived risks associated with efficiency and safety;
- Conduct a detailed cost-benefit analysis that considers the comparative merits of utilisation of dispersed renewable energy infrastructure (e.g. biofuel, solar, tidal and wind) versus traditional centralised distribution for a variety of industrial, on-farm and isolated site projects. From this, develop a prospectus for investment in alternative infrastructure sources that outlines the conditions where they may potentially be competitive;
- Ensure that the Great Southern Housing model's findings are accounted for in coordinating future infrastructure, with the configuration and servicing of new lots key to utilisation of available land;
- Work with proponents to de-risk the establishment key projects in the Region; and
- Commission an expert business case writer to conduct training with sub-regional organisations and local governments. This training needs to look beyond simple document preparation to understanding the triggers for investment decisions of major public and private capital providers. The purpose of this training is to ensure that sub-regional stakeholders have a clear understanding of the decision-making frameworks around which funding is allocated.

6.2 IMPERATIVE 2. ENSURE EFFECTIVE CONFIGURATION AND SUPPLY OF INDUSTRIAL LAND

6.2.1 Rationale

Industrial activity is often considered the poor cousin to more urban activities. This is largely due to these activities being out-of-sight of decision makers, as well as the greater potential for conflicting uses between industry and residents of communities.

Industrial activities however are, and will continue to be, critical to ongoing economic development in the Great Southern South Coast. This is due to the many roles of industrial land in the direct location of key strategic enterprises, as well as the service industries that they rely upon. This includes a range of uses including:

- Plant laydown and equipment storage;
- Construction and installation;
- Professional and technical services;
- Civil engineering;
- Spares and consumables;
- Electrical and instrumentation;
- Materials;
- Logistics; and
- Catering.

The locational decisions for industrial enterprises typically depend upon a range of factors including:

- Types of activities engaged in;
- Proximity of the site to customers;
- Service infrastructure related to the site (including access to major transport hubs);
- Size and configuration of lots;
- Ability to manage negative externalities associated with activities;
- Tenure of site (available for long-term investment or short-term cyclical projects); and
- Price of site (rental or purchase).

These decision factors will need to be understood to ensure that supply is appropriately located and pitched to the market. It is particularly important to consider the economies of scale that will need to be developed to bring a product to market. This means a 'build it and they will come' approach to industrial land development may entail significant risk and limited reward to public and private sector developers.

Anecdotal feedback from interviews suggests that generally there are few concerns as to the existing supply of industrial land within the Great Southern South Coast. This is particularly the case as the rural zonings within the Region are being utilised by a wide range of industries (including meat processing and fertiliser manufacture) to accommodate infrastructure in a manner where risks associated with externalities can more easily be managed.

This does not mean that there is adequate supply when considered in the context of the need for population-oriented service industrial lands, as well as the future economic aspirations of the Region.

6.2.2 Key actions

The following key actions have been identified to assist in ensuring effective configuration and supply of industrial land:

- LGA's within the Great Southern South Coast to continue to develop and reserve lands for Strategic economic activity in conjunction with Landcorp. Despite the seeming lack of immediate demand for much of this land, there are a number of activities that may be undertaken to ensure that land can accommodate future

uses. These include:

- Ensure that the planning system clearly differentiates strategic industrial land from population-driven service industrial lots (although these uses may on occasion co-locate);
- Ensure that planned industrial lands include a diversity of land types and configurations to meet the needs of a range of business models (e.g. larger isolated lots suited to heavy industry, smaller lots that can accommodate a hybrid of office, warehouse and fabrication activities);
- Engage with key stakeholders on an ongoing basis to identify any enterprise/industry specific activity that may need to be/ should be accommodated within strategic industrial areas and the configuration/infrastructure needs are best accommodated; and
- Work to develop a food-specific precinct within the planned Albany Science and Technology Park that focuses specifically on value-add activities surrounding horticulture, viticulture, pastoral, aquaculture, livestock and associated industries within the Great Southern. This may include accommodation of research and provenance testing infrastructure, workforce development activities, and the establishment of an industry-led Great Southern Food Hub that facilitates value-creation activities across one or more food sectors.

6.3 IMPERATIVE 3. SUPPLY CHAIN AUGMENTATION OF THE GREAT SOUTHERN ECONOMY

6.3.1 Rationale

A critical element of the development of strategic agglomerations of activity is the enhancement of regional forwards and backwards linkages around the supply chains of existing activity. These linkages are important as they can bring about three outcomes:

- More of the activity surrounding a strategic supply chain is located locally, bringing with it opportunities for employment growth and flow-on local consumption;
- More of the 'value-creation' associated with a supply chain is located within the Region, providing opportunities for greater regional economic output; and
- Opportunities developed to interlink key dependencies across different strategic supply chains, allowing for the development of new comparative advantages, diversification of the economy, and potential economies of scale.

In the case of all of the subject industries discussed in Chapter 4, opportunities exist to localise more activities within the supply chain, given appropriate investment from public, private and community stakeholders.

Importantly the new activities, enterprise and industries developed through supply chain augmentation may not only support but also compete with established activities

for resources. This should be recognised and encouraged as this competition supports the conditions for other factors of agglomeration economies to develop (e.g. competition for skilled labour creates an environment where new workers can be attracted to move and invest in the area due to the quality and diversity of employment opportunities). Ultimately, economic development initiatives should keep in mind that the overall aspiration is to improve the socio-economic performance of the overall economy rather than optimising the performance of individual enterprises.

