PERTH'S RURAL DIVERSIFICATION PLANNING STRATEGY

Briefing Paper

Towards Agri-Precincts in Peri-Urban Perth

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PART ONE: INTRODUCTION

Peri-urban Perth is home to 32% of Perth's population and is the food arc for Greater Perth. It is a highly dynamic environment with a complex mix of economic and social activities and extends over a physically variable land area. peri-urban Perth is home to nature reserves, productive agricultural and horticultural land, water reserves, retail precincts, new and established housing estates, small rural landholdings, transit corridors and industrial precincts, amongst other land uses. It is also an area that is particularly rich in historical and cultural value. As Perth moves towards supporting a population of 3.5 million, careful consideration needs to be given to enhancing the social, economic and environmental sustainability of Perth's food arc. The outward expansion of mid and high density housing into peri-urban Perth has generated considerable land use conflict.

This report focuses on identifying opportunities for progressing the long-term sustainable development of the peri-urban area, taking into account the needs of the Greater Western Australian population and economy. It aims to provide a critical reference for informing discussions about the future of peri-urban Perth. This report was developed in line with the principles of sustainable scenario planning for peri-urban environments, as outlined by Pearson et al. (2010).

The report is structured into three parts. Part one sets out recommendations for the strategic planning of peri-urban Perth. Parts Two and Three provide contextual evidence for the recommendations. Part Two describes the demographic character of the area, highlighting the considerably variability between the different local government areas. Part Three summarizes findings from a series of interviews with stakeholders arguing that each local government area has a distinct, and valuable, socio-cultural character.

Key Findings

- Peri-urban Perth is socially, economically and culturally diverse.
- This diversity results in variable employment patterns, growth trajectories and concentration of skills and unemployment across the region.
- There is a desire to retain the agricultural nature of peri-urban Perth for food security and tourism.
- Given the current diversity, limited resources and the continued pressure on peri-urban Perth to address long-term sustainable development, there is a need for an integrated planning strategy that incorporates the complexity facing planners in this diverse region.

- A comprehensive and cross-jurisdictional strategy for peri-urban Perth's 'food arc' is required to maintain and enhance the production, profitability and sustainability of agriculture in this area.

- Peri-urban Perth needs distinct agri-precincts that support industry, innovation, tourism, high value production, sustainable growth and investment opportunities within the region.

- To maximize economic returns for peri-urban Perth, innovation is required to address a wide range of issues to make agri-food production more efficient.

- Building capacity in agriculture needs to take into account the unique requirements for the peri-urban agri-food sector.

- Peri-urban production can embrace a wide range of mixed-use activity, encouraging new business investment and increased job growth.

- While a significant contributor to peri-urban Perth, equestrian activity and numbers have been identified as a major knowledge gap for further work to be undertaken.

Recommendations

The Western Australian Planning Commission needs to establish agri-precincts in the land-use planning system and policies to provide certainty and support for them. These should be located throughout peri-urban Perth.

Economic development requires investment and investment will only be made with a degree of certainty. There were various comments relating to this situation, but the Swan Valley was the most compelling. If the viticulture character of the Valley is to last and be an enduring springboard, then significant legislative change is required, as outlined in the Swan Valley review completed in November 2013.

The processes to establish such change also require an improved collaborative approach from Department of Planning (DOP), which is seen as either remote or tokenistic in undertaking creative collaboration, as opposed to statutory discussions. Precinct development needs to focus on the following areas:

- High value (intensive) production precincts – there are parts of the Perth region that still have adequate soil profiles suitable for in-ground production. These areas need to be preserved to offer long-term food security for the region.

- Agri-tourism precincts – while some parts of Perth are still in production but not contributing to larger commodity markets, there is a desire to preserve these areas for tourism development. These precincts require flexibility in zoning for a range of mixed use applications such as accommodation and small scale value adding.

- Agri-industrial precincts – Peri-urban Perth still has a number of industries that require buffer zones that are being pushed out by urban development. There needs to be a dedicated precinct specifically for these industries that will offer long term security to businesses needing a place to relocate to.

Western Australia and Perth already lag significantly behind Melbourne and Brisbane in recognising the importance of peri urban agricultural production, and far behind Adelaide in giving legislative certainty to a nationally significant area of viticulture.

The Department of Agriculture and Food Western Australia (DAFWA) seems not to have been afforded the influence of its knowledge and skills in this regard, to work collaboratively to achieve this economic development objective.

There must be innovation in provision of infrastructure to address the economic development issues and opportunities facing peri-urban Perth

In the reasoning of economic rationalism, the expenditure on high-cost traditional infrastructure requires a minimum volume level of demand to warrant the investment.

This is one of the greatest philosophical changes to impact on the evolution of our settlements, with the transition from the expectation that government would build own and operate such infrastructure, to the various investment and operational models now in place, with public/private partnerships, service contracts, government trading enterprises and private sector services.

The provision of water, sewer, electricity, gas and similar services is problematic in areas beyond urban development, unless there is a major user.

Significant sections of peri-urban Perth are not well served by infrastructure.

Different models of service supply are both warranted and technically possible. Sometimes, the legal impediments to innovative investment mean that nothing can happen either through traditional methods or new ones. The Health Act has been an impediment to such innovation and its current review (although going for some 6 years) will radically alter the 1911 Act, which is currently unable to allow the innovation described in this document. The Public Health Bill, currently before parliament proposes to replace much of the existing Health Act 1911.

With impacts of climate change on water resources and the need to reduce nutrient loads into the environment, innovation and technology need to be developed that increases point source, closed-loop systems for agri-food production. This includes but is not limited to irrigation districts, recycling water, glasshouse production and aquaculture.

The innovation is not limited to the items mentioned briefly, but can come in the form of land management, as described by both the Perth NRM and Peel-Harvey Catchment Council.

Innovation requires more than token acknowledgement if it is to drive the flexible changes so badly needed to stimulate and define the potentials of peri-urban Perth.

Agriculture needs to better embrace the economic opportunities presented through transition to high-value production

There is a plethora of information about agriculture resting in DAFWA and anecdotally, the production opportunities in much of the peri-urban area seem to have scope for change.

Peri-urban food production is often undertaken on a smaller scale and requires alternative systems for effective and efficient production, distribution, management, marketing and product development. This moves food production from high volume/low value systems to low volume/high value systems that supply resources, services and products to the greater metropolitan area and opens up new global markets.

The long-term certainty of land tenure and zoning must be in place to allow this industry to have financial confidence. This is the clear message from speaking to leaders of production in the Swan Valley, and asking the question of local government through these discussions.

Early in this process, DAFWA accurately commented that there will need to be some clear definition of the terminology used. This will be a related and important aspect so clarity is achieved.

PART TWO: DEMOGRAPHIC CHARACTERISTICS OF PERI-URBAN PERTH

Peri-urban Perth is formed by the Local Government Areas (LGAs) that share borders with the Wheatbelt region (to the north and east), and the Peel region (to the south). The LGAs of peri-urban Perth are Armadale, Cockburn, Gosnells, Kalamunda, Kwinana, Mundaring, Rockingham, Serpentine-Jarrahdale, Swan and Wanneroo. Each LGA has a unique settlement history and contemporary socio-economic function. This section summarises the social, economic and cultural resources and capacities of peri-urban Perth.

Population Growth and Migration

Peri-urban Perth was home to 76,000 people in 2011. Between 2006 and 2011, most of Perth's Peri urban LGAs experienced a population growth rate considerably higher than the Perth metropolitan average. This was most noticeable in the southern LGA of Rockingham, and in the northern LGA of Wanneroo. These two LGAs accounted for nearly one third of Greater Perth's total population growth over the intercensal period. Population growth in these areas was the result of the release and development of land for medium density housing estates. Furthermore, much of the growth resulted from people moving from elsewhere in Greater Perth into these new housing estates.

The largest population growth rate over the intercensal period (2006-2011) occurred in Serpentine-Jarrahdale, where the population increased by 37.64%. However, given the small size of the base population, this only equated to an additional 4,800 persons. The majority of people moving into Peri-urban Perth moved from elsewhere in Greater Perth. Interestingly, there was little change across the two intercensal periods regarding the origin of in-migrants, indicating that Greater Perth has been the largest contributor of in-migrants for some time. However, that noted, there was a small increase in the proportion of migrants who had moved from overseas between 2006 to 2011 compared to the earlier period. This increase correlates to an overall increase in international immigration to Perth during the 2006 to 2011 intercensal period.

