Economic Development Discussion Paper

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Hills Rural Study

Economic Development Discussion Paper

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1 Executive Summary

The growing industry is a highly variable business with many factors affecting production and profitability. The variance in prices between high quality and lower quality produce, seasonal variances, the dependency on climatic events, the blight of pests, an ever changing regulatory environment, the strength of the Australian Dollar, and a lag from planting to production are just some of the factors that combine to make the industry a highly volatile one. In contrast to that volatility, sustained strong population growth in WA and increasing consumer appetite for healthy eating, product variety and quality provide a growing end consumer demand.

Within this context, producers willing to take on risk, invest and innovate can prosper. Business efficiency, technology to increase yields, diversification, new varieties, tourism, technology investment and value-adding are all opportunities that provide some producers with lucrative outcomes.

To some, increased globalisation facilitated by trade agreements is increasing the threat of competition through imports but to others it is creating much greater export opportunities for their businesses.

However thriving businesses are the exception rather than the norm. Producers in the Hills as a population are aging; their families are growing up and leaving the land to take up other employment options, leaving a struggling industry behind.

There is a strong compassionate argument for land subdivision to allow growers to release capital to continue their lifestyle on their family landholding, but the appropriateness of this as a long-term solution to encourage continued economic viability of the growers is questionable. Land prices increase disproportionately with reduced lot sizes as the land area approaches a 'lifestyle' size that makes viability harder rather than easier. It is considered highly unlikely that subdivision as a sole strategy would sustain the industry long term, notwithstanding that it may succeed short-term in creating an injection of capital from new residents and some existing growers.

The obvious solution to improved viability for growers would be through cost-of-scale advantages achieved through collaboration. However, for whatever reasons, landowners have shown little propensity to collaborate to-date. Smaller lot sizes are unlikely to change their culture of independence. To the contrary, amenity issues are likely to increase with density and create the potential for greater conflict between land users. Equally, landowners that haven't invested appropriately in depreciating/renewing their infrastructure and capital assets are considered unlikely to change their behaviour. Finally some might argue that it is not for government land-use planning to mitigate issues of personal finance and retirement preferences. Certainly, there is little tangible evidence nor comparable case-studies to suggest that one-off subdivision would significantly increase investment in the industry as opposed to funding lifestyle outcomes for new and existing landowners.

This report considers broader economic development factors relating to the industry. It has been compiled through consultation with a range of stakeholders associated with the industry including growers, wholesalers, industry associations and government representatives. The report concludes with a number of recommendations covering planning and industry development strategies. These strategies share a common thread, namely that any planning-based solution should not be considered in isolation but should be complemented by appropriate business support strategies if it is to support the continuation of the industry in the Hills.

2 Summary of Recommendations

The following table summarises the recommendations of this report:

1. Investigate either existing local growers' groups or the formation of a new group to facilitate greater collaboration between growers – potentially with a view to establishing a cluster or cooperative. A few seed projects should be considered as a means to catalyse and focus this group any may include exploring opportunities for land share opportunities, a marketing project, a skills project and/or a renewable energy project.

2. Analyse the overall supply of fertile land in WA as compared to the State's population projections to see if there is an over-supply of land and thereby an argument to support the re-categorisation of land as non-priority agriculture

3. Explore the argument with the Department of Agriculture that if land is to be preserved for future food production, the Dept should be prepared to support projects that help with viability such as contributions to pest control, investment schemes for new infrastructure and other initiatives.

4. Investigate opportunities to advocate for incentives that encourage investment in capital equipment such as preferential tax treatment of investment in equipment to allow for faster depreciation of assets.

5. As part of the consideration to a subdivision approach, investigate the potential to implement a development levy or development contributions scheme to support the growing industry. This may include initiatives to support economic diversification of the local area, marketing and other initiatives such as tourism and the creation of the Pickering Brook Town Centre.

6. Investigate the potential to instigate trial innovation projects in areas of production, orchard management and waste

7. Communicate government support schemes to local growers such as the R&D investment scheme that support new investment and investigate/promote government programs like Enterprise Connect to provide advice and support for growers.

8. Explore ways for more efficient energy use via energy audits with growers to reduce overall energy costs.

9. Undertake further consultation with wholesalers and retailers to undertake a product 'quality audit' to understand the nature of the current output from the Hills as well as to better understand end customer expectations, retailer requirements and to assess opportunities for new product

development and improvements. Also grow stronger relationships between growers and retailers leveraging common goals to supply quality product

10. Facilitate knowledge building and skills development by bringing leading experts to share insights

11. Investigate links between growers and local education providers to link growers to student support programs and to encourage a new generation of growers that bring new ideas

12. Investigate the quality controls applied within the Agricultural Products Act to confirm any opportunities to 'level the playing field'

13. Investigate a "Hills Grower" branded farm gate display product that could share a common brand and support farm gate sales along with the development and promotion of a associated tourism trail.

14. Investigate the potential for a 'farmer story' campaign to be associated with local produce to enable consumers to have a greater affinity with the growers.

15. Undertake survey of younger family members of growers to understand their desire to remain in the area and maintain roles in the family business

16. Contact local start-up networks in Perth (e.g. Spacecubed) to investigate the potential for local entrepreneurial project to create innovative technology based solutions for direct on-line retailing for fruit and veg using a smartphone app or similar.

17. Assess Community Supported Agriculture and associated models such as Food Hubs as part of overall collaborative approach and governance model.

3 Background

A recent review has been undertaken of the Hills Orchard Study from 1988. This review, called the Hills Orchard Study Review (2013) was presented to Council at its meeting on 22 July 2013 at which the following recommendation was made:

"That this Report lay on the table for one month to enable Councillors to consult with members of the community regarding any possible amendments to the Report."

In light of this recommendation, further consultation has been undertaken with local producers by means of a workshop held on the 24 July 2013. The landholders who attended the workshop raised the following concerns:

- The exclusion of non-productive land from the Study.
- Government departments not seeming to understand the situation.
- A holistic approach to the alternatives and options for the area.
- Advocacy – the need for a strong presence to progress recommendations of study and ensure best outcomes are achieved.

As a result of the workshop a number of actions were agreed, namely:

- Additional investigation to be undertaken to investigate inclusion of non-productive land and alternative land use for the area
- Name of the Study to be changed to Hills Rural & Orchard Study
- Economic Development opportunities to be explored
- Report to be presented to Council upon completion of investigations (a timeframe was not set)
- Advocacy

In line with this workshop, this discussion paper is being prepared to help explore further opportunities and potential avenues that integrate more of the broader economic development factors into the review and help meet the objectives of the Hills Orchard Study Review, namely:

- To allow traditional growers more flexibility in potential land uses.
- To encourage additional land uses ancillary to the primary horticultural production.
- To consider the potential for future subdivision in the area.
- To review the current zoning in the area.
- To create incentives and support horticultural production in the area.
- To protect the rural character of the area through landscape protection.
- To protect the quality of water.

As part of the preparation of this discussion paper, broader consultation has been undertaken with other stakeholders beyond just the growers themselves to understand a more complete picture of the industry and to uncover the challenges and opportunities associated with it. This discussion paper aims to provide recommendations that can inform further policy development.

4 Context

There is plain evidence that the growing industry in the Perth Hills has suffered a period of decline. Aerial mapping and on-the-ground tours of the area show many areas that were formally orchards now stripped of their fruit trees. Anecdotal evidence from local growers suggests a number of factors that have contributed to this decline:

- The volatility (some argue a decline) in fruit prices over recent years compounded by increasing production costs (particularly energy and wage costs) and greater competition (fuelled in part by a strong Australian Dollar, international trade agreements and generally increased globalisation);
- Social change as younger members of traditional families seek employment elsewhere and aging owners struggle to manage production on their own;
- Flow-on impacts caused by changes in other related industries such as juice production that have impacted viability;
- Local economic factors relating to land affordability in the greater metropolitan area and availability of finance;
- Regulatory burdens and uncertainty, particularly in relation to pesticide use; and
- Climate change and the associated impacts on water access.

Without intervention of some sort or a change in macro-economic circumstances, the industry decline is most likely set to continue. The impact of a 'status quo' approach is likely to result in significant social and economic impacts – at least in the short term.

The longer term outlook is less certain. With continued local population growth in WA, increased predictions of global food shortages, climate change impacts and macro-economic variances, it would be difficult to predict how the market will adapt. However, certainly the WA Department of Agriculture has a robust policy to protect land for food security over the long term. As a result, the Hills area with its categorisation as a priority agricultural area is designated to be protected for food production for the foreseeable future.

The following diagram summarises the overall context.

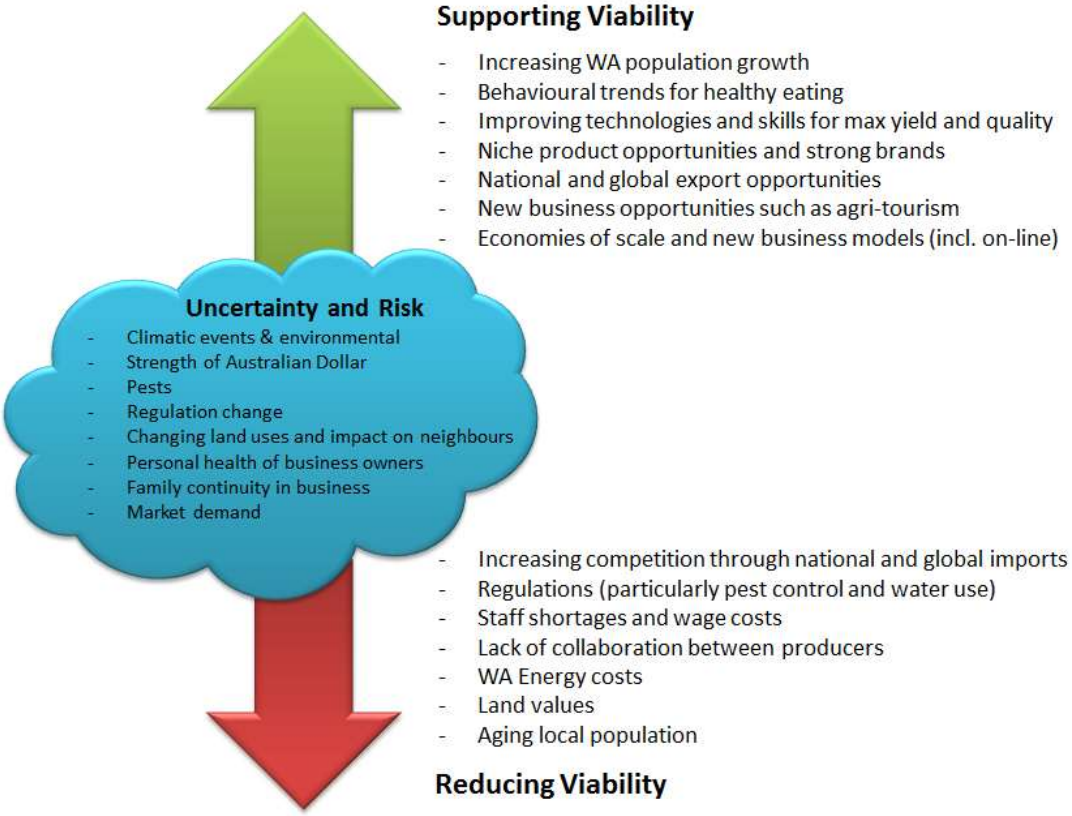

Figure 1 Summary of Growing Industry Context

4.1 Social Context

Many of the orchard businesses in the Hills share similar characteristics that have evolved from the history of the industry and the area. A typical business is likely to be independent, family owned and operated with as much as possible of the production process undertaken 'in-house' to minimise costs and maximise income. Many business owners are aging towards retirement age and their offspring are choosing alternative careers; moving off the land away from the traditional family home and leaving their parents to manage the business with less support. This is becoming increasingly difficult for aging landowners, particularly where ill-health can occur; creating significant social issues and hardship.