A compelling case for regional investment across established strategic supply chains will stem from a project or enterprise being able to confidently assess and address one or more of the following factors:

- Sufficient regional demand for inputs into supply chains;
- Sufficient supply of outputs for the purposes of the enterprise;
- Delivery of inputs or receipt of outputs at a competitive price point;
- Ability to manage project risks including consistency of supply, quality of supply, access to markets etc;
- Ability to access appropriately skilled workforce at a competitive cost; and
- Ability to access essential infrastructure at a competitive cost.

Addressing these factors in the context of the Region's strategic aspiration should therefore form the basis of supply chain augmentation initiatives.

6.4 IMPERATIVE 4. SUPPORT COOPERATIVE LOCAL EXPORT INDUSTRY DEVELOPMENT

6.4.1 Rationale

A significant factor that will determine the Great Southern's ability to generate further investment in existing activities will be the support and coordination of local enterprises that are seeking to penetrate new markets, develop new offerings, and/or increase the value of existing outputs. This support should focus on helping those in industry develop and coordinate efforts. In particular, opportunities exist to support industry-led initiatives that develop shared resources, such as:

- Quality control and food providence systems;
- Industry-specific infrastructure;
- Workforce attraction and development initiatives;
- Attraction of key industry suppliers, customers and/or partners/collaborators; and
- Shared branding that is tied to the Region.

Whilst it cannot be emphasised enough that these initiatives are far more powerful if industry led, LGA's and State Government stakeholders may be able to put in place mechanisms that incentivise the development of these initiatives

6.4.2 Key Actions

The following key actions have been identified to support cooperative local export industry development:

- Provide easy to access seed funding to support the coordination of efforts (this may include funding of legal advice or the visitation of identified experts that will help drive cooperation);
- Identification and engagement with key industry 'boundary spanners' (spanning across industries) and are most likely to drive and oversee industry coordination;
- Initiate a bi-annual networking event focussed on bringing local business and the export industries together. The event should move beyond simply a 'sundowner' to instead include presentations from industry on needs that may be met locally, by local businesses on their own experiences and capabilities, and by out-of-region experts on opportunities leveraged by other Regions;
- Prepare a live local capability statement (preferably online) that provides an up-to-date resource to services and goods produced locally that may be relevant to existing and new projects; and
- Provide a log of potential resources which small business may access for specialised input including public sector experts (e.g. DAFWA personnel), academics and potential private sector mentors.

6.5 IMPERATIVE 5. SUB-REGIONAL APPROACH TO THE OPTIMAL UTILISATION OF VARYING QUALITIES OF AGRICULTURAL LAND

6.5.1 Rationale

South Coast NRM has recently completed a project entitled Biodiversity Prioritisation and Biosequestration Modelling and Analysis. One aim of this project was "the development and delivery of modelling and mapping of spatial products to support biodiversity prioritisation and climate planning for the South Coast NRM Region".

There is significant potential to use the findings of this study to develop initiatives that optimise the utilisation of the Region's land for both economic development and natural resource management initiatives. The response to the study's findings should be to consider two independent activities. These are:

- Develop consistent planning approaches that aim to ensure that activities on land of varying qualities and characteristics are optimised to deliver high-value export outcomes; and
- Support the utilisation of high-productivity lands for high-value export-oriented activities that improve productivity growth and industry diversification in the Great Southern.

6.5.2 Key Actions

The following key actions have been identified to develop a sub-regional approach to the optimal utilisation of varying qualities of agricultural land:

- Convene a sub-regional working group including local government, the GSDC, SCNRM and DAFWA, focussed on developing a coordinated approach to the optimisation of lands for high productivity export-oriented activities;
- Work with environmental and water agencies to map the potential impacts of salinity under alternative development scenarios;
- Develop programs to enhance the productivity of various land typologies through activities including soil augmentation, utilisation of different water sources, product differentiation, and next generation agriculture techniques;
- Work with stakeholders and local industry to develop a prospectus outlining options for the best use of varying land types within the South Coast area. This needs to be a plain-English guide to potential crops, produce and technologies as well as local examples of linking produce to markets. Market prices, cost of production and logistics should be investigated as well, as commercial success requires that crops be produced and brought to market at or below the prevailing price;
- Identify the owners of major parcels of underutilised land and open dialogue with them over opportunities for optimisation. A major tool in this dialogue will be the prepared prospectus; and
- Develop trade linkages with international food producers that may utilise a presence in the Great Southern to gain access to new markets through established free trade agreements. Of these producers, identify and work with investors who have a proven track record in achieving a product premium due to niche products and food providence systems.

7.0

7 CONCLUSION

The South Coast's potential for significant investment is largely tied to its ability to leverage its natural assets for the creation of goods for exports markets. Through ecology mapping and consultation, opportunities have been highlighted that are feasible and that can have a significant medium to long-term benefit for the Sub-Region and the Great Southern as a whole. Whilst the South Coast's pristine environment and high productivity lands are attractive to investment, significant capacity constraints exist, in particular in relation to local infrastructure and servicing, access to markets, ability to reach economies of scale and access to a skilled labour force (the last a factor not considered in detailed within the scope of this work). All of these factors can be managed through sustained, incremental initiatives that support the evolution of industrial processes over the medium term.