Population Ageing

Peri-urban Perth has an ageing population. However, the rate of ageing is lower than that for Greater Perth and markedly lower than the Australian average. Importantly, there is considerable diversity in the spatial distribution of ageing across the peri-urban area. Kalamunda has 14% of its population aged 65 or older and Mundaring has 13% of its population aged 65 or older. For these two localities their age profiles are similar to other high amenity 'lifestyle' destinations in Australia which tend to attract people who are near or of retirement age.

Contrastingly, localities that have experienced recent and extensive mid density housing development have lower age profiles. This is because typically new housing estates of the style and price point developed in peri-urban Perth attract 'first home buyers' (usually aged 19-44 years).

Ethnic Diversity

In general, peri-urban LGAs have a somewhat higher proportion of their populations from Australia, England, New Zealand and Scotland; and a smaller proportion of their populations from India, Malaysia, Italy, China and Singapore in comparison to non-peri urban LGAs. A notable exception is Gosnells, which has relatively fewer Australian born and English people, and relatively more people who were born in India, Malaysia, China and Singapore. Similarly, Cockburn has a relatively low proportion of English born people and relatively larger share of Italian born people.

Over the decade from 2001 there was little change in the ethnic profile of peri-urban LGAs, indicating the factors that underpin the unevenness in the distribution of the migrant population had not changed.

Education and Skills

Data on the education and skills levels of a population provides insight into the capacity to develop new and expand existing industries. Across the peri-urban area, the population has a lower share of people holding post-secondary qualifications compared to the remainder of Perth. However, noticeably, each LGA in peri-urban Perth has a higher than average proportional share of people holding Certificate level qualifications than the remainder of Perth.

This overrepresentation of people holding certificate level qualification was more noticeable in the southern LGAs of Armadale, Rockingham and Serpentine-Jarrahdale. Contrastingly, there was an overall underrepresentation of people holding university awarded qualifications, with Kwinana having less than half the proportional share of people holding a Bachelor degree than the remainder of the Perth population.

Family and Household Structure

The household and family structure of a region provides insight into whom and why people choose to live in particular areas. The data indicate that the peri-urban area is preferred by couples with children and one parent households with children. On average, approximately half of households in peri urban LGAs were "non family" households (included as "not applicable" in Table 6). This is lower than that recorded for the Perth Metropolitan Region. While peri-urban Perth recorded a higher proportion of

family households, the overall composition of families did not differ greatly between peri-urban and non-peri urban areas.

Like family structure, number of family members per household does not differ greatly between Peri-urban and non-peri urban areas, although non-family households are more common in non-peri urban areas. The most common family size is two family members per household, which makes up just under a third of all households across LGAs. Two and three family member households are the next most common, with larger family sizes progressively less common. The data for family and household structure for peri-urban Perth indicates that the area is 'family friendly' and relatively stable.

Housing

As mentioned earlier the availability of medium density lower cost housing particularly that targeted at the 'first home buyer market' has been important in driving population growth in peri-urban Perth. The tenure type of housing in Perth's peri-urban LGAs reveals that there was a strong preference for residents to own their own properties with 66% of peri-urban residents owning (or in the process of owning) their properties. In Mundaring, Serpentine-Jarrahdale and Kalamunda, which have long been regarded as high amenity lifestyle destinations, there was a considerably higher rate of home ownership with 76, 73 and 72 per cent of the LGA population owning their homes respectively.

Importantly, the high level of home ownership in peri-urban Perth is an indicator of a stable place-committed population. In LGAs where there has been recent growth in mid density lower cost housing, fewer people owned their properties outright. In Wanneroo for example, which has seen the largest housing related population growth, nearly 50% of properties were mortgaged. There was also a higher than average proportion of people renting when compared to other peri-urban areas. This indicates that non-local investors have been attracted to invest in those areas where there has been a rapid expansion of housing.

There was little variation between peri-urban and Greater Perth in regards to occupancy by dwelling type, with the exception of Rockingham where 11% of private dwellings were unoccupied (compared to 8% for the remainder of the peri-urban area and also Greater Perth). Data from the Real Estate Institute of Western Australia indicates that this is due to declining renter and buyer demand for housing in Rockingham. Households with two or more people were overrepresented in the Peri-urban area compared to Greater Perth, emphasizing the 'family nature' of the region.

Employment, Unemployment and Participation

Over the intercensal period from 2006 to 2011, the unemployment rate in the Peri-urban area increased. This increase mirrored an increase in unemployment rate of the Greater Perth population

and also the Australian population. This suggests that the increase in the unemployment rate in the peri-urban area related to macro economic factors rather than localised issues. Interestingly, Kalamunda and Mundaring had comparatively low unemployment rates and also a considerably smaller growth in the unemployment rate than the average for the peri-urban area. This indicates that these areas might be more resilient to absorbing the impacts of macro economic downturns. There was variability in the rate of change in the participation rate between peri-urban LGAs. The participation rate increased the most in the Kwinana and Rockingham; while it decreased in Kalamunda and Mundaring. These changes reflect a 'rebalancing' of the participation rate rather than underlying structural issues in the local government areas concerned.

Industry of Employment

While there was job growth in the peri-urban area over the intercensal period, this growth was not even across all industry sectors. The largest growth rate was in the mining industry, with 7600 new jobs across peri-urban LGAs. The biggest increase in mining employment was recorded in Wanneroo and Kwinana. Importantly, those working in the mining industry travel outside of their LGA for their employment, with many participating in long distance commuting arrangements. High growth was also recorded in professional, scientific and technical services; which accounted for nearly 6500 new jobs across peri-urban LGAs.

In terms of the absolute number, the largest growth industries were construction and healthcare and social assistance, with 11,000 and 9000 more people working in these industries. When considering the industry of employment for the peri-urban population there was an overrepresentation of people employed in the agricultural, forestry and fishing; manufacturing; construction; wholesale trade, and; transport, postal and warehousing.

There was an underrepresentation of people employed in information, media telecommunications; finance, insurance and technical services; education and training, and; arts and recreation services.

When considering the industry of employment for each LGA in peri-urban Perth there was considerable variability in patterns of overrepresentation and underrepresentation. Considering wholesale trade for example, there was an overrepresentation of residents from Armadale, Cockburn, Gosnells, Kalamunda, Kwinana and Swan employed in this sector. There was an underrepresentation of Rockingham residents employed in this sector. For the administration and support industry, there was an underrepresentation of peri-urban residents employed in all LGAs except Kwinana. Similarly, there was an underrepresentation of peri-urban residents employed in the arts and recreation sector except for Serpentine-Jarrahdale.

The agricultural sector is an important employer of peri-urban residents. It is also an important source of employment for residents of neighboring jurisdictions.

PART THREE: DIVERSIFYING AND ENHANCING URBAN AGRICULTURE

Introduction

The lack of land-use planning recognition of peri-urban productive land and the economic development potential and likely importance of these areas, has generated this base report about the general circumstances of peri-urban Perth. In particular, the key role of local government in needing and becoming a collaborative framework for economic development achievement is explored.

Peri-urban councils cover a majority of metropolitan Perth, with a highly variable percentage of agricultural production and food-chain industries in each of their jurisdictions.

They can be grouped into three "character" subregions:

- Agri-engine room – focussed on Wanneroo with large scale market gardening and emerging transport;
- Agri-tourism – focussed on Swan, Mundaring and Kalamunda, which are visitor attractive; and
- Agri-industrial – focussed on Armadale, Cockburn, Kwinana, Rockingham and Serpentine-Jarrahdale, key production, with transport and industry.

The grouping does not exclude elements of each characteristic from any council, but reflects broad generic qualities.

The interviews held with each council, used four discussion points to cover local, regional and state perspectives according to circumstance:

1. Common issues and threats across peri-urban agriculture;
2. Supply chains within the food sector covering internal metropolitan relationships and external state level relationships;
3. Identification of existing food industry clusters; and
4. Desirable strategic outcomes and both the local and state levels

Following the interviews with peri-urban local governments, the second round of engagement was with the following agencies and regional groups, using the same four discussion points.

- Perth Region NRM (Perth NRM)

- DAFWA
- Peel Development Commission (Peel DC)
- Wheatbelt Development Commission (WDC)
- DOP
- Peel-Harvey Catchment Council (PHCC)

There was a marked variation in the emphasis and extent of the answers to each, which was unsurprising and educative.

Each local government and agency has extensive information and offered generous access to it. This will likely be accepted in detail later on. All of them understood the imperative of this simple foundation report, to create and/or build collaboration while maintaining a strategic focus which harnesses shared values.