The aging population is borne out by demographic statistics for the area that clearly show an aging of the local population since 1986. The overall population of the area has grown by 194 people from 3068 to 3262 during this period however the proportion of people over the age of 60 has increased from approximately 12% to 25%[1]. Therefore in 2012, there were approximately 433 more residents aged over 60 than there were in 1986. With an average population density of 0.13 people per hectare in the region, this would suggest that 3,330 ha of additional land is now under 'aged ownership/management'. With the average property size in the region being 5.06 ha, this would be the equivalent to 658 properties. This is significantly higher than the number of properties that are estimated to have ceased or reduced production in the same period (141 properties) indicating that the aging population is likely to be at least a contributory cause of the decrease in production rather than purely market/economic factors.

[1] Profile.id - Rural East – Walliston (as quoted in Hills Orchard Study Review 2013)

It is natural for people to wish to remain in their 'family home' and to continue to enjoy the lifestyle aspects of the Hills location. Census data shows a relatively high proportion of people own their own home (i.e. mortgage free) - 39% compared to 28% in the Greater Perth Area. This suggests that land owners in the Hills are more likely to be debt free. However, it is likely that many are richer in assets than cash and funding retirement preferences (including maintenance of their land) is difficult without expecting to release capital from their landholdings.

It has been suggested that allowing additional residential development on existing landholdings (or subdivisions) would allow younger family members to remain close by older family members. Further consultation/surveying with those younger family members should be undertaken to confirm this would be their intention. The Department of Agriculture has suggested there are already plenty of smaller properties in the area and therefore this would not be a valid argument for support of a subdivision approach. Statistics show in the last twelve months there were between 50 and 86 properties advertised for sale in Kalamunda[2] at any particular time. The annual median house price in Kalamunda was around $550,000 in 2011/12 which has been slightly higher than the Perth metro median price around $500,000.

There is undoubtedly a strong sense of community in the area however this does not seem to extend to co-operative business practices. It would be difficult to pinpoint exactly why the industry has not come together to a greater extent, though anecdotal evidence suggests a number of potential factors:

- Many businesses have evolved to operate as independently as possible to reduce costs and maximise their use of 'family workers' (typically accountable as 'free' labour);
- A history of local competition between growers when the main markets were local and prior to interstate or international competition as a significant threat;
- The underlying culture of the area with associated entrenched attitudes and traditions;
- Just a lack of serendipity in that the group has not had a sufficient catalyst to motivate greater interaction and cooperation.

4.1.1 The Landowners View

As part of the Hills Orchard Study Review (2013) an extensive survey was undertaken with landowners of all properties in the area (both producing and non-producing). From 271 responses, approximately one-third were from producing lots. Whilst there was general support for subdivision in the area (61% of all landowners supported it when asked), only a relatively small proportion of respondents from producing lots stated subdivision as their future plan for their property (22%). In addition 11 respondents from non-producing lots stated their intention to establish production which more than offsets the 4 responses from producing landowners who stated their intention to reduce production. This illustrates a risk of overstating the community sentiment in support of subdivision.

4.2 Economic Context of Production

REMPLAN Economic analysis[3] for 2013 reports the following figures for the Agriculture, Forestry and Fishing sector in Kalamunda:

[2] Data from Realestate.com.au

[3] REMPLAN Update Jan 13 using data sourced from: 2011, ABS, Census JTW Employment Data; 2008 / 2009, ABS, National Input Output Tables and June 2012, ABS, Gross State Product

- Produces a total output of $71.6m (from a total local output in the area of $4,718m).
- The industry employs 236 people in the area (see table below for further breakdown).
- Imports for the sector are $22.5m (out of a total of $1,482m).

The value of the industry seems to have barely changed since 2009 when the total output for the Agriculture, Forestry and Fishing sector was just $0.3m less. However, the number of people employed has dropped significantly - in 2009 there were an estimated 307 jobs in the sector.

ANZSIC Industry of Employment	Jobs (ABS Census 2011)
0100 Agriculture, nfd	12
0110 Nursery and Floriculture Production, nfd	5
0112 Nursery Production (Outdoors)	19
0113 Turf Growing	32
0115 Floriculture Production (Outdoors)	8
0130 Fruit and Tree Nut Growing, nfd	77
0134 Apple and Pear Growing	13
0135 Stone Fruit Growing	19
0141 Sheep Farming (Specialised)	3
0142 Beef Cattle Farming (Specialised)	3
0145 Grain-Sheep or Grain-Beef Cattle Farming	7
0149 Other Grain Growing	9
0170 Poultry Farming, nfd	4
0172 Poultry Farming (Eggs)	13
0193 Beekeeping	4
0529 Other Agriculture and Fishing Support Services	5
A000 Agriculture, Forestry and Fishing, nfd	3
Total:	**236**

nfd = not further defined

These figures should be created with a degree of caution as the nature of the industry makes it difficult to measure accurately. Some businesses may be reported within other ANZSIC codes (e.g. wholesale trade) and it is likely that the employment within the industry is much greater than the figures suggest due to anomalies caused by:

- Casual/family labour costs (which may be hidden)
- The limitations of snapshot reporting on a particular date that ignores seasonal variation in employment
- Secondary employment where people have more than one job

As a comparison, REMPLAN analysis estimates the tourism sector for the area currently has an output value of $82m. A more detailed breakdown of output value by all industry sectors in Kalamunda is shown in the following table:

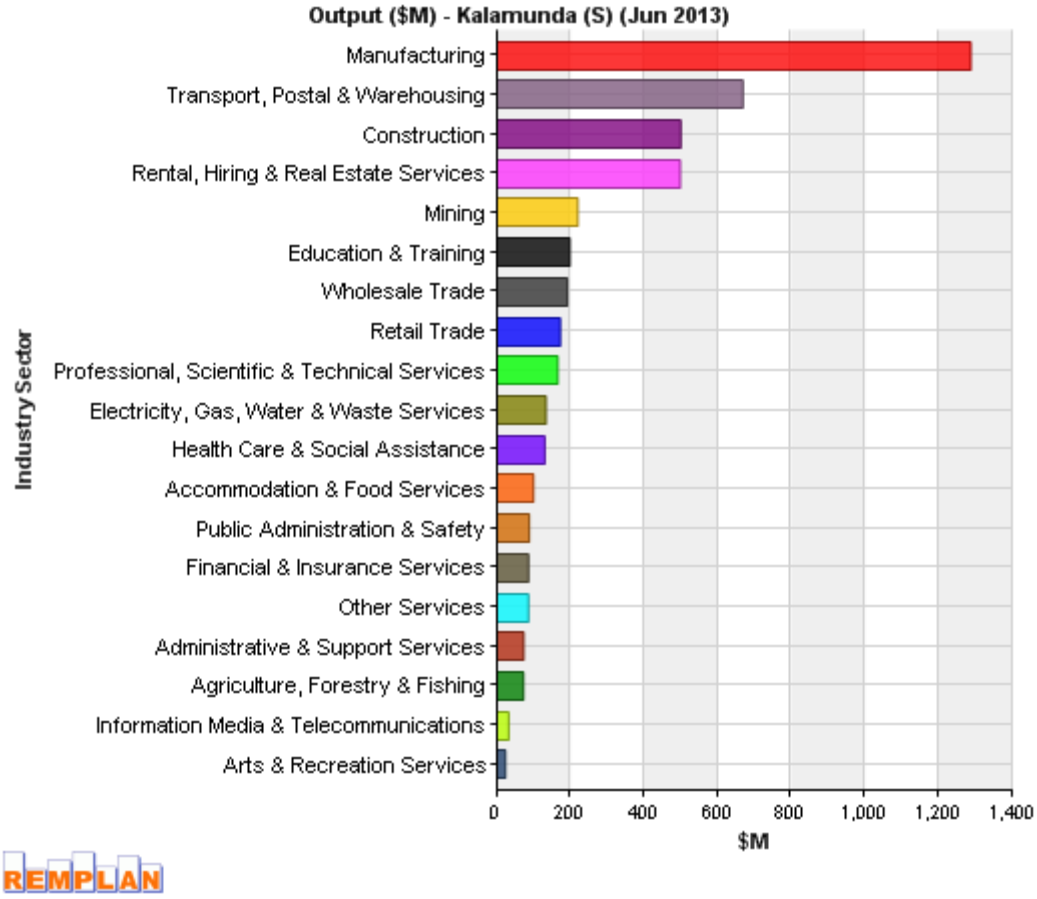

Figure 2 Chart of Output Value by Industry in Kalamunda

The table shows the low output value of the agricultural sector compared to other industries. As most of Kalamunda's economic output is underpinned by the commercial/industrial activity areas of Forrestfield and High Wycombe, there is a risk that the importance of the agricultural sector to the Shire is distorted. For the broader rural areas in Kalamunda and the local residents, the agricultural sector is certainly more important than the economic output figures suggest by themselves.