The main conclusion is that stakeholders should take a strategic view of economic development in the South Coast. This recognises the area's potential for sustained growth that can act to offset the dramatic commodity cycles that impact more resource intensive regions. Such a view focuses on a vision for the development of high-quality, differentiated export supply chains where significant value is created and enhanced locally. This will require a proactive focus that recognises the risks of investment in the South Coast and actively works where appropriate to manage or mitigate these risks.

Finally, a key finding of this strategy is that the local entrepreneurial base needs to be fostered and supported at all costs. The future of Regions such as the Great Southern will not be determined by external investment alone. It is the incremental decisions of local community members to take risks and drive transformation that will have the greatest impact in the long-term. Supporting the development of collective local initiatives that achieve scale and competitiveness through cooperation is therefore critical to the future prosperity of the Great Southern.

A1

APPENDIX 1: SUMMARY OF STAKEHOLDERS CONSULTED

Consultant	Organisation
Rod Hedderwick	Albany Chamber of Commerce
Lucy Anderton	Department of Agriculture
Stuart Clark	Department of Agriculture
Duane Schouten	Great Southern Development Commission
Peter Duncan	Shire of Plantagenet
Rob Stewart	Shire of Plantagenet
Port Authority	Albany Port
Dale Stewart	Shire of Denmark
Cr John Sampson	Shire of Denmark
Pat Page	Department of Agriculture
Rob Edkins	Grow Safe
David Lynch	Great Southern Sands
Ray Hammond	Albany City Council
Ian Haines	Albany Farmers Market
Greg Cross	Fletchers International
Neil Binning	Great Southern Institute of Technology
Dale Putland	City of Albany
Jan Ven der Mescht	City of Albany
Liz Jack	Denmark Chamber of Commerce
Esther Price	Western Dairy
Bruce Manning	Great Southern Development Commission
Russell Pritchard	Great Southern Development Commission
Matthew Bird	City of Albany
Deen M Lee	City of Albany
Kaylene Parker	South Coast Natural Resource Management
Miriam Lang	Department of Agriculture
David Plant	Milne Group
Dr. Chris Brennan	Milne Group
Richard Allen	Plantation Energy
John Wattling	TSW Analytical
Len Handasyde	Forest Hill Farm

Source: Pracsys 2015

APPENDIX 2: METHODOLOGY FOR SUPPLY CHAIN MAPPING

ABS data, research and consultation were used to map the ecology of local industries. Multiple stages were developed and a broad range of sources were consulted.

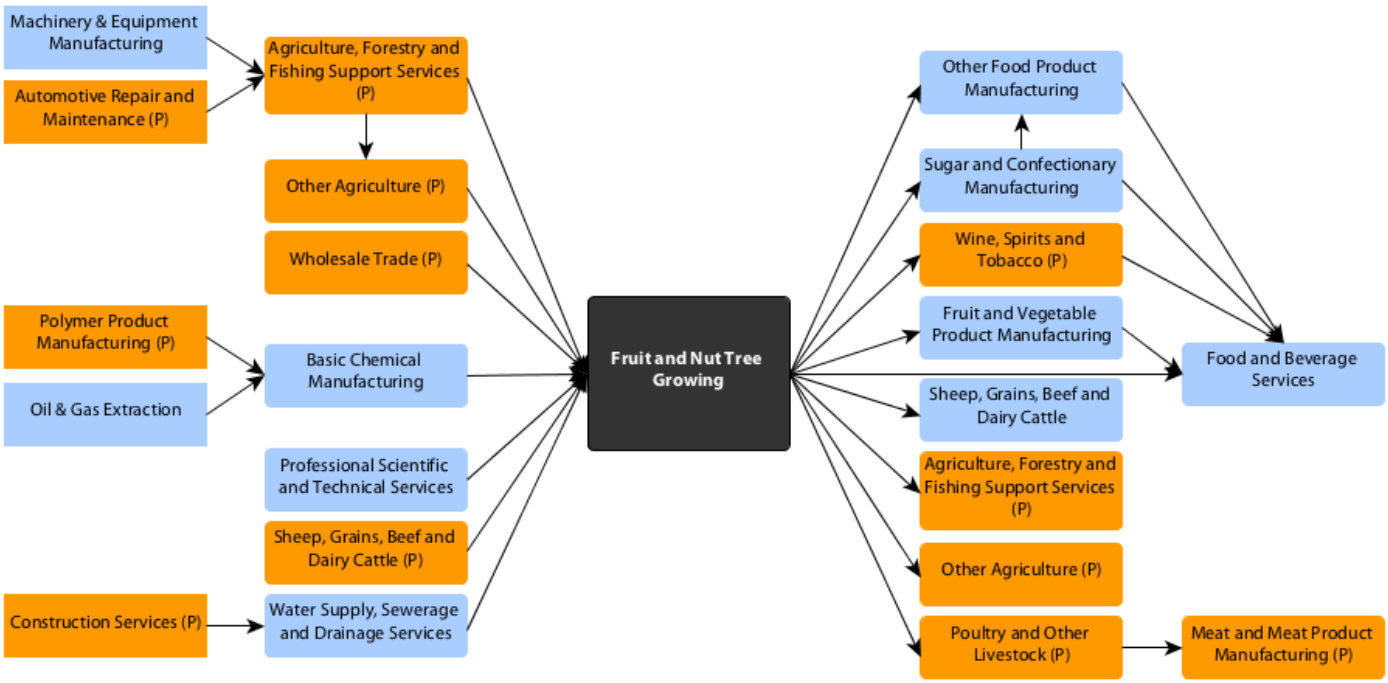
9.1 STEP 1

To gain a basic perspective of what industries were prevalent in the Region, National ABS Input/Output data and secondary research was conducted. This lead to a first round of mapping using the ABS input/output tables to determine what certain industries looked like according to Australian averages (Figure 61).

