



Department of
Primary Industries and
Regional Development

Planning for the Peel Food Zone Project

Final report



Resource management technical report XXX

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The project commissioned GHD to assess land suitability in the Peel Food Zone study area and to develop a food transition strategy for the Peel Business Park. Extracts from GHD reports are included in this report.

Summary

The completion of the Planning for the Peel Food Zone project under Phase 1 of the Transform Peel initiative allows the Peel Development Commission and the Department of Primary Industries and Regional Development (DPIRD) to re-evaluate their joint efforts to promote agriculture and food industries in the Peel region. It also offers the opportunity to align these activities with DPIRD's strategic intent to protect, grow and innovate.

Transform Peel has been developed as a "disruptive" long-term program to support economic growth, diversification and jobs creation in the Peel. It contributes to addressing the region's high population growth rate, high unemployment, and transition from a population-driven economy to an export-traded economy. Transform Peel also recognises the importance of protecting the internationally recognised waterways and wetlands of the Peel-Harvey by seeking to half the nutrient loads entering waterways from the surrounding catchment.

The \$49.3 million phase 1 program for Transform Peel comprises three key components:

- Peel Food Zone
- Peel Integrated Water Initiative
- Peel Business Park.

Transforming agriculture in the Peel region requires the adoption of best management practices by established farming businesses, alternative ways of managing soil and water and new or different types of farms and production systems. This is particularly important in the context of reducing nutrients to the Peel-Harvey Estuary and its Ramsar listed wetlands.

Consultation undertaken for the project supported maintaining current land zoning to support a diversity of future agricultural land uses and innovation in agriculture production and management. Most agreed that intensive agriculture should focus on areas of land and water with the greatest potential for agricultural intensification and engaging with landholders supportive of land use and management changes. Consultation did not support forced land use change through restrictive zoning.

The project concluded that the preferred planning approach is to:

- Use existing planning terminology and the current planning framework to plan for agriculture and food in the Peel.
- Continue to use planning strategies, schemes and policy as the primary mechanism to identify and protect priority agricultural land across the Peel region.
- Facilitate state and local government collaboration to undertake land suitability and high quality agricultural land mapping across the Peel region.
- Streamline regulation by developing guidelines for small to moderate scale animal premises and clarify planning requirements for protected cropping.

- Investigate the potential for protected cropping sites in Peel.

Non-planning related activities recommended to support the current agriculture producers in the region, encourage food manufactures to establish in the Peel Business Park and increase investment in innovative forms of intensive agriculture include:

- Provide incentives to support food processing and manufacturing businesses relocating to Peel Business Park and/or West Mundijong Industrial Area.
- Increase coordination and information/ knowledge sharing among Peel farmers, for example by supporting the establishment of a Growers Group in the Peel region.
- Undertake research, development and innovation to reduce nutrient export from agriculture and to increase productivity from current land uses, protected cropping and emerging land uses (e.g. mobile outdoor poultry farms).
- Promote and market fresh and processed food originating from the Peel region.
- Investigate the feasibility of establishing a Peel regional brand and provenance, consistent with the overall branding strategy for Western Australia.
- Provide DPIRD officer assistance to growers and agri-businesses seeking to establish or expand in the Peel.
- Differentiate what the Peel region has to offer investors.
- Seek to leverage projects within Transform Peel and the Peel region with initiatives occurring in other regions, and across Western Australian and nationally.

1 Introduction

In 2017, 136,850 people lived in the Peel region and the region's population had increased annually a rate of 5.4% from 2011-2016, more than double the state's overall growth rate of 2% over the same period. Further growth will occur as Perth's urban footprint shifts south. The region's rapid increase in population, and the need to local employment, requires a long-term strategy to attract an expanded range of new industry and businesses to the Peel region.

The Peel Development Commission (PDC) worked with stakeholders in the Peel region to develop and instigate Transform Peel initiative. This is a transformative 35-year economic development program for the Peel region. It aims to generate \$16 billion per year and create 33,000 jobs while also halving nutrients entering the Peel-Harvey estuary.

Phase 1 of Transform Peel is a three-year program (2016-2018) designed to activate, de-risk and establish market readiness of the key integrated components:

- Peel Business Park
- Peel Food Zone
- Peel Integrated Water Initiative.