There is little doubt that the context for fruit production both locally and globally is changing as a result of the reasons outlined previously. Increasing competition is driving the need to differentiate through quality product, new varieties, value-adding and business efficiencies. Whether the industry in the Perth Hills remains viable in the long term is a complex question due to the large number of variables in the production and supply processes. Some businesses are prospering despite the fact that many others are not. It is understood that there is difficulty measuring the exact extent of production in the area (some Department of Agriculture figures include cold storage facilities that include supply from other areas and therefore do not reflect actual production from the area). Aerial surveys provide a more accurate indicator of clearing, although some clearing forms part of the natural lifecycle of planting new crop varieties and does not necessarily mean that the land could not be re-established. Certainly, the large variance and risks associated with production in the current market make it challenging to create a viable business. The following sub-sections outline a number of factors that stand out as key elements in affecting viability (and profitability) of the industry.

4.2.1 Labour Costs

Typical orchards in the Hills are family owned and have traditionally relied heavily on the support of family to help production. This labour is often a hidden cost to the business. As the availability of 'free' family help reduces there is an associated increase in costs for paid labour. With recent labour shortages in WA and relatively high wage growth compared to other states (see figure below) the problem is compounded for local growers. As a secondary effect and consequence, the industry increases its reliance on cheaper transient unskilled labour which in turn can lead to quality control issues.

Figure 3 Comparison of Average Weekly Earnings in WA and Australia

The WA Department of Agriculture and Food estimate the number of labour hours involved in fruit production per ha per year as ranging from 440 (for oranges) to 1460 (for mandarins). The WA minimum wage for General Farm Hand or Farm Tradesperson is $17 per hour which would make the typical labour cost of production between approximately $7,500 to $25,000 per ha. As the assistance of family members reduces, the offsets for some of these costs reduce and the end result is a significant financial impact on the business.

4.2.2 Capital Expenditure and Debt Financing:

Given the age of many remaining family businesses, the bulk of household debt is likely to have been paid off over many years or the burden of it reduced through inflationary effects and therefore debt financing costs are either low or non-existent. Capital assets for production are also likely to be fully depreciated. For new investors the cost of financing land, new capital and start-up costs would add a significant cost to the bottom line as well as increasing personal risk significantly, particularly given the several years that it takes for a new orchard to become productive. Given the volatility and uncertainties within the industry, it is unlikely there would be many people with the risk appetite to take on the challenge when there are alternative investments and opportunities with more certain returns.

4.2.3 Opportunity Costs

Opportunity cost is defined as the loss of a potential gain from one alternative when another is chosen. In the context of an existing grower, an obvious alternative to growing is for them to sell their land, downsize to a smaller property and invest any residual capital elsewhere for a more certain income. In the context of the

uncertainties, variability and risks of the growing industry this option may prove more profitable. Unfortunately the lack of appropriate business frameworks and other viable mechanisms to release capital from the land without selling results in pressure for the grower to move home which is not a preferred outcome for most. With recent increases in property values in the Perth Metropolitan Area, the opportunity cost of holding land is a significant factor for the viability of growers. With a 5 ha parcel of land worth in the order of at least $1m, the opportunity cost associated with holding that land could be estimated at approximately $40,000 per year (assuming a 4% return from an alternative term deposit bank account). Looking at the differential cost (as each landowner needs somewhere to live) and the median house price in Perth sitting at around $500,000, the difference would still reflect a cost of $20,000 per year.

4.2.4 Fruit Price Trends

The price of fruit is subject to large seasonal variability that can hide long term pricing trends[4]. Pricing depends on several factors including volume, quality, packing and season. The difference in price between fruit of high and low quality is significant. Local climatic events can also have a very significant effect on price if they affect overall local supply. Approximately 46% of the wholesale fruit and vegetable market in WA (by volume) is traded through the Perth Market Authority – a central market based in Canning Vale - representing $582 million[5]. The remaining share of the market is through secondary wholesalers outside Perth and other wholesale trade including direct and export markets. Whilst the two major supermarkets have direct relationships with some larger growers for core product lines, it is estimated that around half of their fresh produce is still purchased through the central markets. The strict specifications for their direct suppliers means quality graded product is taken away from the market, leaving a proportionately larger amount of lower grade product to reach the markets which can put a downward pressure on prices. The central markets therefore see a trend towards lower quality product as illustrated below. That said, at the wholesale level it is estimated that around 75% of all fresh produce is still traded through central markets.

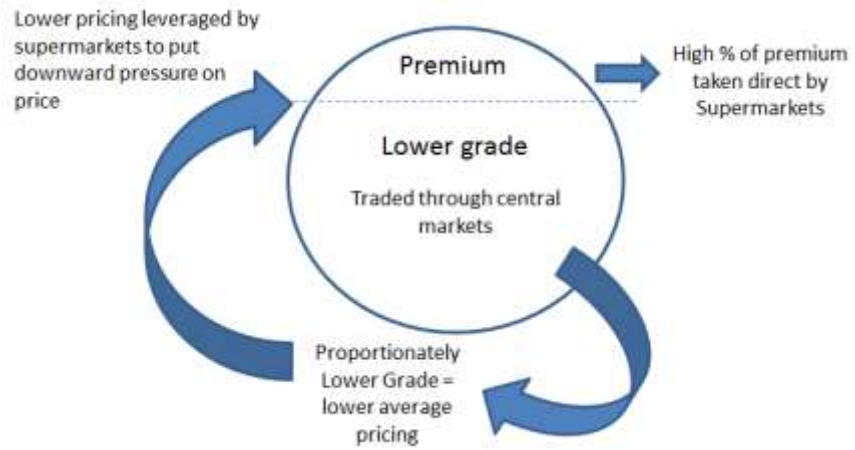

Figure 4 Diagram showing potential downward pressure on fruit prices

Anecdotal evidence suggests that traditional outlets for lower grade product (such as for juicing) are becoming oversupplied and therefore the financial value of low grade product is diminishing which in turn diminishes overall returns for producers.

[4] Western Australian Fruit Growers Association submission to the ACCC Grocery Inquiry

[5] Perth Market Authority Assessment for the year ending 30 June 2012

4.2.5 Globalisation

The impact of global competition on local production, whilst increasing, appears to be often overstated. According to research by the Perth Market Authority[6] only 3.5% of the total WA Fresh Fruit and Vegetable wholesale supply of 492,939 tonnes arises from international imports. In fact, significantly more produce is exported internationally from WA than imported to it (74,400 tonnes exported versus 16,896 tonnes imported). It is understood that much of the international import fills seasonal production gaps that local producers cannot fill and therefore its overall impact on local production is minimal (although early and late season supply where sale prices are typically higher can be impacted from imports). Interstate imports are more significant reflecting 17.5% of the total market supply, yet only 3% of exports (86,411 tonnes imported versus 17,006 exported). The bigger risk from globalisation relates to pest control where there is a concern from growers that the introduction of imported fruit may lead to new infestations that could decimate the local industry.

4.2.6 Retail Trends

A factor that is likely to be affecting local producers is the consumer trend towards more convenience retailing and more frequent food shopping patterns. This is also compounded with relatively recent changes to retail trading hours meaning that local supermarkets which have the capacity to open longer/later are seeing significant growth in sales, whereas channels such as central markets that do not serve supermarket markets so well and smaller outlets that do not have the capacity to trade extended hours miss out.

Independent greengrocers are responding by differentiating themselves by focusing on quality product, variety and marketing. An example of a cooperative marketing campaign for local retailers is the Great Green Grocer initiative supported through the Perth Market Authority and the Chamber of Fruit and Vegetable Industries WA. This forms a good opportunity for local growers who can respond with high quality and niche products.

Figure 5: Great Greengrocer Initiative Branding

The continued WA population growth (3.3% in the year 2011/12) certainly reflects a growing consumer base that is above growth for other states. This should flow through to increased retail demand. Research suggests that consumers are willing to pay a premium for niche products, healthy product, provenance and product attributes that deliver convenience. This provides opportunities for growers who can react quickly, tailor their services and deliver personalised customer experiences – something that larger supermarkets often struggle to achieve.

4.2.7 Energy Costs

According to Apple & Pear Australia Ltd (APAL) (the peak industry body representing commercial apple and pear growers in Australia), energy costs account for 17% of all costs for producers. In looking at the ability for local producers to compete with interstate and international suppliers, it is clear they are at a disadvantage due to the high cost of power in WA. For example, using a worked example, a local small business producer in WA consuming 1500kWh per month could pay approximately AU$450 per month compared to a similar

[6] PMA: Assess and Define the Perth Market Traders' share of the wholesale fruit and vegetable market March 2013

producer in Florida who would pay the equivalent of just AU$148[7]. Seeking ways to reduce energy costs would be a worthwhile exercise to help improve viability for local producers.

4.2.8 Economies of Scale

Average lot sizes in the Hills are relatively small by global standards for production. Traditional thought would suggest that economies of scale would apply to fruit growers as much as other industries and indeed this is likely to be true. However there is an argument that a 'perfect storm' of economic, social and regulatory factors has led current growers to be caught in an unviable 'no-mans-land'; they are too big to supply to local markets yet too small to supply to major supermarkets; their lot sizes are too big for a single aging self-employed owner to manager, but too small to support the additional cost burden of wages; other industries such as juicers have also suffered which has led to knock on effects on the growers in that there is a reduced market for lower grade produce thereby reducing returns further.

The obvious solution to this would be greater collaboration between landowners and this has occurred in other areas throughout Australia and other countries with varied success. In the Perth Hills, at least one grower is increasing their landholdings by renting land from other lots but this does not appear to be a widespread practice.

4.2.9 Other Production Risks

The market suffers from a number of major risks including climate change and pests. Climatic events impact crop yield with one-off events such as hail storms potentially destroying entire crops. Pests such as medfly can also have a devastating effect on crops. With increased regulation that is preventing the use of pesticides (see below), these risks are increasing. This is a particular problem for growers in the Perth Hills due to their proximity to urban areas in Perth and the associated poor land management of many metropolitan residents with fruit trees in their gardens. Growers are also particularly concerned about Spanish Fruit Fly, a new species of fruit fly that is at risk of being introduced with imported products that would have the potential to destroy local crops.

4.2.10 Declining market for waste product

In the past there was a market for waste product to be used for juicing, but with changes to the juicing industry this channel has all but disappeared. Other opportunities such as the conversion of waste product to animal feed may seem like a logical solution however waste food product that has not been produced specifically for use as stock feed can create unacceptable chemical residues in animal products. The conversion of waste to bio-fuel represents a potential opportunity to offset energy costs but has not been widely developed (see later), leaving most waste product with little value except for composting.