9.2 STEP 2

The next echelon was a round of live and telephone interviews with stakeholders to glean a better understanding of local business. A workshop was then conducted in Albany to bring the project to the attention of possible sources of information from various industries. This culminated in a map with details of local business and contact information for the next phase in the research.

Figure 61. A map of the fruit and nut growing industry



Source: Pracsys 2015

9.3 STEP 3

Another round of interviews was undertaken with contacts from the workshop, as well as those found through secondary research. These interviews began to describe the local need of industry from an industry perspective. Interviewees consisted of regional industry leaders, statewide/national investors with a stake in the Region and local government representatives. It was during this stage of the research that the 6 areas, which are the focus of this report, became clear. This guided the final stage in the mapping process and lead to the maps outlined within the Strategy body.

A3

APPENDIX 3: GLOSSARY OF TERMS

Agglomeration economies

The self-reinforcing benefits that arise from spatial concentrations of firms and people. Agglomeration economies may be of two types:

- Urbanisation economies
- Localisation economies

Business model

The method or means by which a business captures value, including how it creates, distributes, prices or advertises its products and/or services.

Consumer services

Consumer services have a high transaction frequency and must locate in close proximity to their customer base in order to deal directly with them. Like retail tenancies, consumer services often locate in centres to minimise trip generation and benefit from convenience good attractors. Consumer services can include real estate agents, travel agents, shoe repair, dry cleaning services and beauty salons.

Employment concentration factors

An employment concentration factor (ECF) represents the concentration of a particular industry within a region compared with that industry's strength within the state (or nation). An ECF of 1.0 means that an industry has the same concentration in a region as it does the state. An ECF of greater than 1.0 identifies industries that employ more workers in a region than the national average for that same industry. By employing more workers than the national average, the industry is producing more goods and services than a region can consume and can therefore export the excess product out of a region.

Measurement of employment concentration factors is useful in urban economic analysis as it provides a strong indication of the agglomeration of an industry or group of industries. Care must be taken as the metric gives no indication of the relative size of the industry, i.e. a region may have a very high ECF with a small number of employees if the industry is small, whilst a low ECF in a large industry may still equate to a significant proportion of employees.

Economic growth versus economic development

Economic Development strategies within Australia rarely quantify employment differences based upon quality and characteristics. The easiest type of employment to generate in regional locations is that which services the local population's needs. In general, approximately 20-30% of required jobs within regional areas can be achieved simply in servicing the local population's needs. Such employment ranges from low productivity retail and service industry jobs, to knowledge intensive consumer services (KICS) including medical care (GPs and Hospitals), education (schools, TAFE and teaching universities), and transient jobs including construction. As it relies on a relatively local catchment of expenditure, employment expands in response to population growth.

Spatial economic activation may allow centres to capture greater proportions of expenditure, as may changing the user mix of the area (increased residential density, greater

workforce), however such employment will hit a 'glass ceiling' in relation to the population it serves. It should therefore be considered a function of economic growth rather than economic development.

In contrast, economic development results from the attraction of new expenditure from external markets through the production of knowledge, goods or services that are of perceived value to these markets. Such activity results from the development of competitive value propositions, efficient supply chains, and available local expertise and resources to bring goods and services to the market.

Within Australia, a majority of economic development is oriented towards the exploitation of finite resources (e.g. minerals, energy, forestry and fisheries). Such activity drives economic development through the extraction and transport of resources to external markets. Whilst highly productive, such industry is not by its nature sustainable, as the ability to generate economic outputs is diminished once the resource is exhausted.

The development of a resilient economy needs to augment the exploitation of resources with the development of knowledge intensive export-oriented (KIEO) industry. Outputs from KIEO activity are potentially infinite as long as innovation continues.

Metrics: employment quantum, employment quality

Employment type

Employment quality can be measured as the knowledge-intensity or export-orientation of an industry. Pracsys modelling applies a weighting to each 3-digit ANZSIC industry to classify the jobs in that industry within a particular region or LGA, as:

- Consumer Services (including retail)
- Producer Services
- Knowledge-Intensive Consumer Services
- Knowledge-Intensive Producer Services
- Export-Oriented

Appendix 1 contains a detailed description of industries within each category. These categories can be further aggregated to population-driven employment and strategic employment. Population-driven jobs are those which arise as a result of direct spending on goods and services by the local population. Strategic jobs include employment in export industries and knowledge industries that capture external sources of income to be injected into the local economy.

Economies need a mix of both population-driven and strategic employment, to ensure that quality of life is driven by economic development as well as provision of amenities, services and lifestyle choices.

Endogenous growth structures

Endogenous growth refers to activity originating from within a region or sub-region. It is the development of export-oriented industries based upon capacity developed internally, although with strong connections to international supply chains and markets. Economic development initiatives focused on endogenous growth explore the structures and systems that foster the internal creation of capabilities and capacity. These structures may include targeted education offerings,

soft infrastructure network development, capital raising structures, logistics structures, telecommunications structures, and encouragement of creative class migration.