Common Issues and Threats across Peri-Urban Agriculture

In a number of discussions with stakeholders in the study area, some common themes and issues emerged.

Broad observations:

- The absence of a regional perspective about this topic
- The need for profitable production on productive land
- Lack of a State entity for Perth economic development
- The negative impact of land use planning in neither recognising nor giving certainty to production
- The unclear impacts of dislocated production and economic inefficiencies
- Extensive impacts of land transport corridors
- Domination of urban land use at any price or cost
- The urban development pressure has been central and instrumental in dislocating peri urban agriculture
- There are bio-security and pest and disease issues requiring focus to ensure quality production
- Zoning issues and administrative inconsistencies are routine.

The absence of a regional perspective for the peri urban agricultural land was widely acknowledged. This was regardless of the actual amount of productive land in any council, but rather the perception that

decades of seemingly unco-ordinated decisions has left the disjoint precincts and associated issues of logistics.

Both Kalamunda and Swan exemplified the economic issues of productivity and the need for restructuring of land-holdings, to make production profitable. There are significantly large areas where the old allotments have been operated the same way for a lifetime, but are now showing the negative effects of lack of investment, lack of family commitment to work in the industry and lack of scale to be profitable.

A comparison was made between Perth and Brisbane, where the latter appears to have a more positive attitude and supportive zonings for the peri-urban agri precincts. This seems driven by the recognition of the importance of this land with proximity to keep transport costs and products costs lower than otherwise.

This is reflected in the Lockyer Valley Regional Council (Qld) Planning Scheme. The Planning Scheme 6.2.2 "Overall Outcomes for Rural Areas", point 1

"*Good Quality Agricultural Land (GQAL) within the Shire is protected and forms the major economic base for the Shire*"

The economic development significance of peri-urban agriculture has no advocate in the state government system, where there is neither an economic development agency for Perth, nor any discreet zoning in the state planning system.

Many outer Perth councils noted that they employ economic development staff and work within their jurisdiction, but there is no link to the State in either a broad policy framework or in practical programs for economic development.

Planning in Western Australia's uniquely centralised system has been all about land use and little strategy. Directions 2031 (Perth Metropolitan Strategy) did not offer strategic certainty for productive lands in the same way as for urban development.

However, the Draft *Perth and Peel@3.5 Million* (pp 50-51), acknowledges the extensive loss of "suitable agricultural land" which includes market garden production, poultry, cattle and agistment, and could include many more uses.

The document acknowledges the economic and food quality benefits of retaining food production areas close to the consumers. Transport costs and freshness of produce are the two key considerations.

Rural residential zoning has allowed extensive tracts of productive land to be transformed into mostly non-productive lifestyle premises. All councils have views on the efficacy of this policy and the zoning.

Perth and Peel@3.5 Million also acknowledges this (p 51) noting "rural living provides alternative lifestyle and housing opportunities, but can place additional demand on community and service infrastructure that is difficult to meet." It continues by noting a process of reconsideration of some of these potential areas.

The creation of industrial parks, such as the very large Latitude 32, is a common situation for many councils. Latitude 32 is of central importance to both Cockburn and Kwinana, whilst Wanneroo, Swan, Armadale and Rockingham all have major sites. The zoning of these sites is the determinant of whether agri-food businesses can locate there. Cockburn noted that Latitude 32 is not a site for agricultural-related businesses, so its presence has contributed to the relocation pressures on productive land.

Whilst these provide significant employment opportunities, the jobs can have little correlation to the workforce or skills of the immediate area. Whist there can be argument that people can move to be closer to employment, it is the usual preference to travel, as locational choice is influenced by key factors other than employment. These include the workplace/s of other family members, education and health services, family links and housing options and prices.

Local governments had mixed anecdotal evidence about the influence of the agri-business food chain/supply chain in locating and designing industrial parks. It seems to be a laissez faire approach by individual business, with little or no sense of intended clustering or planned intervention.

Land transport corridors (usually roads) and the land requirements for logistics were almost universally raised. In Gosnells, where there is little direct agri precinct activity, the impact of the transport corridors for large scale haulage, was well understood and acknowledged in the overall strategic setting. In Armadale, where there is extensive expansion of transport and industrial land, it is a major issue.

For Serpentine-Jarrahdale, Kwinana and Cockburn there is the high-level State strategic issue of the Southern Link Corridor, providing linkage from the Wheatbelt to the grain shipping terminals in the Fremantle Port jurisdiction. For Armadale the same issue is expressed in dealing with the Outer Harbour destination with the current transport corridors.

The availability, cost and policies of water are a common theme of perception in Wanneroo, Swan and Kalamunda. Whilst there is contact with the Department of Water, local government believes the lack of industry unity, profile and economic recognition makes the successful resolution of this and similar major State policy issues, very difficult for them.

The encroachment of incompatible land uses, especially housing is a universal and pervasive threat to peri-urban agricultural production. The sheer speed of land acquisition, and the impact of private land banking, with the extent and the failure of the planning system to value and recognise it as a significant land use, is the basis of every interviewees' deep concerns.

The Department of Planning acknowledged that the planning systems do not give the recognition which is identified and sought by organisations in the agricultural industry.

The initial conversations by RDA Perth, with local government and agencies, reveal differences in focus on whether and how local council decisions are reflecting a value of these areas. Urban encroachment on established businesses is an unresolved matter. The lack of strategic planning for separation/buffers in creating housing, leads to conflicts with long-established agricultural businesses.

DAFWA noted:

"The Department of Health recognised some of these issues and released their 2012 guidelines for separating residential and agricultural land use in response."

The State land-use planning system is very poorly regarded in its treatment of Perth's peri urban agri-precincts. It received no positive comment. The release of the Draft *Perth and Peel@3.5 Million* appears to be an initial response to this criticism.

Perth NRM highlighted the impacts of invasive species in bio-security issues (e.g. Californian table grapes; New Zealand apples) and with pests and diseases.

It noted the long-standing policy struggles about "right to farm" and broadly cited conflicting policies of government and a lack of collaborative processes, which preclude resolution and improvement.

The inconsistencies of local government land-use planning are a serious frustration to wider, strategic achievement.

Elsewhere, there was reference to a difference between DAFWA and others over the agricultural potential of some areas. The focus is about recognition of land options and economic opportunities, which are outside the mainstream policies and/or programs.

Compared to the encroachment threat, these divergent views are potentially solvable within a collaborative framework, such as this project.

Further scrutiny of the State's water policies and a more forensic analysis of local government's difficulties with them, would be highly beneficial, to better separate any perceptions form reality, on both sides.

Close observation of the responses to the *Perth-Peel@3.5 Million* in respect of its acknowledgement of the existence of peri-urban agricultural issues will be worthwhile, as it is the first small opening of the topic in the State Planning paradigm.

Supply Chains within the Food Sector Covering Internal Metropolitan Relationships and External State Level Relationships

Broad observations:

- The interest in large-scale, high end opportunities for processing and production
- The importance of an uncomplicated transport vision
- The needs and opportunities for analysis linking optimum land use with understanding of value adding and markets.
- Opportunities to analyse and promote agri precinct land use in a framework of high values/high quality/ high profile marketing
- The scope and description of supply chains is very wide – by definition.
- There is no immediately obvious story about the economic development circumstances or opportunities for peri urban Perth.

This point has the greatest diversity of answers and perspectives.

There is a recurring theme centred on the uncomplicated vision, or perceived lack of it, by not having a logistics strategy and conceptual route framework for transport and storage in agriculture. For Mundaring, it included the strategic impacts of the Perth Airport Study and the now very aged, undelivered "Orange Route" for the Great Eastern Highway.

Wanneroo has identified Neerabup Industrial Estate as a strategic hub for logistics, but is unconvinced that the site and the road links are recognised for their strategic significance. The impact of industries other than agriculture and its supply chains, on this thinking is dominant, so agriculture's potential needs can be lost.

Swan felt there are major planning and development impediments to realising a sound chain of agri precinct and agri business economic activity. This seems to relate largely to the land use zoning which has been the framework for the past decades of conflict and discontent amongst different producers and land owners in the Valley.

There are successful businesses in production and marketing, but there is also a clearly documented disaffection with the perceived failure of the planning system to give clarity and certainty to the economic future of the Swan Valley. The most recent submissions-based report The *Way Forward, Swan Valley Land Use and Management November 2013* has nine recommendations, accepted by Cabinet, but no perceived implementation process in the views of those affected.

Cockburn placed emphasis on the emergence of industries which value-add to basic food being essential for long-term food security.