4.2.11 Cost and Marketability of Land

The marketability of large agricultural lots seems to be difficult at the current time due to the lack of buyers in the local market. For younger families, the affordability of properties is a challenge compounded by the trend for new land developments being marketed with big budgets by land developers in other areas. There is anecdotal evidence to suggest that the value of invested capital (including orchard trees) have little or no impact on the sale price of properties as the market in the area is driven more by demands for rural lifestyles rather than agricultural ones.

[7] WA figure based upon Synergy Business Plan (L1) tarrif @ 29.3c per kWh + 41c per day supply charge versus Florida Power and Light Company business bill worked example (April 2013) that calculates to US9.4c per kWh + US$7.13 per month supply charge. http://fpl.com/rates/pdf/Business_explanation.pdf

Part of the challenge faced by Hills Growers is that other fertile areas in WA have cheaper land. Places like Manjimup have lower cost agricultural land which naturally makes growers there more competitive. That said, the proximity of the Hills Growers to the metropolitan area reduces transport costs and also increases potential opportunities related to day-trip agri-tourism.

Analysis of land values based upon sales figures illustrate the disproportionate effect that lot size has on land values. The following graph shows land sales figures from Landgate for the Kalamunda Shire over the past two years:

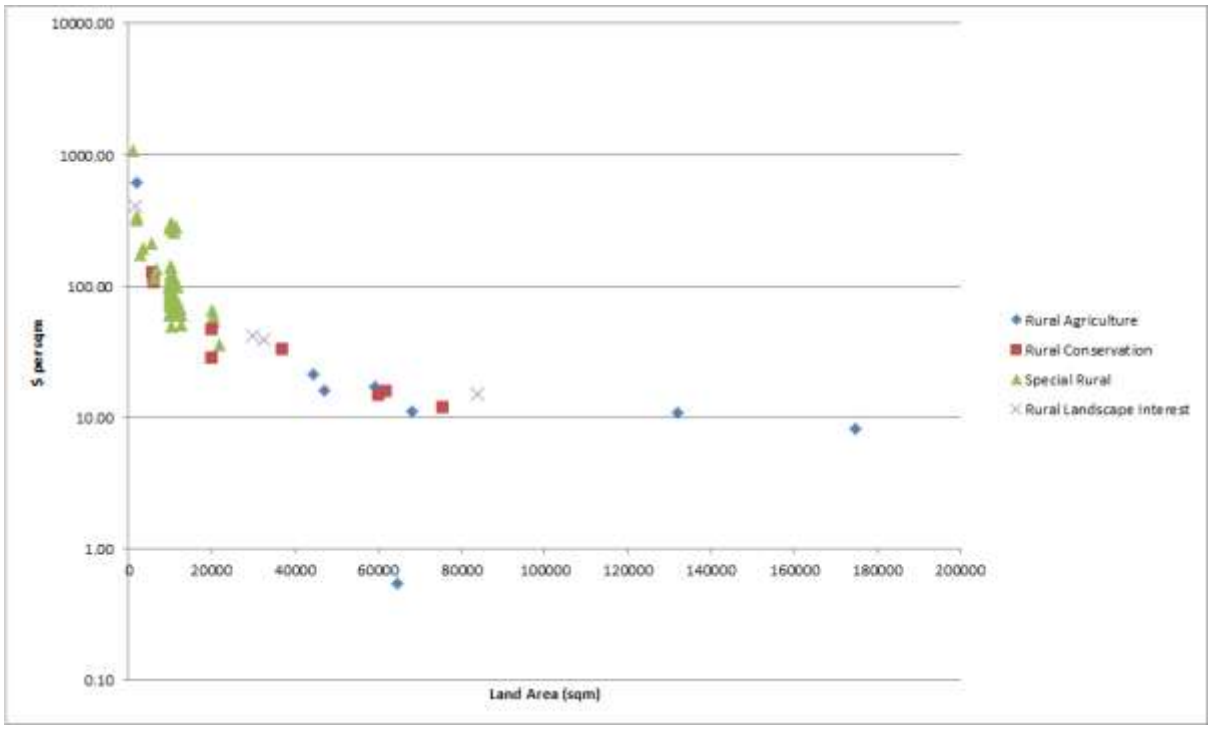

Figure 6 Chart of Land Values against Overall Lot Size

It is clear from the graph how the value of smaller lots increases exponentially. This would make it much more difficult to create viable businesses from smaller lots. As lot sizes reduce towards manageable lifestyle lots, their affordability approaches a point where people purchase them for lifestyle homes. This does not reflect agricultural land value and can be evidenced by the fact that the value with or without an established orchard is little different. Therefore a smaller block is proportionately harder to make viable from agricultural uses.

4.2.12 Skills

It would be difficult to compare the skills of local growers with other areas and no such assessment has been attempted within this study. Certainly local industry groups are taking on a role to help provide support to growers along with the Department of Agriculture. It is likely that continued support to improve skills would help further improve business management and the quality of product making this worth further consideration. It is unfortunate that farming is widely perceived as a declining industry and not something that young people typically choose for their education futures.

4.2.13 Macro Economics

The reality of the current Australian economy with a relatively strong dollar (although weakening at the current time), competition for labour with other industries such as mining (again weakening) and globalisation

are also key factors that affect viability but are outside of the control of the growers themselves. In In the last five years the AUD/USD exchange rate has varied between approximately 0.65 to 1.10, with the current rate around 0.92 which has created significant variability and a currency risk relating to foreign trade.

These factors are outside the control or influence of Local Government or local land owners. However food security both locally and globally is currently a well-considered challenge that is likely to underpin a long term need for productive land and associated produce. A timely report by AUSVEG[8] has identified that vegetable exports from Australia to South Korea and China have doubled in past five years to $9 million and $2 million respectively, reinforcing the growth opportunities available in the Asia region. The report suggests that global population growth and a more affluent middle class in Asia are the primary forces driving demand for vegetables with predictions that higher income consumers in Asia will spend up to five times more on high quality food products compared to lower income brackets which represents a potential opportunity for local growers.

4.2.14 Regulatory Context

The regulatory context is a major factor in the viability of land for productive purposes. For Hills Orchard landowners, the main regulatory factors are outlined as follows:

Local Government		
	Planning Scheme	The Local Planning Scheme No. 3 provides the local regulatory framework to control land use.
WA State Government		
	Department of Water	The area is located in priority water catchment areas resulting in strict water and waste restrictions
	Department of Planning	Overall responsibility for WA State planning policies and legislation.
	Department of Agriculture and Food	Classifies the area as priority agriculture area.
	Department of Environment and Conservation	With particular relevance of bushfire management policies
	Department of Health	With particular focus upon waste management and food safety
Federal Government		
	Australian Pesticides and Vetinary Medicines Authority	Controls the use of chemicals for the control of pests.

This regulatory environment increases costs and risks for growers arising from compliance and limits some options to undertake commercial activities and development.

[8] http://ausveg.com.au/media-release/rising-affluence-in-asia-leading-to-demand-for-quality-australian-vegetables

A particular challenge for growers in the Orchard Hills area relates to the use of pesticides for effective pest control. The local growers are at a distinct disadvantage due to the location of the area in close proximity to Perth, local drinking water catchments and the strict controls over chemical uses. Fruit fly is a particular pest that is problematic to control. According to the Department of Agriculture, Mediterranean fruit fly or Medfly is a serious horticultural pest in the Perth Hills and southern regions of Western Australia and costs the WA horticulture industry $20 million per year. Three main control strategies are recommended:

- Bait or spot spraying
- Lure and kill devices
- Cover spraying

Medfly not only affects crop production but limits access to interstate and overseas markets.

Recently, the Australian Pesticides and Vetinary Medicines authority has added greater restrictions on the use of chemicals including dimethoate and Fenthion. A twelve month exemption to a ban on the use of Fenthion is up for review shortly. According to some commentators, the impact of the reduced usage of Fenthion can cause crop losses between 20% - 50% even with alternative strategies in place[9]. There are current research projects underway by DAFWA to control fruit fly using alternative strategies such as the release of sterile fruit flies but it is understood that these approaches are not being widely implemented in the Hills area at this time.

Another area of regulation that affects some local growers relates to the Agricultural Products Act and the quality control standards that are applied to local WA produce (table grapes and citrus fruit). The sale of locally grown produce that does not meet the standards attracts significant fines. This results in a risk for wholesalers that put WA producers at a disadvantage to those from other states who do not have to conform to the same quality controls.

4.2.15 Upfront investment cost

One potential issue is an industry policy to remove fruit trees that are not in active management to reduce the fruit fly problem. However the removal of trees negates any potential value of those fruit trees for production at a later time. To re-establish new production capability requires significant up-front investment that cannot provide a return for several years.

4.2.16 Summary of Economic Context

The following table summarises the key factors associated with the economic context of production.

Price Variability	Large variability in price between high grade product and lower grades. Uncertainty of price impacts arising from major climate events
Strength of Australian Dollar	Strong Australian dollar makes foreign imports more competitive – though international imports still relatively low.
Energy Costs	Account for 17% of growers' costs and WA energy costs are rising significantly. WA: 26-29c per kWh (+41c per day supply) US: 8–10c (US) per kWh
Pest Control	Fruit fly significant problem due to proximity to metro area and changing regulations to ban use of pesticides. Risk of other pests being introduced through imports.

[9] http://www.inmycommunity.com.au/news-and-views/local-news/Yield-losses-force-orchardist-out/7646078/

Regulatory Context	Cost of compliance – particularly with planning, water, bushfire, health and pesticide use
Market Demand	Continued WA population growth - greater than other states leading to a growing market. Increasing global demand Additional trends for quality product, healthy eating, organically produced product, and new varieties supporting demand.
Retail Trends	Trend towards convenience retailing. Extended trading hours favours larger supermarkets
Proximity to Markets	Hills area close to Perth consumer market leading to lower transport costs.
Establishment costs and lag	Significant up front establishment costs associated with planting and the subsequent lag of several years before significant yields produced
Labour Costs and Availability	Mining boom has created a labour shortage and increased wages.
Land prices and marketability	Increasing land prices underpinned by 'lifestyle' purchasers. Lack of demand for agricultural land
Related industry trends	Changing markets in other related sectors such as juicing leading to reduced demand for waste product

5 Potential Areas of Opportunity

The following section provides potential avenues to explore for the future support of growers in the area and the growing industry. These avenues primarily fall into the following categories, namely:

Planning Based Solutions – primarily focused upon allowing for subdivision (potentially with conditions) on lots of 6ha or greater. There are several possible planning based models considered that include consideration to both productive and non-productive lots. The main options considered include:

- Re-categorisation of the area as non-priority agricultural
- Ancillary Lot - where limited subdivision is allowed conditional on support strategies for productive uses from the balance of the landholding
- Rural Cluster Development - where small rural clusters could be developed on a portion of the landholding with some shared infrastructure and a financial model to fund land management
- Transferrable Development Rights - allowing landowners with protected agricultural lots to transfer development rights to other developers with landholdings in areas preferred for development

The planning based solutions also include consideration to the extension of allowed land uses to permit greater flexibility for complementary business opportunities. The preferred options recognise the need to allow landowners to release equity in their land to support investment in creating viable financial models whilst balancing the requirement to retain production in the area.