The State Government supported phase 1 with \$49.3 million allocated from the Royalties for Regions program with \$45.2 million managed by LandCorp to install trunk infrastructure and services to 290 ha of the Peel Business Park at Nambeelup. LandCorp is seeking to sell lots from its own holding at Lot 600 Lakes Road. The Peel Business Park will serve as the main catalyst for economic growth and employment.

The Department of Primary Industries and Regional Development (DPIRD), formerly the Department of Agriculture and Food, Western Australia, manages Phase 1 planning for the Peel Food Zone (PFZ). The DPIRD project involves preliminary planning for the food zone, developing a food transition strategy for the Peel Business Park and supporting the PDC with their investment attraction activities.

The Department of Water and Environmental Regulation (DWER), formerly the Department of Water, manages the Peel Integrated Water Initiative (PIWI). This project involves technical assessments of water supply and demand for the Peel Business Park and across the PFZ. It seeks to improve water quality/nutrient reduction outcomes by modelling the impact of drainage interventions and supporting DPIRD's on-farm soil testing and investigations into soil amendments. DWER is also undertaking technical investigations into alternative water options such as Managed Aquifer Recharge in partnership with the Shire of Murray and CSIRO. These studies are due before the project finishes in mid-2019.

The PDC, through the Transform Peel Strategic Advisory Committee (TP SAC), provides program oversight for the three projects; manages stakeholder relationships and communication; and implements specific projects on investment attraction, workforce development, research and development facilities and innovation.

1.1 Purpose of this report

This report summarises key findings from DPIRD's project. It recommends a planning approach, future initiatives and activities to support the agriculture and food aspirations for Transform Peel and how these align with DPIRD's strategic intent of protect, grow and innovate primary industries and regional areas of Western Australia.

The project involves high level planning to encourage new and expanded investment in agriculture and food close to the Peel Business Park in order to expand and diversify the region's employment base while also countering the pressure for urban development on the region's rural land. The project involved:

- A study into the opportunities and constraints to agriculture in the Peel region including a land suitability assessment and mapping for a range of agriculture uses.
- Consultation on the opportunities and constraints for agriculture informed by the results of the land suitability assessment and mapping.
- Consideration of an appropriate planning approach to support agriculture and food in the Peel.
- The development of a food transition strategy for the Peel Business Park.
- Supporting the PDC in their strategic approach to investment.
- Holding a statewide forum on protected cropping for horticulture.

2 Background

The business case for *Transform Peel- an integrated approach to building regional resilience Phase 1: Activation (2016-2017)* supports high-level preliminary planning for a PFZ consisting of up to 28 000 hectares (ha) of land supporting a variety of rural and agricultural enterprises.

In the longer term, the business case proposes the establishment of 1 500ha of irrigated agriculture land with water pipeline supply by 2031 and 3 000ha of irrigated agriculture land with water pipeline supply by 2050.

2.1 Agriculture and food elements of Transform Peel

The agriculture and food elements of the Transform Peel business case are multi-faceted and integrated across innovation, workforce planning, investment attraction, investigations into water resources and support to activate the Peel Business Park.

A key part of the business case is the establishment of a food zone to secure the best (low risk, most versatile) land and water for agriculture and to counter the pressure for urban and rural-residential development of rural zoned land. The business case also recognises the need to enhance the competitiveness of the Peel agricultural sector and the need to encourage more profitable agricultural land uses in the region.

The business case recognises the need for new investment in innovative agriculture, as well as in food manufacturing and processing, to support additional employment and to supply additional produce for domestic and export markets. This involves developing new areas of irrigated land with year round, climate independent water supplies.

A challenge for Transform Peel is developing new industry and irrigated agriculture in a highly sensitive environment. For this reason, Transform Peel aims to improve the water quality and environment of Peel-Harvey waterways by reducing nutrient export from agriculture and industry. The business case refers to reducing the nutrient levels from the Nambeelup Brook, which flows through the study area into the Serpentine River.