A business anecdote, from elsewhere, related to an interstate investor's analysis of Perth, commenting that there is little or no focus on food "value-add". It was clear that they were accustomed to an industry with both a better location focus, with land use planning support. They saw no basis of clustering with a very scattered and apparently random location mix.

There is a case for matching the food-processing industry requirements with marketing knowledge and logistics needs in the form of a strategy/framework. Understanding who the clients of the suppliers are is a basic premise to deal with production locations.

There is a need to improve the profile of connections to Perth Airport so that agri products targeted for offshore can be freighted cheaply and quickly. The physical links and geographic relationship to the airport seem overlooked in a strategic context. The Swan Valley is a prime example of an under-used and constrained precinct with extensive economic development options, close to the airport.

Perth Airport was described as a site for offshore/export industries and associated transport, with the domestic industries located elsewhere. The economic development successes of the land use, rely on targeting the industries which are most in need of a particular site to be profitable.

One industry-chain opportunity, of note for its uniqueness, is the concept of changing the disposal of the poultry waste in Kwinana. Instead of trucking it to the Wheatbelt, it may have potential for be part of the fuel mix for a waste-burning energy plant on the coast.

Whilst stretching the definition of "supply chain", this idea is

1. conceptually strategic; and
2. an example of why a regional perspective and collaborative effort would add to the economic development value of the peri urban agri precinct network.

There is a real mixture of local government professional realisation about comparative advantages, infrastructure economic development and the planning systems. When it comes to a focussed discussion on the supply chains, there is no collective, connected regional picture of current linkages.

This is not surprising, nor a matter of professional failure by local government. The topic and the perspective of supply chains, is not an issue of high awareness or high priority. This is arguably a consequence of everyone having to operate in a silo and narrow framework in "doing their job".

There were various conversational forms about the brittleness of Western Australia's food integrity. Examples of water shortages and the perceived and real flaws in the water allocation regime are widely recognised.

There is importance in exporting grains and livestock from regions via Perth's port, especially when containerisation can only be managed in Perth.

The national east-west land transport corridors are key supply chain infrastructure.

Perth's centralised markets and food distribution for major retailers is a key hub.

The importance of a curfew-free airport for optimum transport timetables, allows maximum flexibility in scheduling freight services for rapid overseas delivery of fresh produce.

The supply chain underpins the relationship between the Perth NRM and all the other players including local government. With that status, Perth NRM sees a clear need for institutional reforms, to achieve positive change and efficiencies.

In the production context, the need to strengthen a two-way development of agriculture was noted, currently curtailed by some dysfunctionality of the supply chain.

Pressure towards a vertically integrated model, to have better control of the chain, means a commitment to value-add. By doing that the profits can increase, providing funding to look after the land and keep it optimally productive.

This portrays a picture of the value-chain as a 'beginning to end' scenario.

Identification of Existing Food Industry Clusters

Broad observations:

- Soil types and water availability have shaped agricultural production, but
- The location of agri precincts is very disjoint around the peri urban arc, due to the decades of land-use pressures from urban development - residential especially along with commercial and industrial.
- There is a lot of information about where these food clusters are and why they are located there.
- None of it has been presented in a collaborative peri-urban framework.

It was agreed in discussions that the productive land is the centrepiece of the agri-precinct story, with recognition that supply chains take the topic into value-added production, transport and storage (logistics) and into tourism with planning, marketing, and travel.

Wanneroo, Swan, Kalamunda, and Serpentine-Jarrahdale have the strongest recognition of production. Whilst the DAFWA Gross Value of Agricultural Production data (figure 1) shows that Rockingham's production is greater than Kalamunda, there was a much less intense municipal focus on it.

Region	GVAP ($m)	GVAP Vegetables ($m)	GVAP Nurseries ($m)	GVAP Fruit and nuts ($m)	GVAP Wine and Grapes ($m)	GVAP Broadacre crops ($m)	GVAP livestock ($m)
Armadale (C)	14.1	0	1.8	10.7	0.0	0.00	0.1
Cockburn (C)	9.8	3.8	5.3	0	0	0.00	0
Gosnells (C)	2.0	0	0.1	1.5	0	0.00	
Kalamunda (S)	20.9	0.3	5.4	13.3	0.1	1.40	0
Kwinana (T)	5.8	1.5	1.2	0.2	0	0.00	0.5
Mundaring (S)	3.5	0	0.3	1.7	0.1	0.10	0.8
Rockingham (C)	26.6	13.4	4.3	0.1	0	0.30	4.7
Serpentine-Jarrahdale (S)	66.8	2.3	7.9	4	0.2	0.90	47.6
Swan (C)	40.6	1.4	14.8	1.7	10.0	0.50	10.3
Wanneroo (C)	117.1	65.4	29.7	14.3	0.2	0.00	2.7
Total	307.2	88.1	70.8	47.5	10.6	3.2	66.7
South West of WA	3 373.6	279.9	119.6	160.6	98.1	1 525.32	861.4
% of Outer Metro GVAP relative to the South West of WA	9.12	31.5	59.2	29.58	10.8	0.21	7.74

Figure 1

Armadale and Rockingham are clearly in a major transition with the pressures of development, including residential. The Karagullen area in Armadale is seen to have reasonable zoning protection for its future. In Rockingham, the strategic direction for development seems likely to continue at the expense of agri-precincts.

Mundaring is characterised by very small scale activities in a shire with a large proportion of crown land/state forests limiting agricultural production over many decades.

Gosnells has almost fully lost any productive agricultural land. Both Cockburn and Kwinana have residual areas of current production significance. Cockburn has market gardens and flower production (confirmed in GVAP data) whilst Kwinana has the additional significance of two major poultry farms.

Many councils noted the continuing impact of:

- Suburban residential development; and/or
- Rural-residential subdivision, which has used quality productive land in many places, reducing it to often unproductive small scale lifestyle allotments.

Some councils noted they have significant equine precincts. While not a major focus of the study, the equine industry needs further scrutiny above and beyond the work done for the racing and gaming industry.

DAFWA has extensive information as it forms a part of their core data.

> *The seemingly fragmented nature of the production areas reflects the soil and land characteristics as well as access to water for irrigation. Spearwood sands are favoured for vegetable production, the fertile soils of the Swan valley for vines and other crops and the fertile, narrow valleys floors and side slopes in the Perth Hills for fruit trees.*

This paragraph is a simple summary of the broader locational story.

DAFWA is acutely aware that productive lands have been voraciously consumed for urban development and notes that the intersection of soil types, allotment sizes and already-cleared land, makes many agriculturally productive areas vulnerable to housing developers.

DAFWA also noted that more clearly defining clusters for production or processing has scope for improved information and currency.

Perth NRM has a complementary professional view, broadly aligned with DAFWA.

The topic has long-term issues, both historically and in the future, including the geographic relationship of the production clusters and the operations and investments in the subsequent supply chains.

The variation of clusters in Perth requires understanding to effectively support and enhance them as economic activity precincts. Then it is both desirable and possible to manage that productive land and associated precinct well, for the long-term.

Extensive PHCC knowledge of Serpentine-Jarrahdale (SJ) reiterates the story of understanding different soil types and their capabilities and using them well and wisely to produce high-quality, local food.

Peel DC shares a detailed knowledge of SJ and the collaborative view of both recognising and valuing productive land in Perth.

The Department of Planning has all of the State's statutory planning instruments in either its direct control or in a legal relationship with local governments. The land zoning system does not focus on the identification of existing food clusters.

Desirable Strategic Outcomes at Both the Local and State Levels

Broad observations:

- Need to have and know the identifiable comparative and competitive advantages of industries and communities
- Need for a small, well focussed State economic development entity able to work collaboratively and flexibly with local government
- That collaborative work could lead to relocation and better industry clustering throughout Perth
- Serious need for Planning to be a collaborative agency and demonstrate strategic understanding and capacity
- To ensure land use zonings provide the greatest flexibility for agricultural use of land
- Engage the community through details of public space and human experiences
- Strategic linkage of peri urban and inner-regional (especially Avon Arc) land uses and economic development strategies should be pursued, to emulate the Peel Region connection
- The extensive direct and indirect impact of the land-use planning system, to the disadvantage of the peri-urban agri precincts.
- The wide scope of economic development opportunities which would benefit from changes to the planning framework.

Cockburn noted that it is essential to have and know the identifiable comparative and competitive advantages of industries, rather than simply looking for / offering cheap land. Understanding this will be a platform to assist land use planning to more accurately reflect economic development decision-making.