Business Efficiency and Quality Solutions – primarily focused upon improving the business efficiency, productivity and reduction of risks to producers to ensure the maximum return on their landholding through improved/increased production - aiming to encourage producers to create viable businesses as a result of best practice management techniques. This option also considers strategies to help increase the overall quality of

products that can differentiate themselves in the market and command premium prices. Finally consideration to improved marketing, branding and new distribution/sales models are considered within this option.

Complementary Business Opportunities – primarily focused upon enabling producers to expand into complimentary business models that may fulfil additional elements of the supply chain and/or provide added value.

Status Quo – leaving the current situation as is without intervention to allow market forces to resolve.

Some of these options, such as allowing subdivision in the area, will inevitably result in permanent change to the area that would be difficult, if not impossible, to reverse once those changes are made. The additional difficulties, even if that were the preferred option, include differences of opinion with State Government representatives that would make it difficult to reassign priorities for water supply or agricultural priority.

5.1 Planning Based Solution

The main planning based solutions involve a blend of land-use, rezoning and subdivision approaches. The main options are summarised as follows:

5.1.1 Re-categorisation of land as not priority agricultural

The Department of Agriculture and Food have designated the Hills area as a priority agricultural area. This is based upon their assessment of a number of factors including climatic conditions, water quality, landform etc. The Shire would need a strong argument to show that the area is not worthy of this rating based upon its own consideration of these (and other additional) factors. This is likely to be a difficult argument as there is little doubt the Hills region is a fertile area and has a unique microclimate based upon its elevation and topography. Additionally, there are some landowners in the area that would wish the area to retain this status to protect their businesses. A potential scenario would be to consider the overall amount of fertile land in the State (much of it underutilised at the current time) as aligned to the future population projections for the State. This analysis may reveal whether there is a potential over-supply of fertile land which may support an argument for re-categorisation of land in the Hills area.

Re-classifying the land would potentially allow it to become Rural under the scheme, which would result in the allowance of subdivision down to 2 ha lots across the region. There would be significant implications to this ranging from the impact on infrastructure (particularly services) to the overall amenity of the region. It is understood that the Department of Agriculture has stated that it would not support this proposal. The Department argues that reclassifying the area would result in rural lifestyle lots and would be counter to their overall policy of securing food sources for the State. The approach would also have significant implications for water use, sewage and bushfire protection which may be problematic.

5.1.2 Creation of a new categorisation for the area

As with the Swan Valley, the Shire could pursue an option to have a special categorisation of the area under its own act. The Swan Valley Planning Act 1975 divides the Swan Valley into three planning areas (A, B and C) and has four general planning objectives namely:

- The encouragement of the traditional agricultural and other productive uses of the area that complement its rural character;
- The protection of the environment and the character of the area;
- The reduction of nutrient levels in the Swan River; and
- The promotion of tourism that complements the rural character of the Swan Valley.

Despite the Act, it has proven difficult to deliver the general and specific planning objectives[10]. The area still faces pressures from subdivision, incompatible uses between agribusiness and agri-tourism that are impacting the viability of business and the rural character of the Valley. The creation of a 'Hills Act' is likely to be a complex process and would need further investigation in association with the appropriate stakeholders.

5.1.3 Rural Cluster Development

The rural cluster model of development permits a small number of residential dwellings to be built in a manner that preserves the balance of a lot for agricultural production. A method to implement this could be through strata titles (or similar community title) with shared common infrastructure (such as sewage) that could result in more efficient waste treatment, water use and energy use. The balance of the agricultural land could be leased to a grower or maintained by means of strata fees as determined by the strata management body. The overall aim would be to provide residents with a rural lifestyle without necessarily the operational management associated with growing. Ultimately this would maintain the agricultural production from the land. Potential conflicts between residents and the activities of growers would need careful management and the overall design would need to ensure that the rural amenity of the area would not be compromised by the higher density of residential properties. A similar example of the model is the Nangarin Vineyard Estate in Picton, NSW[11].

5.1.4 Transferrable Development Rights

The transferrable rights model would allow landowners of protected agricultural land to sell their development right to an alternative development area, thereby protecting the agricultural land. In turn, this would allow a purchasing developer to create increased density within their new development elsewhere. The model is used in the US and requires the separation and independence of land ownership and the right to develop land.

Notwithstanding the need for significant legal guidance to assess this solution, the Shire would also need to identify development areas where higher density would be appropriate and viable. Potentially the proposed redevelopment of Pickering Brook may provide a target area worth exploring further. A concern with this method is that once development rights are sold by a landowner, there would be no guarantee that financial management by the landowner would improve thereafter, or that the use of land would remain productive, thereby leading to similar problems in the future. Equally, the model may provide problematic for land developers in designated development areas who may feel they should have the rights to develop land to its maximum density without having to purchase development rights from others.

5.1.5 Creation of Ancillary Lot

Previous recommendations have outlined a preferred option to allow owners of productive land only to apply for the creation of an ancillary lot of 2ha within any lot greater than 6ha. Owners would be required to justify their requests for subdivision based upon preservation of the balance of productive land. This approach could encourage family members to remain living on the land, new residents to bring additional investment and fresh ideas, as well as allowing existing landowners to realise some of their asset value.

The main downside of this approach is that once subdivision has occurred, the Shire would have little control over the future use of the ancillary lot or its parent lot. Therefore the trend of industry decline may continue but with the increased likelihood of additional issues relating to incompatible uses that would need to be controlled.

[10] Swan Valley Land Use and Management Discussion Paper – Sept 2012

[11] http://www.nangarin.com/faq.php

In spite of the potential for additional investment, the creation of an ancillary lot will increase the challenges for viable production on the remaining element of the lot due to its reduced size. There is also the potential for increased land management issues such as fruit fly control arising from increased density. The approach may also lead to subsequent pressure in the future to allow further subdivision.

The inclusion of non-productive lots in this model is not discussed here as it is considered unlikely to affect the economics of agricultural production and is more a matter of fairness and equity to be considered separately.

5.1.6 Extension of Approved Uses

Either in conjunction with the above options or independently, additional compatible uses could be considered under the scheme with the aim to encourage new business opportunities such as agri-tourism. These additional uses would need careful consideration to ensure new uses would not introduce conflicts with the prime purpose of the area to be an agricultural producing area. Certainly the development of appropriate policies to manage any potential challenges would be required.

5.2 Business Efficiency and Quality Solutions

There are opportunities to support the economic viability of the growers through other economic intervention strategies.

5.2.1 Capacity Development and Product Quality

Developing the business management skills of local landowners may in part help to improve the profitability of local growing businesses. This would require engaging with local landowners and bringing in new ideas and 'best practice' for growing. These improved practices would potentially help to boost product quality and yield. It is noteworthy that the Queensland government is aiming to "boost profitability by improving yield per hectare of high quality fruit and nuts and making those industries the most competitive in the world" through programs such as the Small Tree-High Productivity initiative[12]. The program aims to support achieving the Queensland Government's target of doubling agricultural production by 2040. More locally there are examples of innovative practices such as one grower who is using the area between the fruit trees to grow vegetables as a means to increase the yield from their property.

It has been suggested that there are opportunities to improve quality and efficiency throughout the production processes including growing, picking, packing, storage and waste management. The local industry has faced some comments by members of the retail sector for quality issues both in terms of the product and the way it is packed. Even if this is simply a perception, it should be further investigated to ascertain the validity of these comments and identify any opportunities for improvement.

5.2.2 New Technologies

New technologies may provide opportunities from a number of perspectives. Not only helping to improve efficiency of production, but also helping with marketing and sales. Some of these new technologies may also help to alleviate other challenges such as waste and water use leading to a win-win outcome for all. For example the opportunity to turn organic waste into bio-fuel may be viable for producers to offset their energy costs. (There is an example of a local producer already using this new technology). Also solar energy may help to mitigate against the high costs of energy that the local growers are facing that leads to less competitive

[12] http://statements.qld.gov.au/Statement/2013/2/27/small-tree-big-yield--the-future-of-food-growth

production. Other new and emerging technologies include automated packing, pruning, vertical farming[13] and even drone technology for precision pest control[14].

5.2.3 Collaborative Farming, Shared Common-Use equipment and facilities

There are likely to be opportunities for more collaborative practices such as the group purchase of equipment and supplies that can be shared between all participants. Common-use equipment would aim to reduce the up-front capital investment required from an individual producer. Sometimes, this concept can also be supported by government investment. (The Henderson Marine Complex south of Fremantle is an example for the shipbuilding industry). Other opportunities may exist for several landowners to collaborate to 'hire a farmer' to work their landholdings as a group or to group purchase supplies to be able to negotiate a reduced price. Non-productive land may be rented out to a nearby grower thereby providing economies of scale and a rental income to the property owner. Low cost labour schemes such as Willing Workers on Organic Farms (WWOOF) may also provide opportunities to improve availability and affordability of labour by providing accommodation in return for labour. Endorsed Health and Safety policies to reduce insurance or collaborative insurance may also be an option.

There are a growing number of models that appear to be supporting farmers generally and would be worth exploring for fruit growers. Bulla Burra is one example where farmers have come together, created a company to manage the farming operations and then leased their land back to the company[15]. This can be a more effective method to manage and distinguish capital expenditure from operational expenditure.

However, collaboration seems to be a significant change for the local growers and general commentary on the topic suggests there can be significant reluctance for people to cooperate except in the direst situations. For this approach to work, it would require a strong change management program to support cultural change.