A challenge with focusing economic development initiatives on endogenous growth structures is the potential lag between investment and results. These interventions take time and are unpredictable in their results. They therefore require governance that is willing to take a strategic point of view.

Export-oriented activity

Export refers to jobs in industries in the subject area of study has a comparative advantage - deemed strategic due to growth and development through exports and the inflow of funds. Export jobs are producer services, however they occur in strategic industries such as mining, oil and gas and defence. Export jobs are likely to be hands on, involving the physical construction of a marine vessel or operation of machinery on a mine site - as opposed to the mathematical or scientific analysis carried out by KIPS. Strategic industries tend to require physical infrastructure, such as ports, airports or universities.

Food Hub

There are three typical roles that a food hub can play:

- A packing facility which also offers distribution services through which small local farms can get their produce to market;
- A shared infrastructure provider with facilities for regional farmers to process their food; and
- An organisation that markets regional produce, grows regional food businesses and sustains a premium regional brand.

Knowledge economy

An economy directly based on the production, distribution and use of knowledge and information.

Knowledge intensive consumer services

Knowledge intensive consumer services are those specialist services that deal directly with consumers, yet typically have a higher productivity and lower transaction frequency. KICS provide a skilled service to consumers that usually requires a higher level of education or training. Depending on the scale of their catchment, KICS may choose to locate within major or regional centres, or larger business districts with greater soft infrastructure and amenity levels. Examples of KICS include general practitioners, accountants, veterinarians and legal services.

Knowledge intensive producer services

Knowledge intensive producer services involve businesses dealing directly with other businesses, rather than consumers. Transactions are less frequent, however generally have a higher monetary value, due to the intellectual property or knowledge involved. KIPS businesses often locate near their client businesses, although with low transaction frequency and good communications infrastructure, they are to an extent 'footloose'. This means they can choose to locate in places with relevant physical infrastructure, high retail amenity, or soft infrastructure such as access to a solid education base. Examples of KIPS are

engineers, architects, medical scientists and computer software developers.

Localisation economies

Localisation economies are the result of a number of firms and enterprises (including research institutions, not-for-profit organisations and government departments) in complementary industries and supply chains locating in the same area. Localisation economies are the result of one or more of three factors. These are:

- Availability of specific skilled and specialised labour
- Availability of specialised/essential inputs at a more competitive value due to economies of scale
- Increased efficiency in knowledge transfer/technology, spillovers/ collaborations and partnerships due to proximity of partners

Major project attraction

Many regions and sub-regions devote significant resources to the attraction of major industry projects to their locality as such projects provide impetus for economic development. To truly consider the long-term consequences of the arrival of such projects, a number of factors need to be assessed.

Firstly, the choice of location for a major project to an area should focus upon the comparative advantages of an area across the drivers of competitiveness, rather than be based upon short-medium term preferential public sector treatment. While tax incentives can attract significant activity particularly during labour-intensive construction phases, with states competing for the establishment of firms and projects, over time firms can be offered a better deal elsewhere and follow the cost saving. Such project attraction will therefore be unsustainable.

All negative externalities associated with projects need to be fully considered when calculating the economic impact. Major industrial initiatives may seek areas with lenient environmental controls. They may bring significant employment opportunities to the local population and economic activity into the area however may create long-term negative externalities such as pollution that are paid for by the community over generations to come. Regardless of whether a region or sub-region considers these costs worth the benefits, the costs should be explicitly considered.

Finally, the attraction of a major project can provide significant opportunities to develop new capabilities within a local economy, fostering economic development outcomes multiplied beyond those generated by the project. Extensive planning should be undertaken during any major project to maximise the development and benefits. For example, resource extraction projects out of Gladstone have not simply focused on providing infrastructure to meet the needs of individual projects, but have also developed a strong complementary industry support sector. The proliferation of knowledge-intensive producer services (KIPS) benefit the development of local communities, whilst also able to export knowledge, goods and services to external markets.

Supply chain augmentation

All regional and sub-regional economies have characteristics that could be better exploited for the economic benefit of the area. In particular, strategies should examine areas where a competitive value proposition has already been proven through the development of strategic industry. Typically economic development initiatives that fall within this category focus on the vertical or horizontal augmentation of industry supply chains.

Vertical industry supply chain augmentation seeks to expand local economic activity through development or attraction of industry suppliers and customers to the area. Examples include the establishment of local supply alternatives, the secondary and tertiary manufacture of local raw materials, and the application of by-products.

Horizontal industry supply chain augmentation seeks to utilise existing capabilities or characteristics in a different way to develop new value propositions. Examples include the utilisation of industry skills or the utilisation of materials.

Urbanisation economies

Urbanisation agglomerations of activity result from the general benefits that a firm will gain from locating in a particular urban environment. This includes access to general labour pools, access to financial and commercial services and proximity to transport and communication networks.