Under Transform Peel, DWER's PIWI project is investigating the impact of drainage interventions on water quality and quantities to wetlands in the PFZ. In 2018, DWER funded an additional round of voluntary soil testing and agronomic advice and targeted landholders in the PFZ who had not previously been involved in the program. This is in addition to the activities supported by the Regional Estuaries Initiative (REI) for the Peel-Harvey estuary, which DWER manages.

The REI operates across a number of estuaries in south-west WA and in the Peel region the project:

- Funds the Peel-Harvey Catchment Council for joint delivery of on-ground actions resulting in evidence-based long-term management strategies for the Peel-Harvey estuary and catchment.
- In partnership with the DPIRD, the Peel-Harvey Catchment Council and farmers, reduces the nutrient runoff from farms while supporting farm productivity.
- Works with catchment groups to restore stream function and modify drainage to improve water quality at priority sites.

- Trials new materials to treat soil, water and drains.
- Updates modelling to evaluate potential estuary management actions and fund ongoing monitoring of the Peel-Harvey estuary and its catchments.

Planning for new agricultural development needs to mitigate environmental risks of developing new land for irrigated agriculture in the PFZ, by encouraging closed agricultural systems, which do not release nutrients into the environment. Traditional irrigated crops need to be located on suitable soils, which can assimilate nutrients, and are located well away from sensitive waterways and wetlands. Planning needs to be consistent with the Western Australian Planning Commission's (WAPC) *State Planning Policy 2.1 Peel-Harvey coastal catchment policy*.

The business case identified the following strategic risks for the PFZ project:

- The Strategic Assessment of the Perth and Peel Regions 1 (SAPPR) does not allow the PFZ to proceed.
- Inability to reach agreement with key stakeholders on a framework for the PFZ.
- Inability to secure the necessary planning instruments to enable the implementation of the PFZ.
- Some or all of the associated catalytic projects, such as the research facility, trial cropping and rural operations training facility, are not supported and/or funded².
- New private sector investment is not forthcoming in the sub-projects.
- Opportunities for new private sector investment exist but sub-projects do not represent compelling value propositions.
- The PIWI project is not able to effect the anticipated reduction in total phosphorus across the PFZ.

2.2 Changes over the course of the project

2.2.1 Machinery of Government changes

The report uses current State Government agency names recognising the following Department amalgamations from 2017:

- Department of Primary Industries and Regional Development (DPIRD)
 - Department of Agriculture and Food, Western Australia
 - Department of Regional Development
 - Department of Fisheries
 - Staff supporting the nine Regional Development Commissions
- Department of Water and Environmental (DWER)

¹ The Strategic Assessment of the Perth and Peel Regions is currently under review.

² These activities are not part of the DPIRD's project.

- Department of Water
- Department of Environmental Regulation
- Environmental Protection Authority
- Department of Planning, Lands and Heritage (DPLH)
 - Department of Planning
 - Department of Lands
 - State Heritage Office
 - Land and heritage functions of the Department of Aboriginal Affairs.

2.2.2 Planning

In 2017 and 2018, the state government released two planning documents that influence the planning approach for rural land and agricultural land uses in the PFZ.

In July 2017, the state government released the *Peel Region Scheme Priority Agricultural and Rural Land Use Policy*, which includes southern portion of the PFZ in the Shire of Murray. The policy does not identify any priority agricultural land in the PFZ study area; however, it includes relevant policy measures relating to agricultural land uses and reducing nutrients on the Peel Harvey Coastal Plain.

In March 2018, the state government released the *Southern Metropolitan Peel sub-regional planning framework* as part of *Perth and Peel @ 3.5 million*. This sub-regional planning framework identifies the PFZ as remaining predominately rural with some new areas of rural lifestyle development in the southern PFZ and 1 000ha of industrial land at Nambeelup. The release of the sub-regional planning framework reduces pressure for urban and rural lifestyle development in the PFZ out to a future planning horizon when the population of Perth and Peel reaches 3.5 million people.

A review of Western Australia's water related state planning policies is currently underway. The policies under review includes *State Planning Policy 2.1 Peel-Harvey Coastal Plain Catchment (SPP2.1)*, *State Planning Policy 2.9 Water Resources* and *State Planning Policy PP2.10 Swan-Canning catchment*. Section 6.2.2 of this report discusses the implications of the review of SPP2.1 for the PFZ project.