5.2.4 New Products and Market Development

There is the potential for local producers to value add to their current products, explore new opportunities arising from new fruit varieties and develop new markets. Current consumer trends towards healthy eating and a continual demand for novel foods underpin an opportunity for producers to innovate. A potential avenue that has been suggested is the use of super critical fluid extraction techniques to create products such as food supplements and vitamin tablets. These new products can open up new revenue streams and new markets including international opportunities. The use of on-line technologies provides an opportunity to create direct sales to a global market. An example of a WA business that has successfully achieved this is the Chai Co that sells chia seeds directly on-line[16]. This company started in the Kimberley in 2003 and is now a global company with offices in London, New York and Melbourne.

The local Kalamunda Markets may provide a base from which to explore and test new products as well as a platform to build a local brand. The current markets may benefit from further consideration to identify opportunities for development and growth as some growers feel that the local markets do not provide sufficient sales volume to provide a viable sales channel.

[13] http://en.wikipedia.org/wiki/Vertical_farming
[14] http://westernfarmpress.com/grapes/drones-and-pesticide-spraying-promising-partnership?page=1
[15] http://www.youtube.com/watch?v=F9YLjqIpH8U
[16] http://www.thechiaco.com.au/thechiaco/our-story

A number of emerging consumer trends provide the potential for new markets through community supported models[17] and food hubs to help local growers, namely:

- An increased focus on healthy eating and the associated demand for trusted product that includes organically grown and locally produced product;
- Renewed interest in food preparation and the demand for new tastes and flavours;
- A shift towards convenience retailing and associated home delivery; and
- On-line technologies, smartphone applications and associated e-commerce solutions.

One model that is showing some success in the US and elsewhere has been the use of farmer owned brands or the "farmer's story" as part of the marketing strategy for products; in some ways similar to guarantee of origin concepts, it has been shown that consumers were willing to pay a premium for products where they have knowledge and trust in the story of the farmers behind a product[18].

Whilst globally it has been difficult to crack the home delivery market, there may be opportunities to explore this further. Technology certainly has a role to play in making viable solutions through smartphone applications and refrigerated doorstep storage solutions. An example is Foodstory[19], a Canadian start-up that aims to bring Toronto's farmers' markets online and make them accessible 24/7. Consumers can log on to FoodStory, see what will be available for purchase from the market each week, and see the story behind their local farmers and food. There may also be opportunities to explore new 'mid-way' models with centralised retail markets that are close to communities and growers[20].

Servicing local businesses may also provide an opportunity for a new direct sales channel. Providing fresh produce to local businesses (and their employees) including hospitals, aged care facilities, and other larger organisations may provide additional revenue as long as this could be coordinated and managed efficiently. This adds strength to the argument for greater collaboration and cooperation between producers.

5.2.5 Government Support

There may be opportunities to advocate for government support to the industry in a number of areas namely:

- Improved tax breaks to support investment in capital infrastructure;
- Subsidies and grants to support the provision of infrastructure (particularly common use);
- Grants to provide opportunities for investment in new technology trials;
- Skills development programs;
- Support with risk reduction in areas such as pest control; and
- Facilitating collaboration between key stakeholders.

A particular area of support would be the opportunity to initiate a support strategy to help reduce risks of fruit fly. It is understood that the government could do more to support local growers with new techniques in the control of fruit fly such as the release of sterile flies which is a technique being trialled successfully in other states and countries.

[17] https://en.wikipedia.org/wiki/Community-supported_agriculture

[18] http://www.card.iastate.edu/publications/dbs/pdffiles/02bp39.pdf

[19] http://www.foodstory.ca/index.html

[20] http://blog.id.com.au/2013/urban-trends/local-food-markets-in-japan-what-a-great-system/?utm_source=.id+insight+August+2013&utm_campaign=id+insight+August+2013&utm_medium=email

A collaborative approach to advocacy is needed between government and the growers, firstly at the local government level, but also at the State government level when dealing with Federal matters.

5.3 Other Complementary Business

Another area of opportunity is for local landowners to expand into additional business activities that complement their core agricultural business and add value to their product. These may include new activities such as end product development (e.g. cider production from apples), agri-tourism, rural retreats and other similar business uses. Some businesses in the Hills area are already proving these models successfully such as the Core Cider House that has been developed by the High Vale Orchard.

5.3.1 Agri-tourism

There would seem to be strong opportunities to develop agri-tourism opportunities although this would require supportive planning and development policies together with marketing to ensure a unique offering for the region that would entice visitors. Certainly the landscape of the Hills would be seen by many to be even more attractive than other successful locations such as the Swan Valley lending itself to day-trippers and short-stay accommodation.

Current tourism trends suggest that visitors are looking for quality experiences, so for the Hills this may require:

- Greater emphasis on 'front or house' quality and customer service;
- Development of unique product varieties that would be different from those already broadly available and provide the incentive for people to travel to visit/taste;
- Focus on experiential tourism that leverage the strengths of the region and its component businesses;
- Complementary businesses that combine to support the overall intention such as quality accommodation. One concept may be to promote 'orchard stay' accommodation to allow visitors to stay on an orchard and experience the growing lifestyle along with tasting the local produce; and
- Marketing solutions that help to promote the region (acknowledging the need to balance expectations with actions to improve tourism product).

Responding to these requirements often requires significant up-front investment and commitment from all stakeholders. For many growers, this investment is scary, but for those willing to take the risk there are potentially significant rewards as evidenced by a small number of growers in the region already.

Obviously greater tourism will lead to other effects that would need management as tourists expectations may conflict with the reality of production. Such things are pesticide spraying, flies, early-morning noise and other 'anti-social' factors have proven problematic in other areas and would need further pre-emptive consideration to manage.

5.3.2 Biofuel from Fruit Waste

There could be an opportunity to investigate the productive use of fruit waste for the production of biofuel (including bioethanol or solid biofuels). Whilst this is unlikely to be viable to create a revenue stream for growers, it may be an appropriate method to offset existing high energy costs to improve viability. One winery in the region is already experimenting with this approach.

Recent emerging technologies such as cellulosic ethanol production enable the creation of bio-ethanol from organic matter and may provide opportunities for growers. Companies in the United States have started to create self-contained ethanol production systems such as E-Fuel's MicroFueler™ that claims to be the world's

first portable ethanol micro-refinery system making it possible for homeowners and small businesses to safely and cost-effectively create their own fuel, on-site[21]. More locally, the University of Western Australia has created an integrated end-to-end system in a standard 6.1m (20ft) container that demonstrates an anaerobic technique 'in a box'.

Examples have been also created in other locations including the Fraunhofer Institute that has built a pilot waste-food-to-fuel plant in Stuttgart, Germany, next to a wholesale fruit market. At the end of the day, the waste and rotted vegetables are scooped up and dumped into a bioreactor, where the waste ferments into a sustainable biomethane. As an added bonus, the biofuel plant also reuses all of the runoff from biomethane production, like the liquid filtrate, which is fed to algae farms that produce a biodiesel fuel. CO2 from the fermentation process also feeds the algae farm. Though strictly a test plant, this demonstration shows promise to allow local farmers to 'fuel up' on otherwise discarded fruit.

Challenges with this opportunity include the variability in supply (maintaining a constant supply of bio-feed is key to maximising utilisation) and the impact of transportation costs. However, with the appropriate partnerships between researchers, government and the industry, this may be an avenue worth exploring further.

5.4 Status Quo

One option to consider is the Status Quo approach whereby the current situation is left as it with a view that market forces will resolve the situation one way or another. There are several scenarios that may play out with this option, namely:

- If the Australian Dollar continues to depreciate, the pressure from global competition will diminish leading to greater competitiveness for local product with international markets;
- Continued increase in local population growth in Metropolitan Perth will lead to a growing local market and increased demand. Land that is non-producing will take longer to re-establish making those who remain competitive;
- Competition from interstate producers would be likely to continue to increase as investment and intervention strategies in those areas create better/cheaper products;
- Land values will drop to a level determined by the market that balances supply and demand;
- Land owners will be forced to either cooperate to survive or sell and move; and
- Where land owners are forced to sell, there is likely to be social hardship as the market adjusts to demand and peak prices are not achieved.

The uncertainty of these scenarios and their associated outcomes present significant downside risk to the local industry and community, therefore the status quo approach is not recommended.

6 Summary of Interventions

The following table provides a summary of the intervention strategies outlined previously:

Category	Intervention Summary	Probable Outcomes

[21] http://www.microfueler.com/t-technology.aspx

Planning		
- Land Re-categorisation	Re-categorise the land to non-priority agricultural production	Create the argument that the area is not a priority for food production leading to the potential for broader subdivision. Likely to result in significant reduction in production.
- Ancillary Lot	Allow priority Agriculture Lot + Ancillary Lot: 2ha	Limited reinvestment likely into some productive lots. Creates incentive for currently non-producing lots to start producing to be eligible. May provide opportunities to establish an economic development fund to support business/industry development activities. Little certainty over long-term outcomes
- Strata Development	Create a rural cluster	Allows several residential dwellings to be built together with the balance being used for agriculture. Enables a potential financial model to support production through strata fees.
- Transferable Development Rights	Allow landowners to transfer development rights to a third party	Protects agricultural land at the expense of greater density in another area
- Extended Uses	Allow for additional land uses	Provides additional options for landowners to produce income
Business Efficiency		
- Capacity development & Product Quality	Maximise the effectiveness and efficiency of local production Undertake survey of retailers to assess quality	Best practice orchard management Highest quality product
- New Technologies	Investigate the role of technology in supporting production	Creates improved product quality, yield and business efficiency
- Collaborative Farming	Realise cost-of-scale advantages through collaborative practices Create examples of models that have worked in other areas	Improves viability Helps balance capital-expenditure and operational expenditure
- New Products and Markets	Discuss opportunities with growers for new products and undertake pilot projects. Explore new	Development of new products and extended markets

	distribution channels	
- Government Support	Investigate the role of government to support the industry Lobby for government support in new areas	Greater government support aligned to industry needs.
Complementary Business		
- Agri-tourism	Encourage tourism opportunities	Creates new business models to support viability
- Biofuel	Explore the potential to utilise waste product to offset energy costs	Reduces energy costs to help with viability
Status Quo	Allow market forces to resolve	Uncertain future

7 Enablers

7.1 Governance

Probably the most important factor in the survival of the industry would be a formal leadership group that can represent the interests of the landowners, ensure cooperation, coordinate collaboration and deliver business development outcomes. This needs to be complemented by defined roles and appropriate resources to deliver initiatives. As an initial step of the group, the development of an industry development strategy should be created to guide activities. There are already a number of local industry groups that may be able to take ownership of this responsibility although it may be necessary to establish a new group with appropriate input or oversight from the Shire (particularly if investment is required). The group would be expected to deliver outcomes under defined terms of reference than ensure appropriate management and expenditure of funding. These terms would be focused upon helping the Hills industry to sustained profitability through areas such as marketing, innovation, advocacy, market information, risk management and environmental responsibility.