Rockingham, Armadale and Wanneroo reflected a wider enthusiasm for industrial land take up. There is a strong awareness of the transport issues and the contribution to this from agri-business and food chain businesses.

The notion of value-adding to crops manifests in different examples. Rockingham noted a current private sector enthusiasm for analysis of noodle production potential, somewhere near rail and near CBH. This is an example of a well-worn vision which has yet to find a profitable site and investment profitability. Comparative/competitive advantage information would be beneficial for clarity. Rockingham is enthusiastic about the related issues of their community understanding the importance of production and food through:

- Notion of community gardens and their importance as a cultural link to agriculture and production
- A scope to include plantings of fruit trees in streets
- Need for community education about the production of food
- Recognising the effect of less private space with higher density and small allotments, with increasingly important public space and the public domain, as a base for the above.

Kwinana cited an example of relocation – the poultry processing at Osborne Park to relocate in Kwinana, potentially to the possible buffer area demanded by the legal environment requirements in one part of the City. This would reflect a higher-level strategy to better manage Perth's production localities and encourage clustering of industry.

The Latitude 32 site represents a state-level land use decision with benefits for both Kwinana and Cockburn, but the desirable strategic outcomes would be more collaborative with a designated State economic development entity dealing with Perth. The potential of agglomeration of economic activities based on State and local government strategies is huge. However as mentioned on page 2, the councils commented at the exclusion of the agri-food processing and value adding industries from such a large site.

The circumstances of Planning (State) has major impacts, but not necessarily well balanced with economic development or community value. It would be highly desirable to have a better quality collaborative setting to assist local government. A stronger partnership culture with the State, will also give confidence to local government groupings.

Armadale also noted strongly their Council's long-standing strategic desire for continuing diversification of their community and their achievements and aspirations for inbound tourism and the agri-precinct contribution to this.

Kalamunda highlighted the need for unique characteristics, including agri precincts, to be recognised strategically for diversity and building on advantages.

Adopting a land use planning approach with zonings that restrict future potential agricultural use is not optimum. For instance, 2h lifestyle subdivisions are very limiting. This is a common theme throughout the peri urban arc.

Mundaring highlighted a preference that the strategic relationship underpinning the assortment of land uses in the food chain, should be reflected in strategy embracing peri urban Perth and the Avon Arc especially. The apparent fragmentation of land issues across the metropolitan boundary raises ambiguities for the future.

Wanneroo is keen to see the strategic planning for new uses of land occupied by pine plantations, should the plantations be deemed detrimental to the water supply volume in the Gnangara Mound. This could embrace support for agri production, given a good analysis tool.

Finally all councils would welcome a far more integrated and seamless working relationship between the key State agencies which influence the future of peri urban land, especially the agri precincts. Water, Energy, Environment and Transport were widely mentioned.

A frequent, but not universal, major priority for each respondent was to deal with the land-use planning system, which is seen as a major impediment to the security of peri-urban agri precincts. This has been mentioned in general terms in the Draft *Perth and Peel@3.5 Million* document.

Meanwhile, the WAPC Directions 2031 land use strategy deals clearly with urban form. It is widely seen as either avoiding or ignoring peri-urban Perth.

This is due to the context and brief for the document centred on "an urban expansion management program to oversee the land supply needs of the population for the medium to long term" (Page 7).

Its 'Land Use Classifications' also reflect the brief as the first four are urban-related, with the last one called 'Investigation Areas'. (Page 14).

Concurrently, the Planning and Development Act 2005, Section 14, defines the function and powers of the WA Planning Commission, which is the legal centrepiece of the WA planning system. (The Department provides professional support to the Commission).

Throughout Section 14, the phrase "land development" appears. This reflects the professional culture underpinning the planning processes.

There are many policies, reports, programs and even funds, in government portfolios and agencies, which have implications for peri-urban agri precincts.

The land use impediment will continue to restrict them, if the land use planning system fails to recognise the economic development imperative of using these areas effectively and under quality assurance of resource management.

A variety of strategic outcomes were mentioned:

- The expansion in the Peel region into glasshouse/greenhouse/hydroponic systems, which require strong domestic and export markets to guarantee profit on large capital investments;
- The expansion of foreign investment in agri precincts;
- Stronger supply chains;
- Changes to land development pressure allowing use of land presently inactive and horded; reducing the rural living carve-up; modifying land speculation for high quality productive sites.
- Increasing sophistication of environmental accounting;
- Land Tax alterations for peri urban productive land;
- Create an urban growth boundary

OBSERVATIONS AND CONCLUSIONS

With the information in the text and a substantial amount of reported (references) and additional material, this report is defined by Regional Development Australia Perth (RDA Perth) as a directional economic development exercise (28 November 2014).

There are 3 pitching points for comment:

1. Present a rare, regional collective perspective

There appears to be no work focussed on the circumstances and the potentials of productive land in peri-urban Perth, Australia's fourth largest city.

This is not to under-represent the work undertaken at local government level, to give focus to important economic development and related planning issues under their jurisdictions. The Appendix is testimony to the some of that endeavour.

It also highlights the importance of work done by Perth NRM and Peel Harvey Catchment Council to raise the profile of their remit in this story.

DAFWA remains the pre-eminent source of data and technical information. This has, until now has been available in partnerships, but not with the number of partners here, in one focussed story.

RDA Perth has invested in the first collective conversation to gain some sense of perspective about the economic development possibilities of agriculturally valuable land in peri-urban Perth.

Of note is the paucity of any sorts of analyses of peri-urban Perth, including demographic, social or economic development. Works such as Baume, O'Connor and Stimson (2005) did analysis only as part of a very broad national perspective.

The shortage of work is quite revealing.

2. Raise awareness

There are different levels and places where awareness has been raised, using this report and its anecdotal methodology:

- The nine Perth/Peel peri-urban local governments (Wanneroo, Swan. Mundaring, Kalamunda, Armadale, Serpentine-Jarrahdale, Cockburn, Kwinana, Rockingham and Gosnells.)
- WA Department of Agriculture and Food
- Department of Planning
- Perth NRM

- Peel Harvey Catchment Council
- Peel Development Commission
- Wheatbelt Development Commission
- Curtin University
- Attendees at RDA Perth forums and workshops, during the preparation.

As copies of this report will be held by local government participants, every organisation will be in possession of written, endorsed material to support anecdotal claims about the agreed strategic importance of peri-urban productive land in Perth.

Local government may act individually or collectively to advocate for greater recognition of the economic development significance of this land

Local governments will also have a generalist and agreed report to form the basis of strategies for more balanced economic development and land use approaches in their jurisdictions.

Importantly, this can and should be used with industry, business and the community.

Local government has presented anecdotal evidence to support a mixture of studies and reports, portraying the conflicts and frustrations of landowners.

These frustrations include:

- Economic hardship
- Personal expectations about future land use and land value
- Impediments to investment and opportunity; and
- Disinterest and/or inability of the governance system to provide certainty and security.

3. Provide insight into the common issues affecting the areas under threat of change

The common issues in the interviews are diverse in scope, but universal in conversation. The detailed context and emphasis of each point differed but the commonality was clear.

There is an absence of regional perspective about this topic. Regardless of the alliances, collaborations and networks of local government, the peri-urban regional perspective does not exist. For outer metropolitan local governments to work collectively there must be a shared vision and objective to make the commitment of resources worthwhile.

Local government professionals know and acknowledge the collective, regional possibilities, but require purpose, strategy and process to deliver them.

The functional absence of this perspective is amply represented in the State Government. Local governments were unable to cite any significant peri-urban focus in most State portfolios, with the exception of the catchment council /NRM network.

Critically, the Planning portfolio has shown no inclination to understand or commit to a peri-urban focus.

Beyond the metropolitan boundary is a geographically comparable group of councils in the Wheatbelt and Peel regions, which is part of the peri-urban story. They had a sub-regional strategy - The Avon Arc Strategy (WAPC January 2001) to provide a regional framework for long-term land use.

Metropolitan peri-urban Perth has not benefited even to that extent.

Lack of a State entity for Perth economic development drew universal local government comment. It was also a point of solicited response with the group of agencies. In a three-sphere federation governance system it seems a significant gap. It is worth briefly reflecting on the nature and importance of economic development, to contextualise this point. Economic development is largely about the intersections and inter-relationships between multiple topics. The core of economic development may be described as the mix of employment, housing, health education and transport, as they affect peoples' locational decisions.

The economic development focus of the Western Australian government rests in the Regional Development portfolio, defined as the nine regions (ten ABS Divisions) in country WA. Sundry aspects of broader economic development responsibilities for Perth are littered in different State agencies, with no focus.