A4

APPENDIX 4: GREAT SOUTHERN OPPORTUNITY TABLE

This has been included as a separate attachment to facilitate legibility and printing

A5

APPENDIX 5: ILOMS

12.1 INDUSTRIAL LAND ONLINE MANAGEMENT SYSTEM BACKGROUND

Pracsys was commissioned by Landcorp to develop a methodology that forecasts demand for industrial land in Western Australia. The practical application of the model in the future will be to provide the information to better plan and anticipate the land and infrastructure needed to accommodate strong industry growth throughout the state, accounting for each region's competitive advantages. This study stemmed from a limitation noted in previous studies which primarily focused on general and light industrial land; a small component of industrial land demand. The original studies omitted strategic and specialised industrial land, which may result in industrial growth being restricted in Western Australia. Pracsys proposed to develop the Industrial Land Online Management System (ILOMS) with the capability to forecast both general/light and strategic/specialised industrial land by providing users with up-to-date forecasts which can be continually revised and tested under various scenarios. The development of ILOMS was broken into two parts:

- Phase 1.1: Develop a model that will forecast demand and supply for general/light and stratefgic industrial land in Albany, Denmark and Plantagenet.
- Phase 1.2: Expand phase 1.1 to incorporate the whole state (WA) and publish model online.

The proposal submitted to Landcorp was to develop the phase 1.1 only, with the second phase subjected to further approval by Landcorp.

12.2 METHODOLOGY

Phase 1.1 has been developed in two separate parts due to the contrasting nature of general/light and strategic/specliased industrial land. This is due to the belief that general and light industrial is driven mainly by population growth. For example, as the goods and services provided by general/light industries are largely aimed at local consumption, determining anticipated demand for general/light industries becomes a function of population growth, participation rate and known industry benchmarks. Strategic/specialised or heavy industry land demand however is ultimately dependent on the type of project, which in turn dictates the area and number of employees required. This land would form 'project ready land' that could be used to analyse the capacity for strategic opportunities that want to locate themselves in the Region. Therefore, an understanding of the project pipeline is an important factor to understanding potential infrastructure and land requirements. The methodology used in developing the ILOMS model is detailed below.

12.2.1 Conduct a supply audit

Goal: To identify existing supply of industrial land and current industries/land uses

Tasks:

- Identified boundaries for supply audit, in the initial phase three local governments defined the study area (Albany, Denmark and Plantagenet);
- Identified location of industrial land using combination of PLUC codes and liaising with Landcorp and Local Governments;

- Aligned businesses that are situated within the industrial land boundaries to Landgate spatial layers;
- Classified businesses into their respective ANZSIC three industry classification; and
- Separated businesses into general/light and strategic/specialised

Outcome: The supply of general/light and specialised industrial land was input into the model to conduct gap analysis.

12.2.2 Calculate anticipated demand

Goal: Create industrial land demand forecasting model to assess future land supply and specifically 'project ready land'.

Tasks:

- For general/light industrial land
    - o Calculate demand for industrial land using a function of population growth (using WA Tomorrow Band C and Forecast Id estimates), participation rate, and employment;
    - o Calibrate model with consultation with local governments/Landcorp; and
    - o Determine additional land required to meet industrial demand.
- For strategic/specialised industrial land
    - o Consult/survey with key stakeholders to identify upcoming projects, preferred locations, infrastructure/land requirements and potential number of employees; and
    - o Input data into model.

Outcomes: Forecast of industrial land demand under various population scenarios for each local government region. LandCorp is in the process of completing the project ready analysis, which requires a better understanding of existing services and capacity at macro levels, followed by an understanding at local levels

12.3 DEVELOP MODEL USER INTERFACE

Goal: Create a summary page/user interface for ILOMS

Tasks:

- Graph existing and anticipated demand
- Add user dropdowns and scenario modeling options
- Summarise key information to meet user specifications
- Add required links to external data sources

Outcome: User can summarise information and conduct basic scenario analysis

12.4 ILOMS FUNCTIONALITY

The aim of ILOMS is to have an online system that allows intelligence to be gathered using a variety of sources (local governments, regional coordinators, key stakeholders and local town based information sources). Therefore creating a structured communication tool between Landcorp and the local governments by providing a transparent view of the industrial land situation in each locality in the state.

The ILOMS model allows users basic scenario modeling functionality through the following options:

- View demand by local government region
- Change the area units (hectares, meters squared, kilometers squared)
- Remove/include projects based on an estimated probability of project proceeding
- Change the population growth assumptions
- Change economic growth rates

The model can assist officers in, local governments, development commissions, LandCorp and even the other infrastructure and service delivery agencies. However, it needs to be understood in context as one of many decision support tools needed to apply to the decision making process.

12.5 CURRENT STATUS

The proposal submitted to Landcorp was to develop phase 1.1 only, the decision to develop phase 1.2 is at the discretion of Landcorp. At this stage the model was handed over to Landcorp on 05 June 2015 with no further development work required at this stage.

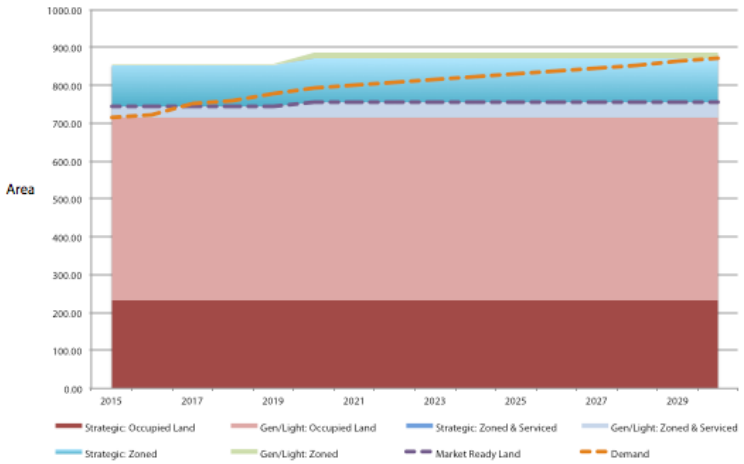
Figure 62. Albany ILOMS Output

Industrial Land Forecasting Model
LandCorp

Location: Albany

Units: ha

Minimum Probability: 60%



Forecast Year: 2015

Land Type	General/Light Industrial Land	Strategic Land	Total
Occupied Land	482.58	232.77	715.35
Zoned & Serviced	29.52	0.00	29.52
Zoned	0.68	110.00	110.68
Market Ready Land	512.10	232.77	744.87
Demand	482.94	232.77	715.71