7.2 Government Support

There could be several arguments to justify government support including:

- The position of government requiring preservation of the land for food production longer-term irrespective of the market conditions in the immediate term;
- The characteristics of the industry;
- The need for WA to diversify its economy beyond the resources sector; and
- The costs associated with the increased need for infrastructure should urbanisation occur, thereby justifying funding for alternative strategies to invest in industry supportive activities instead.

Support may be at all levels of government and could include:

- Grant funding for common use equipment and facilities;

- Marketing of local product;
- Support for research and trial project in innovative areas; and
- Tax relief for capital investments.

7.3 Marketing and Branding

The region needs a strong marketing strategy to support the industry - particularly in relating to any agri-tourism opportunities. This may involve the creation and promotion of a brand for the area that aligns to customer demand for quality and wholesome produce. Ideas for implementation include:

- Creation of a common and consistent farm gate branding that could be used to create more professional signage for stalls in the Hills area (rather than the more typical hand-painted sign on a piece of waste wood);
- Promotion could be achieved through a farm gate trail guide that may include a smartphone app with the potential to link into additional opportunities for on-line direct purchasing, home delivery and other community supported agriculture initiatives;
- Potentially the farm gate stall could be built into an annual event/competition such as a 'Best Farm Stall' competition (similar to community scarecrow competitions) with associated linkages with local community groups and schools (e.g. Men's Shed). This could also create an incentive for visitors to visit the area;
- Creating a signage strategy that embeds appropriate and consistent branding for the area onto local signs, maps etc.;
- Leveraging existing Shire resources for marketing such as its own website, the Zig Zag Cultural Centre and other community assets such as libraries and the administration centre;
- Investigate adding grower stories to their produce so that consumers can access more information about the source of their purchases; and
- Undertake a survey of wholesalers and end consumers to identify perception of Hills produce and to find unique characteristic that might underpin a marketing/branding initiative.

Any marketing would need to ensure alignment of consumer expectations with Hills product.

7.4 Business Development

Supporting local producers with developing new market channels and growing their business would benefit from a new business/industry development role for the industry. This role would be focused upon liaising between producers and creating new/expanded sales channels (an example might be the creation of a community supported agriculture model and food hub). The role may also include other responsibilities such as marketing and branding. The role would be defined by the governance group.

7.5 Funding

Any business support initiatives to support the area will require funding. There may be the potential to fund initiatives through collaborative contributions from local producers, potentially through a cooperative or association structure. Typically, this type of model is difficult to implement as the willingness for producers to pay is dependent on the tangible value they receive and often the value is difficult to measure. Initiatives such as branding and marketing tend to be expensive and are best implemented with a longer-term outlook which conflicts with the day-to-day needs of business.

Within the planning scenario to allow subdivision, an option may be to implement a development contribution model at the point of the subdivision application or possibly a rates levy (using a business improvement districts model) that could be used to support a centralised fund to promote and support the industry. This would require broad agreement from landowners and it would be important to define the scope of projects including any infrastructure that would be funded using such a scheme. The amount of the contribution would need to be sufficient to support impactful industry development initiatives. Any on-going levy would need careful thought so as not to place an impost on producers who already facing financial hardship.

The WA state planning policy 3.6 Development Contributions for Infrastructure identifies the need for any developer contribution model to be underpinned by a development contribution plan and incorporated into a local planning scheme, or otherwise through voluntary agreement with the relevant developers. There is debate over exactly what is eligible to be funded through developer contributions which are generally restricted to capital costs rather than on-going maintenance or operation. For growers this would require identifying specific infrastructure that could be created to support the industry unless an alternative negotiated outcome could be reached for 'softer' services like marketing.

The policy states that contributions can be sought for community infrastructure that includes "*such other services and facilities for which development contributions may reasonably be requested having regard to the objectives, scope and provisions of the policy*". Furthermore, the policy states that development contributions can be sought for "*other costs reasonably associated with the preparation, implementation and administration of a development contribution plan*". The basic principles underlying development contributions include:

1. Need and nexus
2. Transparency
3. Equity
4. Certainty
5. Efficiency
6. Consistency
7. Right of consultation and arbitration
8. Accountable

Confirming a scheme that is equitable to all beneficiaries should be developed in association with growers and other stakeholders to confirm an appropriate and fair scheme.

7.5.1 Government Funding

The government's Clean Technology Food and Foundries Investment Program and other similar programs may provide opportunities for investment into new technologies. This $200 million competitive merit-based grants program supports Australian food and foundry manufacturers to invest in energy efficient capital equipment and low emission technologies, processes and products.

8 Discussion of the Options

The risk of continued decline in the growing industry warrants consideration to strategies that both strengthen and diversify the local economy and the community that lives here. To some extent this supports an argument for a planning/subdivision approach that would bring in new residents with new ideas leading to a more resilient economy.

Theoretically, there is also an argument to suggest that reducing the minimum lot size could help viability of some businesses in certain circumstances for the following reasons:

- It would enable existing producers to release equity in their land, some of which could be invested into new infrastructure for the continuation of the remainder of their business
- Smaller lots could facilitate a greater level of diversity in production allowing for niche production
- Subdivision may bring in new investment and ideas into the area that would support some economic opportunities to maintain production on some properties
- Smaller lots may encourage family members to stay in the area by providing an opportunity for them to own their own home neighbouring the main family home and thereby continue to support production through the family business.

By looking at DAFWA estimates of the labour required to grow fruit, a typical example is 910 hours per ha of apples which, assuming a single full-time person working 38 hours a week for 48 weeks per year (equating to 1824 hours) is 2 ha capacity.

However, the WA Department of Agriculture and Food is strongly against any push for rezoning and subdivision for a number of reasons including:

1. The area is classified as a priority agricultural area and should be protected as a food production area;
2. The fact that there are already many smaller properties available in the greater Perth area and therefore larger areas should be protected;
3. Subdivision will lead to greater population density that in turn will lead to amenity issues, land use conflicts as well as potential exacerbation of pest control;
4. Past experience in other locations that has resulted in poor outcomes;
5. The fact that further subdivision creates premium lot pricing that is above agricultural value, which makes the it harder to create a viable business;
6. The department feels that current areas that have been left fallow are all part of the cycle where new varieties can be created; and
7. Support of the area is not within the Department's current strategic focus.

Further challenges with a planning based solution include:

- Once land is fragmented through subdivision, it would be difficult to reverse in the future;
- The pressures of 'urbanisation' may inhibit viability of the remaining agricultural activity further, particularly through reduced lots sizes as well as local amenity and incompatible use issues;
- Increased demand for lifestyle lots is likely to increase lot prices disproportionately to their agricultural land value making agricultural production even less viable;
- The smaller lots would not benefit product quality, something that has been raised by retailers;
- The lack of on-going long-term control to ensure ancillary uses remain as agricultural production may result in continued decline of agricultural production. This may in turn lead to a cycle of further pressure to allow increased density;
- Additional land uses may put increased pressure on other services creating issues relating to water, waste, etc.;
- Increased density is also likely to lead to greater land management issues that would potentially exacerbate pest issues.

Whilst these arguments are valid, they neglect the social context. A subdivision approach would certainly help some existing landowners overcome their financial hardships whereas the status quo approach is likely to lead to continued (and increased) financial hardship for some growers. Whilst some factors are currently easing such as the strength of the Australian Dollar and staff shortages are also reducing, their situation is unlikely to improve significantly any time soon without other interventions.

The business efficiency solutions represent the simplest and fastest opportunity to help the growers, although the effects on individual businesses would be less certain. These tend to be longer term and rely on difficult cultural change. They will require growers to be innovative, take risk and to collaborate more - traits that are uncertain. These solutions also require on-going funding and a clear governance model with the necessary 'arms and legs' to deliver projects.

Taking a passive status quo approach would be the least preferable solution as it leaves the local industry entirely to market forces and ignores opportunities that could be leveraged through a more active nurturing approach. The status quo approach risks the continued erosion of the area's advantage of an existing industry base, its associated investments, knowledge base and its platform for value-adding opportunities such as agri-tourism.

9 Summary of Arguments

The following table summarises the arguments along with points supporting and against those arguments:

Argument	Support	Counter
Current lot sizes result in a production capacity that is too large for local markets but too small for major retailers. Subdivision would be a solution	• Subdivision will bring new investment into the area and allow existing landowners to release capital that can be invested into continuing their business • Smaller lots will encourage more 'cottage' production of niche products • Increases diversity and resilience	• Subdivision will make lots less viable due to lower efficiencies of scale and as land price increases beyond agricultural value. • Higher density risks greater conflicts between land uses • Already plenty of smaller lots in greater Perth area. • Protection of fertile agricultural land is an imperative. • Larger lots are generally more viable than not smaller ones. • Unlikely to provide a long term solution without other strategies • Risks destroying the unique rural character of the area • Unlikely to affect product quality
Overall market value of produce is reducing making production unviable	• Interstate and global competition makes locally produced fruit too expensive	• The Australian dollar has weakened over the last few months making local produce more competitive. • Better quality local product would improve competitiveness/value • Overall demand is increasing with local population growth and overseas demand for quality produce • Consumer trends for healthy eating support market for quality locally grown product

Subdivision of land will enable families to remain on the property to support the family business	• Smaller lots will make it easier for families to retain property in the area and continue to help out with the production	• This argument would suggest that in time, the next generation may want the same outcome. The approach is unsustainable. • May work for a few businesses but equally likely that subdivision will be used to fund lifestyle options • Younger family members may not want to remain
Declining use of current land/lots for production shows it is unviable	• People are pulling up their orchards as evidenced by the diminishing production in the area.	• Reduction may be explained in part by the aging population. Some people are doing well. • The land remains fertile and this is part of the natural process that happens anyway with the introduction of new varieties
Risks and uncertainty of production are too great	• Costs of regulatory compliance are increasing • Potential restrictions on pesticide use add to risk of crop destruction • Climatic factors which affect production are too uncertain	• Barriers are not insurmountable as shown by some • Opportunity for innovation to overcome challenges

9.1 Risk Assessment

The following table shows a summary risk assessment of key strategies:

Strategy	Risks	Likelihood	Consequence	Mitigation
Planning Solutions	• Subdivision approaches will lead to increase in rural lifestyle lots and lower viability of remaining agricultural land.	High	• Remaining productive industries will reduce permanently and agricultural land will be lost.	• Prevent subdivision approaches
	• Any solution that leads to increased density will be likely to increase land use conflicts and poor land management issues.	High	• Poor community outcomes and potential for increased pest issues. Ultimately likely to increase pressure on productive industries	• Minimise any increase in density.
Business Efficiency	• Outcomes are uncertain, longer term and difficult to quantify upfront. Requires upfront investment and longer term commitment to realise results.	Medium	• Many simply postpone the same problems as now, but having incurred additional expenditure. • Uncertain outcomes	• Consequence of not doing anything is greater than the risk of failure. • Base activities on an agreed strategic plan that has been agreed by stakeholders upfront and is regularly reviewed • Implement regular reporting and measurement of outcomes where possible
Other complimentary Business - Allow extended land uses	• Extension of allows uses may provide additional conflicts between uses.	High	• Restrictions on business operations that may impede viability	• Ensure only complementary uses are allows and ensure appropriate controls are in place to regulate uses.
Status Quo	• Status quo approach may lead to significant social hardship and continued industry decline	High	• Increased social problems • Declining industry • Poor land management affecting remaining businesses	• Allow market forces to resolve

10 Conclusions and Recommendations

The study concludes that the implementation of a planning approach through land subdivision is not considered to be the sole solution to the long term viability of growers in the Hills. Most importantly, it is understood that this approach is not supported by the State Government.