2.2.3 Strategic Assessment of Perth and Peel Regions

In December 2017, the Department of Premier and Cabinet released the draft Perth and Peel Green Growth Plan for 3.5 million (GGP). The draft GGP, derived from the Strategic Assessment of the Perth and Peel Regions (SAPPR), was closely aligned with the WAPC's draft Perth and Peel @ 3.5 million planning. The GGP's draft Conservation Program action plan includes the following actions to improve water quality and protect wetlands in the Perth and Peel regions:

- The introduction of targeted mandatory soil testing (including agronomic advice and reporting of fertiliser use) for properties over 40 hectares in the Peel-Harvey coastal plain catchment, which aims to reduce phosphorus inflows from agricultural fertiliser use by half.

- A long-term drainage intervention program in the Peel-Harvey catchment, similar to drainage intervention programs implemented to date in the Swan Canning catchment.

Another action in the draft GGP was to review State Planning Policy 2.1 Peel-Harvey Coastal Plain Catchment (SPP2.1) and the Environmental Protection Peel Inlet - Harvey Estuary Policy 1992 and mechanisms under the Planning and Development Act 2005 to prevent high nutrient export activities on soils with a low phosphorus retention capacity.

In April 2018, the State Government decided to suspend work on the SAPPR and the draft GGP to undertake a review of this approach.

The health of the Peel-Harvey Estuary remains an important state government priority with the progress underway on election commitments to ensure the future health of the Peel-Harvey Estuary and improve recreational fishing experience including \$1.5 million allocated to buyback commercial fishing licences.

3 Land suitability

In 2016, DPIRD appointed GHD to provide advice on planning for the PFZ project including land suitability mapping to identify opportunities and constraints to agricultural development. GHD reviewed interstate and international food zones and provided advice to DPIRD on a suitable planning framework.

The PFZ study area originally covered 28 000ha but after consulting stakeholders, it increased to over 42 000ha. Its boundary extended north to Karnup Road to include Serpentine and east of the South West Highway to the edge of the Darling Scarp. The expanded PFZ study area includes southern Serpentine-Jarrahdale shire, Keralup (East) in the City of Rockingham and the northern Murray shire (Figure 1).