Top Five Industries in Albany

Rank	Industry	# of Sites	Average Lot Size (m2)
1	Automotive Repair and Maintenance	49	2,331
2	Road Freight Transport	20	9,079
3	Hardware, Building and Garden Supplies Retailing	15	3,221
4	Building Completion Services	11	4,743
5	Pharmaceutical and Other Store-Based Retailing	11	4,284

Total Industrial Land for Albany, Denmark and Plantagenet (ha)

Land Type	General/Light Industrial Land	Strategic Land	Total
Occupied Land	507.97	307.40	815.37
Zoned & Serviced	44.40	0.00	44.40
Market Ready Land	552.36	307.40	859.76
Zoned	145.66	281.41	427.06
EOI	2.06	173.29	175.35
Total	700.08	762.10	1,462.17

Population Forecast: WA Tomorrow

Economic Growth Rate: 3.34%
WA Treasury Economic Outlook

Land Type: All Industrial Land

Figure 63. Denmark ILOMS Output

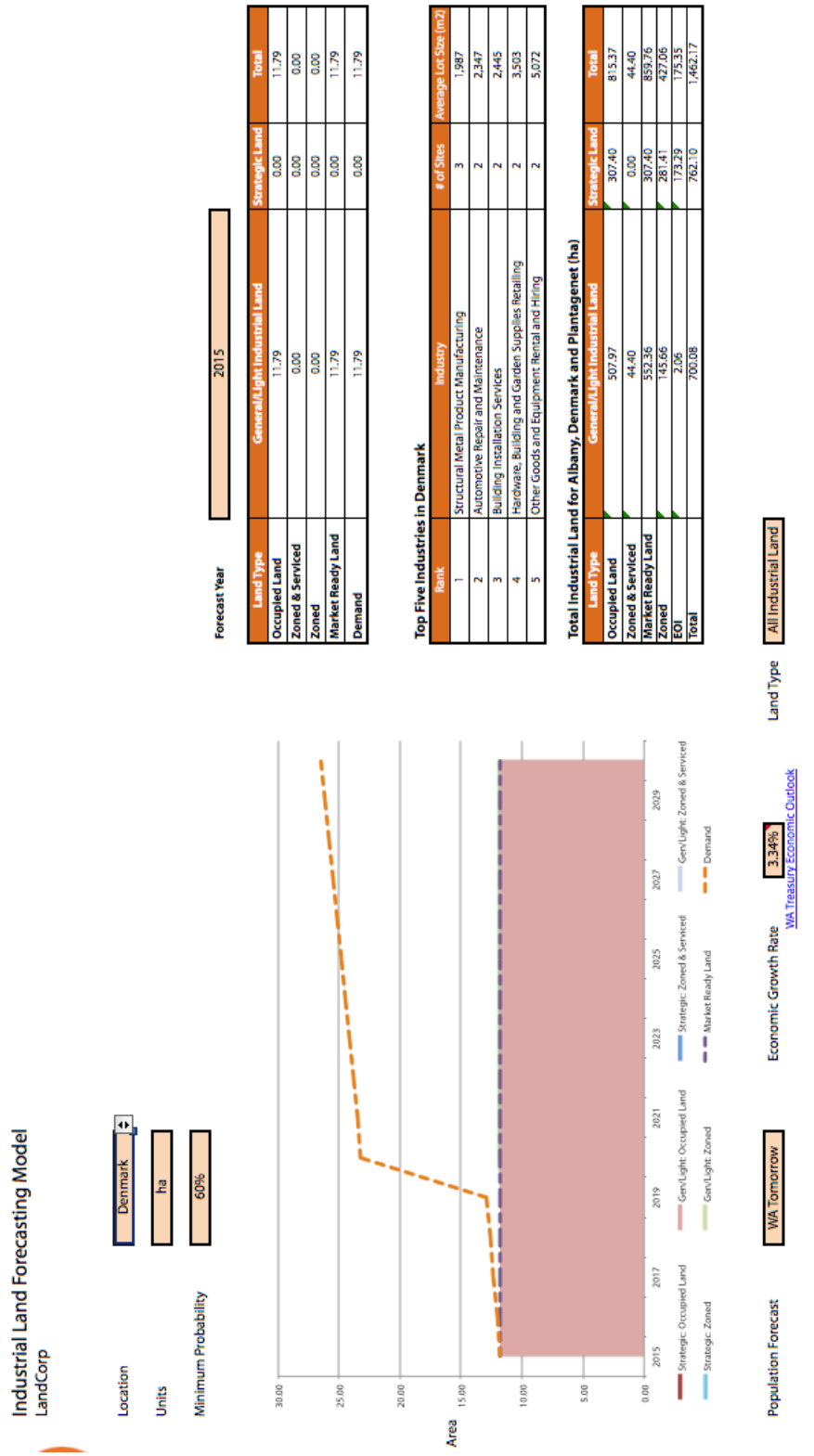
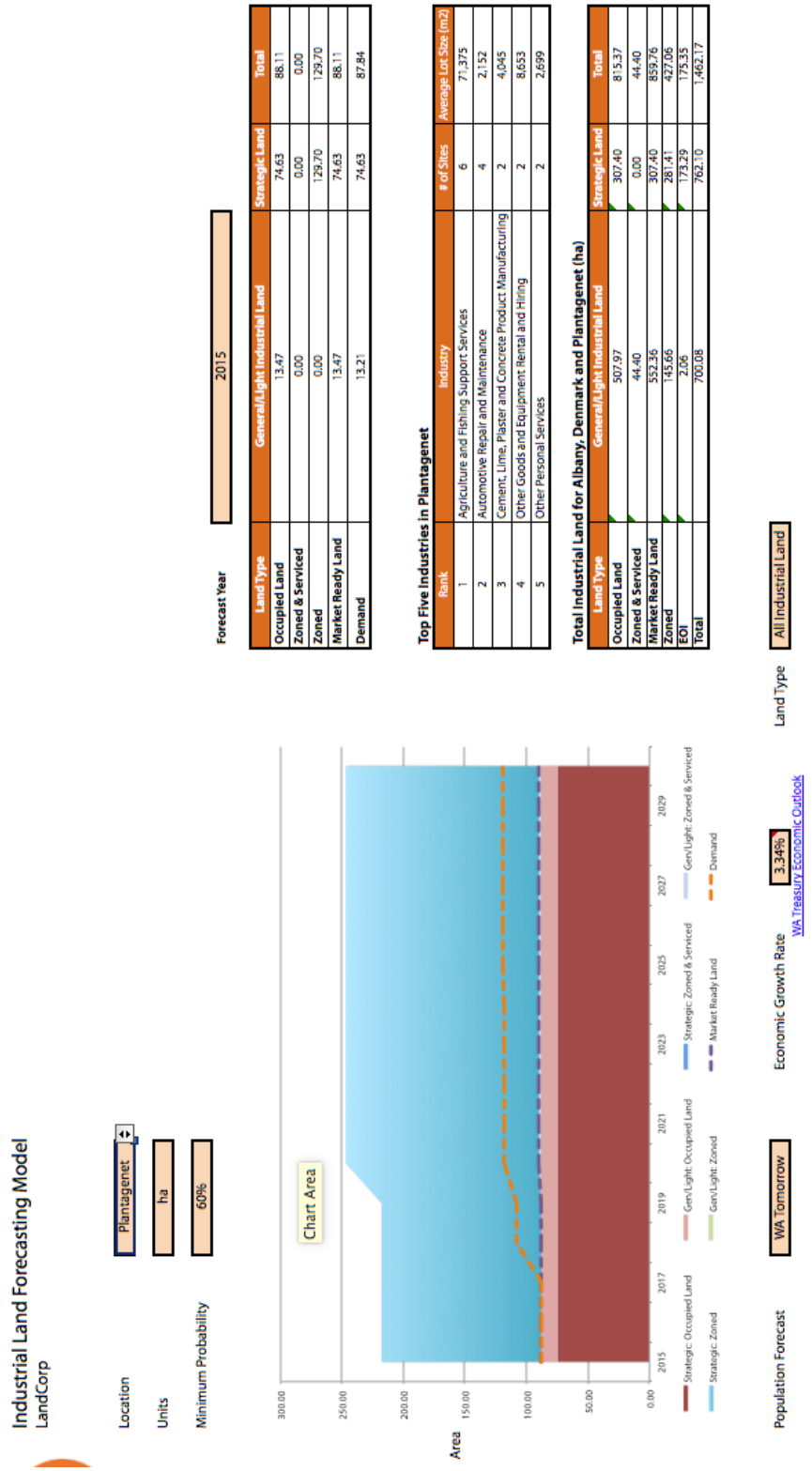


Figure 64. Plantagenet ILOMS Output



Land Type	General/Light Industrial Land	Strategic Land	Total
Occupied Land	13.47	74.63	88.11
Zoned & Serviced	0.00	0.00	0.00
Zoned	0.00	129.70	129.70
Market Ready Land	13.47	74.63	88.11
Demand	13.21	74.63	87.84

Top Five Industries in Plantagenet

Rank	Industry	# of Sites	Average Lot Size (m2)
1	Agriculture and Fishing Support Services	6	71,375
2	Automotive Repair and Maintenance	4	2,152
3	Cement, Lime, Plaster and Concrete Product Manufacturing	2	4,045
4	Other Goods and Equipment Rental and Hiring	2	8,653
5	Other Personal Services	2	2,699

Total Industrial Land for Albany, Denmark and Plantagenet (ha)

Land Type	General/Light Industrial Land	Strategic Land	Total
Occupied Land	507.97	307.40	815.37
Zoned & Serviced	44.40	0.00	44.40
Market Ready Land	552.36	307.40	859.76
Zoned	145.66	281.41	427.06
EOI	2.06	173.29	175.35
Total	700.08	762.10	1,462.17