The WA Planning portfolio does not have a role in economic development The Planning and Development Act 2005 (section 4.1) defines "development" as "the development or use of any land". This is far narrower that the concept described above. The Act provides no legal requirement or capacity for the WA Planning Commission or the supporting Department of Planning, to be engaged in economic development. Consequently, the highest level planning instrument, the State Planning Strategy, is a philosophical guidance framework for land use planning.

Perth's peri-urban local governments have a range of intersecting policies and projects, some requiring commitment beyond the ambit of local government. The lack of a WA government economic development entity, with metropolitan focus and responsibility is an impediment to collaborative achievement.

Local government is a significant player in land use planning and economic development. Its ability to make them intersect is not replicated at State level.

The RDA Perth Committee has identified this gap in its dealings with the State on economic development issues. Like Perth's peri-urban local governments, RDA Perth has no direct WA State partner for collaboration.

It provides an opportunity for Regional Development Australia (Perth) to pursue the initiative of this topic.

The unclear impacts of dislocated production and economic inefficiencies are unsurprising, given the previous comments about economic development.

There is extensive and accessible information in the DAFWA, which would form the basis of a broader economic development analysis about production and efficiencies.

For example, local government publications, such as the "Hills Rural Study" (Shire of Kalamunda 2014), utilise the available range of planning frameworks and other material, to highlight production issues and inefficiencies in a local/state context. However, the core economic development requirements and solutions rest beyond the scope of the planning system.

This is not a criticism of the Shire of Kalamunda, not any Perth peri-urban local government. It highlights the difficulties of collaboration, communication and achievement.

Significant progress on this will require a different framework of collaboration, with both process and information able to drive and be co-ordinated with existing studies and objectives.

There is good material around – it's a pity the engine doesn't connect to the transmission!

The need for profitable production on productive land has been mentioned throughout the interviews.

Importantly, Perth NRM has a clear perspective that, without well-managed profitable production on the lands which and achieve it, the potential for environmental harm is raised.

This occurs through aspects such as under-capitalisation of the business, lack of profitability; market failure and land price pressure for other uses. All contribute to the decline in land management and loss of environmental sustainability.

Peri-urban local government appear to have responded differently over a long period (20+ years, from conversation). They have made systemic land use/planning decisions within the available legal framework. Some seemed resigned to the extent of change within their municipality. Gosnells is the clearest example, where the agricultural history is recorded in public places, but no longer exists in the City. All local government face the same issue to varying degrees.

Swan Wanneroo, Kalamunda and Armadale have significant productive land which they wish to retain and support, given the planning instruments and economic development framework to do so.

Cockburn, Kwinana and Rockingham have varying examples of productive and profitable agricultural land. Given the inclination for the State planning system to ignore that activity as a desirable long-term use, two of the local governments expressed frustration at their inability to achieve certainty of land use for production. The other indicated that the pattern of change was determined already, in the minds of the elected members.

Again, there is no right or wrong when there is an information deficit and no strategy or methodology to offer clarity about optimum land uses.

Serpentine-Jarrahdale's diverse land uses are seen as an economic and social asset for the local and wider community, with significant opportunities for creative and imaginative production. But again, repetitively, the vision requires greater support for the ambitions of local government.

This leads to the negative impact of land use planning, in neither recognising, nor giving certainty to production. One story, anecdotally replicated in different ways and places, is testament to this situation.

In the Swan Valley the complexity of allotment sizes, sol types, family finances, value of product and competing land use has a serious impact on an orderly strategy for long-term production, in general. There are some individual businesses which are exceptions to a noticeable trend. These industries, particularly viticulture, are characterised by extended slow and steady growth, requiring certainty for investment.

When enquiring about the single most-influential aspect which would benefit agricultural production in the Swan Valley, the precise response was "certainty and stability". Subsequent conversations routinely reiterate this point.

Local government alone cannot give this certainty and stability. The collaborative impact of all involved organisations must be focussed to achieve this. Recommendation 4 of "The Way Forward", Department of Planning, November 2013, states:

"That consequential amendments to other relevant legislation, regulations, policies, plans, schemes and guidelines be considered as a matter of priority by the WA Planning Commission, to ensure alignment with the amended Act to the extent that their provisions apply to the Swan Valley and would hinder the achievement of the Valley vision."

Given that the Minister for Planning accepted this and other recommendations and also received Cabinet support for the same (Ministerial press release February 2014) the legislative possibility for the "stability and certainty" could be initially implemented in the Swan Valley.

This is the embodiment of the "stability and certainty" which must underpin economic investment.

By geographical circumstance, every land transport corridor to/from Perth crosses the peri-urban domain. Their impacts can and should be positive, given robust frameworks of planning and economic development. Opportunities being developed by Armadale and Rockingham are largely transport based. Similarly, the Latitude 32 industrial precinct impacts both Cockburn and Kwinana.

Along with them, Serpentine-Jarrahdale is affected by the long-standing issue of the Southern Link Corridor, which has peri-urban implications beyond the metropolitan boundary, into the peri-urban areas of the Wheatbelt, Peel and beyond.

Swan has the Great Northern Highway corridor, which has allowed the creation of the Muchea Saleyards and more.

Wanneroo is contemplating the possibilities afforded by the possible road connection from the Brand Highway at Neerabup.

The existence of major land transport corridors appears not to automatically generate opportunities in the agricultural sector, of the council through which the corridor traverses.

The scope of this report has not extended to any detail on the relationship between the agricultural peri-urban areas, the food chain and value-adding and their correlation to transport. Anecdotally, transport is important. The nature of its strategic influence and the practical use of corridors by the agricultural industry would need to be analysed in greater detail.

The suite of planning documents produced by the WA Planning Commission, along with the elements of the local planning instruments used for peri-urban Perth are the framework for allowing this long-term trend. Looking at the strategic planning framework for metropolitan Perth (Directions 2031 WAPC, November…. Page 1), it provides an insight into the philosophy of Perth's expansion:

"Directions 2031 is a high level spatial framework and strategic plan that establishes a vision for the future growth of the metropolitan Perth and Peel region; and it provides a framework to guide the detailed planning and delivery of housing, infrastructure and services necessary to accommodate a range of growth scenarios."

It continues:

"….detailing the metropolitan structure, determining local population housing and job targets"

Although it mentions job targets in its summary outline (page 10) and states its provision of direction on:

"How we provide for a growing population whilst ensuring that we live within the available land, water and energy resources"

There is no economic development framework or analysis which defines the optimum uses for land, especially in the peri-urban arc. This long-term approach is openly understood by planners, some of whom in the Department of Planning are now involved in a different and new strategic approach to the environmental needs of the Perth region.

Agencies interviewed all expressed professional concern at the apparent ease of land acquisition, land banking and urban development pressure which are considered mainstream planning. No-one defended the current system as a balanced approach.

The opportunity for the application of land-use analysis tool, to identify valuable tracts of productive land, seems imminent.

Perth and Peel@3.5 Million has been released for public comment and the document (pp 50-51), acknowledges the extensive loss of "suitable agricultural land" which includes market garden production, poultry, cattle and agistment, and could include many more uses.

The document acknowledges the economic and food quality benefits of retaining food production areas close to the consumers. Transport costs and freshness of produce are the two key considerations.

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SUPPORTING DATA

Tables 1-14 were used to inform the results presented in the briefing paper. The tables present the main data from each of the investigations. It should be noted that not all tables add up 100% as only the main findings have been presented.