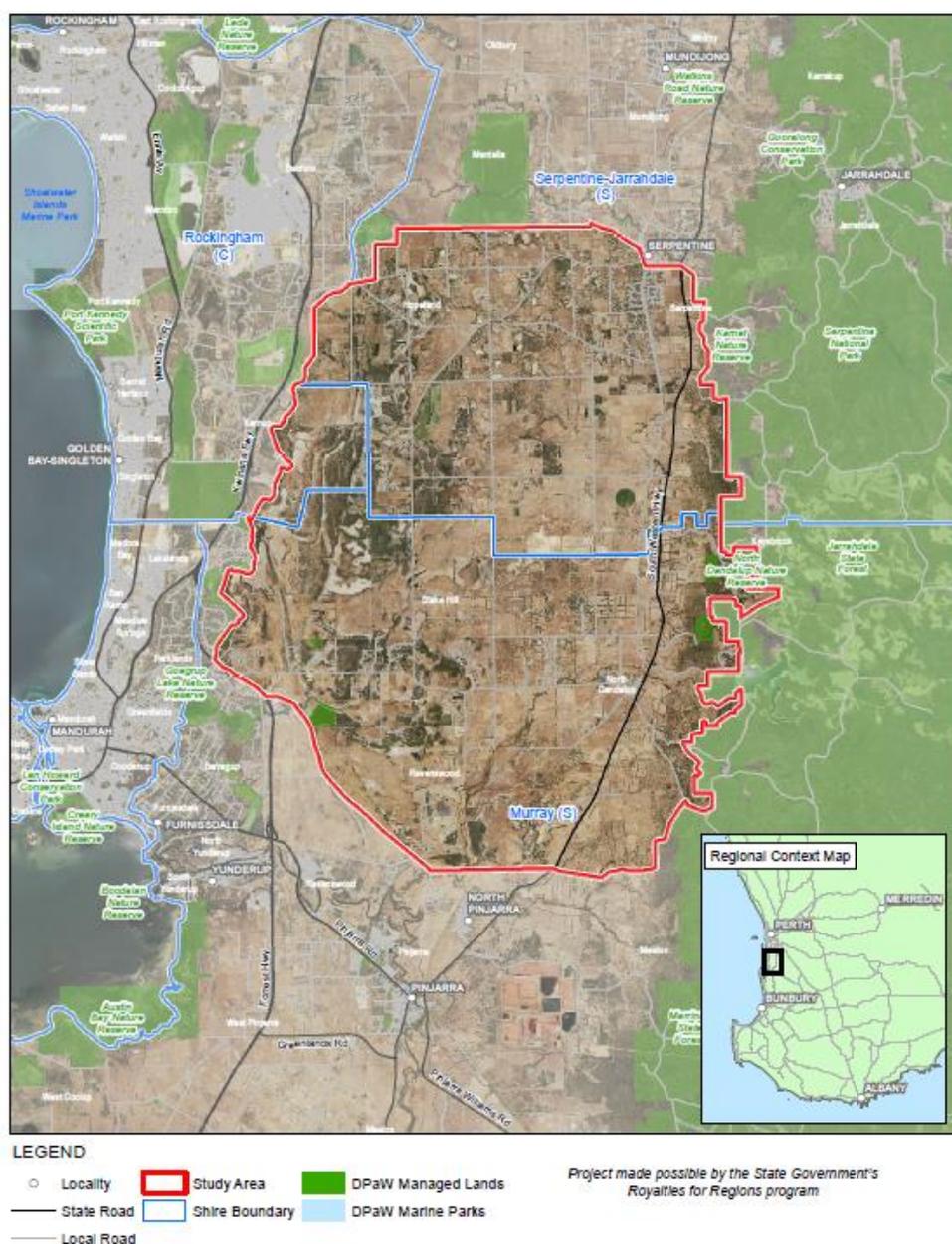


Figure 1 Peel Food Zone study area

3.1 Methodology

GHD mapped current agricultural land uses as well as land that is highly constrained for agriculture such as nature reserves and remnant vegetation. The assessment mapped the opportunities and constraints associated with six agricultural land uses:

- Non-irrigated (dryland) grazing (current primary use).
- Soil based irrigated annual horticulture, such as leafy vegetables.
- Soil based irrigated perennial horticulture such as fruit trees and grape vines.
- Covered soil based irrigated horticulture, such as strawberries in tunnel houses.
- Covered closed systems horticulture including glasshouses with hydroponics.
- Closed intensive animal premises such as shedded poultry, piggeries and cattle feedlots.

Figure 2 illustrates the agricultural land uses used in the land suitability assessment.



Figure 2 Agricultural land uses analysed in land suitability assessment

GHD used spatial software to analyse regional scale data layers on environment, soils, land capability, land use zoning and infrastructure to generate maps showing where each land use was most suited. Regional spatial data included land capability, flood risk and phosphorus export risk mapping, simplified mapping of groundwater availability and distance to receiving water bodies. Other data sets included information on land use zones, lot sizes, key road, electricity and internet services. These data sets generated draft land suitability maps. The maps were finalised using feedback from a stakeholder workshop in April 2017. DPIRD published the GHD report and summarised land use suitability maps online in August 2017.

3.2 Findings

The GHD study found that land capability, groundwater availability and the opportunities offered by the road, power and digital networks most influence land suitability for agriculture in the PFZ. It concluded most of the rural land would remain used for extensive grazing. Further intensification of agriculture in the PFZ needs to consider the environmental importance of the Ramsar listed Peel-Harvey estuary and wetland systems and adequately separate intensive farming from urban and rural residential areas.

The GHD study found the eastern part of the study area is most suited for a wide range of agriculture with western areas better suited to closed production such as hydroponics. Land close to services (roads and power) is best suited to closed system intensive horticulture.

3.2.1 Soil-based horticulture

Figure 3 shows regional data layers and the land suitability map for soil-based irrigated annual horticulture. Soil-based irrigated perennial horticulture and for covered soil-based irrigated horticulture generated very similar maps, with more areas suitable for covered option.