Whilst subdivision may be attractive for many landowners to support their personal circumstances, it is a risky strategy for the broader community that is more likely to support the further decline of the growers industry over the longer term. Whilst some short-term investment may be released from the sale of subdivided lots to be reinvested into sustaining current businesses in the short term, the overall viability of smaller lots will reduce further as the land value of lifestyle lots increases beyond the value of the agricultural land and puts pressure on productive lots.

Furthermore, it is considered likely that the aging local population is equally likely to use this released funding to support their retirement living expenses rather than investing in business growth.

The argument for subdivision to support families staying on the land is also considered a short term strategy given global trends in employment and living. Even if the strategy works for some families, the problem is likely to resurface in the future with subsequent generations.

To some extent the region suffers from an expectation from some land owners that sub-division is inevitable and/or a right attached to their ownership of the land. This has probably arisen due to other examples in Perth and an expectation raised by other prior discussions. Whilst in an ideal scenario, the breadth and depth of the property market would be sufficient to create a solid demand for all types of property, it is probably fair to say that the market for larger lots is becoming less as farming becomes a less attractive business for people who prefer more manageable smaller lots closer to the City and professional jobs in other industries.

Subdivision is also considered likely to exacerbate amenity issues and water/waste issues that will put further pressure on remaining producers. Increased density will increase the likelihood of poor land management by some new owners and increase risks of pests such as fruit fly as well as the risk from bushfires.

With the recent reduction in the strength of the Australian dollar and the slowdown in the mining sector, labour is expected to become more available, the competitiveness of imports will diminish and the opportunities for export increase. Continued local population growth in the Perth area also represents a growing local market and thereby greater viability in the industry.

Therefore any subdivision approach should include provisions (potentially through developer contributions, rates levy or other similar approach) to support the remaining growing industry, and potentially to support other local initiatives to diversify the local economy. This may include strategies to invest in tourism, facilities in the new Pickering Brook town centre, marketing and skills development for example. Whether the subdivision of productive and non-productive lots should be treated separately and the associated contributions split appropriately should be a matter for further consideration.

Irrespective of any planning based solution, this study suggests that the industry should focus on greater collaboration and innovation as a means to grow and prosper. Industry development strategies in other regions such as food hubs and community supported agriculture have shown some success and are worthy of consideration for the Hills area. However, for any ‘soft’ solutions to work, it will require a collaborative approach from the community based upon shared values and objectives. This may require cultural change management in the area where producers are accustomed to working independently and competitively.

The report makes the following recommendations:

18. Investigate either existing local growers' groups or the formation of a new group to facilitate greater collaboration between growers – potentially with a view to establishing a cluster or cooperative. A few seed projects should be considered as a means to catalyse and focus this group any may include exploring opportunities for land share opportunities, a marketing project, a skills project and/or a renewable energy project.

19. Analyse the overall supply of fertile land in WA as compared to the State's population projections to see if there is an over-supply of land and thereby an argument to support the re-categorisation of land as non-priority agriculture

20. Explore the argument with the Department of Agriculture that if land is to be preserved for future food production, the Dept should be prepared to support projects that help with viability such as contributions to pest control, investment schemes for new infrastructure and other initiatives.

21. Investigate opportunities to advocate for incentives that encourage investment in capital equipment such as preferential tax treatment of investment in equipment to allow for faster depreciation of assets.

22. As part of the consideration to a subdivision approach, investigate the potential to implement a development levy or development contributions scheme to support the growing industry. This may include initiatives to support economic diversification of the local area, marketing and other initiatives such as tourism and the creation of the Pickering Brook Town Centre.

23. Investigate the potential to instigate trial innovation projects in areas of production, orchard management and waste

24. Communicate government support schemes to local growers such as the R&D investment scheme that support new investment and investigate/promote government programs like Enterprise Connect to provide advice and support for growers.

25. Explore ways for more efficient energy use via energy audits with growers to reduce overall energy costs.

26. Undertake further consultation with wholesalers and retailers to undertake a product 'quality audit' to understand the nature of the current output from the Hills as well as to better understand end customer expectations, retailer requirements and to assess opportunities for new product development and improvements. Also grow stronger relationships between growers and retailers leveraging common goals to supply quality product

27. Facilitate knowledge building and skills development by bringing leading experts to share insights

28. Investigate links between growers and local education providers to link growers to student support programs and to encourage a new generation of growers that bring new ideas

29. Investigate the quality controls applied within the Agricultural Products Act to confirm any opportunities to 'level the playing field'

30. Investigate a "Hills Grower" branded farm gate display product that could share a common brand and support farm gate sales along with the development and promotion of a associated tourism trail.

31. Investigate the potential for a 'farmer story' campaign to be associated with local produce to enable consumers to have a greater affinity with the growers.

32. Undertake survey of younger family members of growers to understand their desire to remain in the area and maintain roles in the family business

33. Contact local start-up networks in Perth (e.g. Spacecubed) to investigate the potential for local entrepreneurial project to create innovative technology based solutions for direct on-line retailing for fruit and veg using a smartphone app or similar.

34. Assess Community Supported Agriculture and associated models such as Food Hubs as part of overall collaborative approach and governance model.

11 APPENDIX 1: Worked Example of Viability

The following worked example aims to illustrate some of the 'theoretical' figures to assess viability for a typical growing business on a 6ha lot (the minimum area for a lot zoned Rural Agriculture under the Local Planning Scheme)[22].

An approximate typical value for a land parcel of 6ha with single residential dwelling = $900,000 to $1,000,000[23]

Assuming that a landowner would require a residential property irrespective of the location, the value of a residential home will be discounted. For the purposes of the example, the median house price in Perth of $470,000 will be used.

Therefore value of remaining land = $1,000,000 - $470,000 = $430,000

To finance this at a commercial rate of 8% would require interest payments of $34,400 per year, or approximately $6,000 per hectare (assuming a balance of 5.75 ha for business activities from the overall 6ha lot).

Costs of financing land: $6,000 per ha per year

Added to this, where a new orchard is planted, there is several years' delay before the orchard becomes productive. The WA Department of Agriculture and Food estimate development costs upwards of $40,000 per hectare minimum (for citrus) ranging up to $90,000 per ha for pome and stone fruit. These costs cover the supply of water, irrigation, trees, trellising, netting, sheds, grading equipment and, in some instances, a cool room.

Costs of establishment: $40,000 to $90,000 per ha

The Department estimates operating costs at $22,000 per ha per year for mature pome and stone fruit and $16,000 per ha for citrus depending on orchard set-up and planting density. The Department estimates the cost of packing and delivery of fruit to market to be a similar amount again.

Cost of production (including operation, packing and delivery): $32,000 to $44,000 per ha

The labour required for production also varies between crop type. Tasks include fruit thinning, pruning, harvesting, packing, fertilising, irrigation, pest control and pest monitoring. The Department of Agriculture and Food have provided guidance on estimates that range from 440 hours per ha for oranges to 1460 hours per ha for nectarines.

The Department estimates the number of labour hours for production at between 440 to 1460 hours

In addition, as fruit trees take several years to mature before they produce saleable fruit this reflects an additional cost that needs to be accounted for.

The Department estimates that stone fruit may take 2 – 3 years before becoming productive

[22] Whilst the preferred minimum is 12 ha, subdivision to lot sizes no less than 6 ha are permitted subject to certain conditions

[23] This has been calculated using past sales of similarly zoned land. There is a margin of error due to the volume and variability of sales

The following table summarises these figure to outline approximate costs and income potential:

All figures per ha	**Apples Granny Smith**	**Oranges**	**Stone Fruit (e.g. Nectarines)**
Approximate Costs:			
Operating costs#:	$22,000	$16,000	$22,000
Pack and delivery costs#:	$22,000	$16,000	$22,000
Labour Costs*:	$23,000	$11,000	$36,500
Total Production Costs:	**$67,000**	**$43,000**	**$80,500**
Yield Estimates (kg/ha[24])	50,000	5,000 – 67,320##	30,000
Income			
Average Price**	$2.38 per kg	$1.96 per kg	$2.37 per kg
Total Income:	**$119,000**	**$9,800 - $132,000**	**$71,100**

#Taken from DAFWA estimates

Range shows difference between young and mature tree

*Labour assumed @ $25 per hour

**prices taken as an average price per kg from 2012 figures of the Chamber of Fruit and Vegetable Industries in Western Australia

These figures are indicative only and hide the significant variability of both costs and income based upon several factors including:

- The percentage of saleable crop is a significant factor that can vary significantly from season to season
- The price of fruit which can vary significantly based upon quality and general supply/demand issues
- The age of the orchard that affects the overall yield of the fruit trees
- The upfront establishment costs and asset financing
- Pest and climatic effects that can significantly affect yield for any given season

The figures show that there is the potential to make a profit from growing fruit but the margins vary considerably. Also, the effect of one or two seasons of poor yield can negate any profits from other years.

[24] http://www.horticulture.com.au/librarymanager/libs/165/Apples%20Case%20Study.pdf

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