Table 1: Gross migration to LGA in Peri-urban Perth as of 2006 from place of residence in 2001 (number of people)

LGA of Residence 2006	**Place of residence in 2001**				
	To Perth LGA	*From Country WA*	*From Interstate*	*From Overseas*	*Total migrants*
Armadale	6365	1607	965	1245	10182
Cockburn	11016	1878	1900	3414	18208
Gosnells	14211	2810	2040	4044	23105
Kalamunda	6676	1958	1182	1628	11444
Kwinana	4298	739	731	560	6328
Mundaring	4850	1651	688	879	8068
Rockingham	8260	4209	4660	3715	20844
Serpentine-Jarrahdale	3034	396	215	199	3844
Swan	16568	3666	2163	3310	25707
Wanneroo	23424	3265	3415	8131	38235
Peri-urban total	**98702**	**22179**	**17959**	**27125**	**165965**
Perth total	*222537*	*46585*	*44463*	*87475*	*401060*

Table 2: Gross migration to LGA in Peri-urban Perth as of 2011 from place of residence in 2006 (number of people)

LGA of Residence 2011	**Place of residence in 2006**				
	To Perth LGA	*From Country WA*	*From Interstate*	*From Overseas*	*Total migrants*
Armadale	11273	1635	1514	3239	17661
Cockburn	12803	2072	2558	6922	24355
Gosnells	12987	2228	2482	9695	27392
Kalamunda	6291	1851	1135	2353	11630
Kwinana	5290	778	833	1795	8696
Mundaring	4376	1207	629	1016	7228
Rockingham	9134	3899	5590	8324	26947
Serpentine-Jarrahdale	4557	616	323	457	5953
Swan	15228	3337	2699	6130	27394
Wanneroo	23840	3221	3911	15981	46953
Peri-urban total	**105779**	**20844**	**21674**	**55912**	**204209**
Perth total	*220411*	*41812*	*50890*	*151468*	*464581*

Table 3: Age profile of Peri-urban Perth by LGA in years

LGA	Age Group														
	0-14		*15-24*		*25-34*		*35-44*		*45-54*		*55-65*		*65+*		*Total*
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	
Armadale	13372	21	9073	15	9315	15	8323	13	8285	13	7117	11	6813	11	62298
Cockburn	18753	21	12061	13	14101	16	14576	16	12047	13	8992	10	9154	10	89684
Gosnells	22597	21	15654	15	16777	16	15738	15	13506	13	11444	11	10868	10	106584
Kalamunda	10584	20	7383	14	6248	12	7460	14	7499	14	6930	13	7463	14	53567
Kwinana	6700	23	4118	14	5167	18	4414	15	3457	12	2629	9	2742	9	29227
Mundaring	6968	19	4959	14	3391	9	5320	15	5968	16	5093	14	4832	13	36531
Rockingham	23688	23	14957	14	13627	13	15753	15	14138	14	9933	10	12009	12	104105
Serpentine-Jarrahdale	4179	24	2413	14	2066	12	2828	16	2622	15	2034	11	1603	9	17745
Swan	24450	23	15537	14	15011	14	16968	16	15376	14	10926	10	10194	9	108462
Wanneroo	37112	24	21413	14	22750	15	24930	16	19399	13	13036	9	13436	9	152076
Peri-urban total	**168403**	**22**	**107568**	**14**	**108453**	**14**	**116310**	**15**	**102297**	**13**	**78134**	**10**	**79114**	**10**	**760279**
Perth total	*316603*	*19*	*236971*	*14*	*245205*	*15*	*241203*	*15*	*224046*	*14*	*182162*	*11*	*199329*	*12*	*1645519*

Table 4: Country of birth of the Peri-urban population

LGA	Number and Percentage of the Population by Country of Birth											
	Australia		*England*		*New Zealand*		*South Africa*		*India*		*Other International*	
	#	%	#	%	#	%	#	%	#	%	#	%
Armadale	39617	63	7399	12	2202	4	839	1	811	1	11430	17
Cockburn	56358	63	6521	7	2548	3	1614	2	963	1	21680	22
Gosnells	59557	56	8752	8	3609	3	1720	2	3181	3	29765	25
Kalamunda	35803	67	5667	11	1910	3	570	1	489	1	9128	15
Kwinana	18244	62	2781	10	1373	5	349	1	222	1	6258	19
Mundaring	24640	67	4015	11	1044	3	262	1	174	0	6396	16
Rockingham	65429	62	15861	15	4892	5	1694	2	402	0	15827	12
Serpentine-Jarrahdale	12645	71	2055	12	508	3	206	1	52	0	2279	11
Swan	69524	64	8079	7	3941	4	1531	3	1687	2	23700	19
Wanneroo	83487	55	21759	14	5445	4	4284	2	1574	1	35527	21
Peri urban total	**465304**	**61**	**82889**	**11**	**27472**	**4**	**13069**	**2**	**9555**	**1**	161990	19
Perth Total	*972772*	*59*	*155329*	*9*	*50160*	*3*	*29250*	*2*	*27793*	*2*	*410215*	*22*

Table 5: Highest post-secondary qualifications in Peri-urban Perth (% of population)

LGA	Proportion of the Population in Each Area				
	Postgraduate degree level	*Graduate diploma and graduate certificate level*	*Bachelor degree level*	*Advanced diploma and diploma level*	*Certificate level*
Armadale	1	1	8	7	24
Cockburn	2	1	12	8	21
Gosnells	2	1	10	7	21
Kalamunda	2	2	11	9	22
Kwinana	1	1	6	6	22
Mundaring	2	2	11	9	21
Rockingham	1	1	7	8	25
Serpentine-Jarrahdale	1	1	7	7	26
Swan	1	1	8	8	21
Wanneroo	1	1	9	8	23
Peri-urban total	**2**	**1**	**9**	**8**	**23**
Perth total	*4*	*2*	*15*	*9*	*18*

Table 6: Family structure in Peri-urban Perth (% of population)

LGA	Percentage of Area Population						
	Couple: no children	*Couple: 1-2 children*	*Couple: 3-4 children*	*Couple: 5+ children*	*One person: No children*	*One parent: 1-2 children*	*One parent: 3-4 children*
Armadale	6	19	5	0.5	4	7	1
Cockburn	6	23	5	0	4	6	1
Gosnells	6	21	5	0.5	5	6	1
Kalamunda	7	20	5	0	3	5	1
Kwinana	5	19	5	0	4	8	1
Mundaring	6	21	6	0	3	5	1
Rockingham	5	22	6	0	3	6	1
Serpentine-Jarrahdale	8	24	7	1	2	5	1
Swan	6	23	6	0.5	4	7	1
Wanneroo	6	26	6	0.5	3	7	1
Peri-urban total	**6**	**22**	**6**	**0.5**	**3**	**6**	**1**
Perth total	*5*	*20*	*5*	*0*	*3*	*5*	*1*

Table 7: Family size in Peri-urban Perth (proportion of LGA population)

LGA	Proportion of the LGA Population				
	Two persons in family	*Three persons in family*	*Four persons in family*	*Five persons in family*	*Six or more persons in family*
Armadale	32	16	13	6	3
Cockburn	30	16	16	6	2
Gosnells	29	16	15	6	3
Kalamunda	33	15	15	6	2
Kwinana	29	15	13	6	3
Mundaring	34	15	15	7	2
Rockingham	31	15	16	6	2
Serpentine-Jarrahdale	33	16	18	8	4
Swan	29	16	16	6	3
Wanneroo	29	16	18	7	3
Peri-urban total	**30**	**16**	**16**	**6**	**3**
Perth total	*30*	*14*	*14*	*5*	*2*

Table 8: Housing tenure in Peri-urban Perth (proportion of the population)

LGA	Proportion of the Population					
	Owned outright	*Owned with a mortgage*	*Rented: Real estate agent*	*Rented: State or territory housing authority*	*Rented: Person not in same household*	*Rented: Other landlord type*
Armadale	23	42	9	3	7	1
Cockburn	24	42	10	3	7	1
Gosnells	24	42	9	3	7	1
Kalamunda	32	40	6	2	6	1
Kwinana	17	43	12	5	7	1
Mundaring	34	42	5	1	5	0
Rockingham	21	38	13	2	7	1
Serpentine-Jarrahdale	24	49	5	0	6	1
Swan	21	44	9	4	7	1
Wanneroo	18	48	10	2	6	1
Peri Urban Total	**23**	**43**	**9**	**3**	**7**	**1**
Perth Total	*26*	*35*	*12*	*3*	*8*	*1*

Table 9: Dwelling Type by Occupancy in Peri-urban Perth by LGA(number of persons)

LGA	*Occupied private dwellings*	*Unoccupied private dwellings*	*Non-private dwellings*	*Total*
Armadale	23026	2021	16	25063
Cockburn	33075	2542	34	35651
Gosnells	37812	2535	17	40364
Kalamunda	19682	1472	26	21180
Kwinana	10649	837	7	11493
Mundaring	12943	896	16	13855
Rockingham	37872	4548	42	42462
Serpentine-Jarrahdale	5844	591	4	6439
Swan	38340	3132	45	41517
Wanneroo	51980	4355	27	56362
Peri Urban Total	**271223**	**22929**	**234**	**294386**
Perth Total	*626778*	*57521*	*845*	*685144*

Table 10: Percentage of Households with One or More People by LGA (%)

LGA	**Percentage of the Area's Population Living in Households of Different Sizes**						
	One person	*Two people*	*Three people*	*Four people*	*Five people*	*Six people*	*Seven or more people*
Armadale	19	31	15	14	6	2	1
Cockburn	18	30	16	17	6	2	0
Gosnells	18	29	16	16	7	3	2
Kalamunda	17	32	15	15	7	2	0
Kwinana	19	29	15	14	6	3	1
Mundaring	17	33	15	16	7	2	1
Rockingham	17	29	14	15	6	2	1
Serpentine-Jarrahdale	11	30	16	18	8	3	2
Swan	17	28	16	17	7	3	2
Wanneroo	15	28	16	18	8	3	2
Peri Urban Total	**17**	**29**	**15**	**16**	**7**	**2**	**1**
Perth Total	*20*	*29*	*14*	*14*	*6*	*2*	*0*

Table 11: Employment, Unemployment and Participation Rate

LGA	Number of Persons						Percentage	
	Employed, worked full-time	*Employed, worked part-time*	*Employed, away from work*	*Total employed*	*Total unemployed*	*Total labour force*	*Unemployment rate*	*Participation rate*
Armadale	19221	8426	2098	29745	1707	31452	5.43	64.29
Cockburn	29728	13394	3165	46287	2079	48366	4.3	68.19
Gosnells	33224	14406	3442	51072	2942	54014	5.45	64.31
Kalamunda	17317	8080	1745	27142	1037	28179	3.68	65.56
Kwinana	8452	3349	930	12731	920	13651	6.74	60.59
Mundaring	10689	5818	1159	17666	720	18386	3.92	62.19
Rockingham	31039	13604	3454	48097	3020	51117	5.91	63.56
Serpentine-Jarrahdale	5562	2624	626	8812	358	9170	3.9	67.59
Swan	34662	15092	3607	53361	2697	56058	4.81	66.73
Wanneroo	46814	21549	5020	73383	3752	77135	4.86	67.1
Peri-Urban Total	**236708**	**106342**	**25246**	**368296**	**19232**	**387528**	**4.96**	**65.47**
Perth Total	*522582*	*249355*	*52465*	*824402*	*40401*	*864803*	*4.67*	*65.08*

Table 12 Number of persons employed in each industry by LGA

Industry	*Armadale*	*Cockburn*	*Gosnells*	*Kalamunda*	*Kwinana*	*Mundaring*	*Rockingham*	*Serpentine -Jarrahdale*	*Swan*	*Wanneroo*	*Peri Urban Total*
Agri Forestry and Fishing	302	283	208	260	123	144	318	325	541	726	3230
Mining	1204	1862	1926	1331	547	946	2604	448	2307	3169	16344
Manufacturing	3224	5166	5853	2564	1704	1544	5725	1023	5955	6415	39173
Electricity, Gas, Water Waste	363	536	631	295	142	160	624	104	493	812	4160
Construction	3237	4963	4951	2682	1432	1736	5739	1212	5430	10115	41497
Wholesale Trade	1482	2055	2675	1380	634	733	1408	371	2653	2924	16315
Retail Trade	3371	4923	5773	2937	1409	1854	5281	876	6153	8356	40933
Accommodation and Food	1397	2304	2779	1161	624	759	2567	307	3096	3931	18925
Transport, Postal and Warehousing	1954	2555	3496	2116	780	963	2157	543	3328	2683	20575
Information Media and Telecommunications	277	393	508	240	123	178	365	65	486	820	3455
Financial and Insurance	547	1190	1236	628	233	321	862	147	1321	2340	8825
Rental, Hiring and Real Estate	520	689	797	470	213	354	820	162	843	1137	6005
Professional, Scientific and TechServices	1602	2950	2963	1658	584	1235	2116	406	2757	4268	20539
Administrative and Support Services	899	1463	1616	827	463	449	1561	219	1609	2633	11739
Public Administration and Safety	1767	2681	3124	1638	782	1355	4539	502	3566	4453	24407
Education and Training	2079	3612	3239	2139	720	1697	3253	580	3369	4744	25432
Health Care and Social Assistance	3184	5071	5039	2528	1286	1742	4777	720	4985	7847	37179
Arts and Recreation	305	596	654	364	132	221	573	153	697	854	4549
Other	1314	1929	2314	1376	495	897	1702	424	2489	3418	16358
Unsure	409	651	723	315	192	230	638	133	750	986	5027
Total	**29745**	**46287**	**51072**	**27142**	**12731**	**17666**	**48097**	**8812**	**53361**	**73383**	**368296**

Table 13: Number of persons employed in each industry by location quotient

Industry	Location Quotient										
	Armadale	*Cockburn*	*Gosnells*	*Kalamunda*	*Kwinana*	*Mundaring*	*Rockingham*	*Serpentine-Jarrahdale*	*Swan*	*Wanneroo*	*Peri urban total*
Agriculture, forestry and fishing	1.73	1.04	0.69	1.63	1.65	1.39	1.13	6.28	1.73	1.69	1.49
Mining	0.87	0.86	0.81	1.05	0.92	1.15	1.16	1.09	0.93	0.92	0.95
Manufacturing	1.29	1.33	1.36	1.12	1.59	1.04	1.42	1.38	1.33	1.04	1.27
Electricity, gas, water and waste s	1.11	1.05	1.12	0.98	1.01	0.82	1.18	1.07	0.84	1.00	1.02
Construction	1.11	1.09	0.99	1.01	1.15	1.00	1.22	1.40	1.04	1.41	1.15
Wholesale trade	1.27	1.13	1.34	1.30	1.27	1.06	0.75	1.07	1.27	1.02	1.13
Retail trade	1.10	1.03	1.10	1.05	1.07	1.02	1.07	0.97	1.12	1.11	1.08
Accommodation and food services	0.81	0.86	0.94	0.74	0.85	0.74	0.92	0.60	1.00	0.93	0.89
Transport, postal and warehousing	1.47	1.23	1.53	1.74	1.37	1.22	1.00	1.38	1.39	0.82	1.25
Information media and telecommunications	0.77	0.70	0.82	0.73	0.80	0.83	0.62	0.61	0.75	0.92	0.77
Financial and insurance	0.62	0.86	0.81	0.78	0.61	0.61	0.60	0.56	0.83	1.07	0.80
Rental, hiring and real estate	0.97	0.83	0.87	0.96	0.93	1.11	0.95	1.02	0.88	0.86	0.90
Professional, scientific and technical services	0.63	0.75	0.68	0.72	0.54	0.82	0.52	0.54	0.61	0.68	0.66
Administrative and support services	0.93	0.97	0.97	0.94	1.12	0.78	1.00	0.77	0.93	1.11	0.98
Public administration and safety	0.92	0.90	0.95	0.94	0.95	1.19	1.46	0.88	1.04	0.94	1.03
Education and training	0.86	0.95	0.78	0.96	0.69	1.18	0.83	0.81	0.77	0.79	0.84
Health care and social assistance	0.97	1.00	0.90	0.85	0.92	0.90	0.90	0.74	0.85	0.97	0.92
Arts and recreation	0.67	0.84	0.84	0.87	0.68	0.82	0.78	1.13	0.85	0.76	0.81
Other services	1.13	1.07	1.16	1.30	1.00	1.30	0.91	1.23	1.20	1.19	1.14

Table 14: Number of People Employed in Each Agricultural Sector by LGA

LGA	Number of People Employed in Each Sector										
	Agriculture (not defined)	*Nursery and floriculture production*	*Mushroom and vegetable growing*	*Fruit and tree nut growing*	*Sheep, beef cattle and grain farming*	*Other crop growing*	*Dairy cattle farming*	*Poultry farming*	*Deer farming*	*Other livestock farming*	*Total*
Armadale	9	41	11	110	28	0	5	25	0	40	269
Cockburn	13	38	83	4	31	0	5	24	0	14	212
Gosnells	11	26	22	34	30	0	3	21	0	21	168
Kalamunda	21	29	4	114	35	6	0	23	0	9	241
Kwinana	6	20	49	3	10	0	0	17	0	7	112
Mundaring	11	17	0	15	40	0	0	9	0	19	111
Rockingham	13	32	96	10	37	0	6	28	0	31	253
Serpentine-Jarrahdale	16	23	25	24	82	5	25	25	0	57	282
Swan	35	41	54	157	79	0	0	58	0	62	486
Wanneroo	54	95	259	112	32	0	7	61	0	18	638
Peri-Urban Total	**189**	**362**	**603**	**583**	**404**	**11**	**51**	**291**	**0**	**278**	**2772**
Perth Total	*282*	*463*	*765*	*705*	*948*	*24*	*74*	*405*	*0*	*326*	*3992*