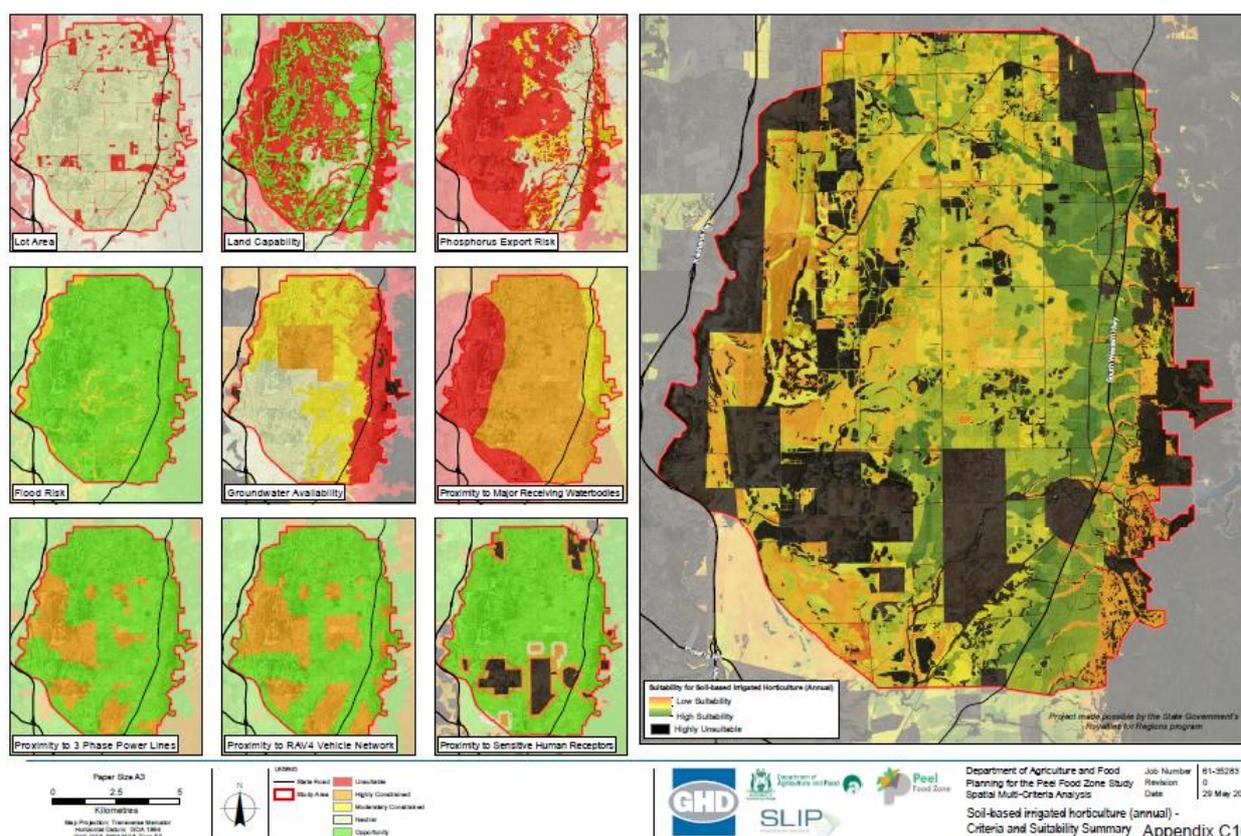


Figure 3 Land suitability mapping for soil based irrigated annual horticulture (GHD 2017)

3.2.2 Closed system agriculture

As innovative food production is integral to Transform Peel, GHS’s land suitability study considered closed horticulture (protected cropping) and livestock systems, which do not discharge excess water or nutrients into the environment.

Figure 4 shows suitability maps for innovative closed system protected cropping which do not grow crops directly in the soil. This means that soil-based attributes such as land capability and phosphorus export risk were not included as data sets and there is a closer relationship between suitable areas and proximity to services and infrastructure.

Commercial scale intensive agriculture is not a permitted land use in rural-residential areas. These areas are mainly in the southern portion of the PFZ. New intensive agriculture development must be located away from rural-residential areas to maintain amenity for residents and to minimise land use conflicts.

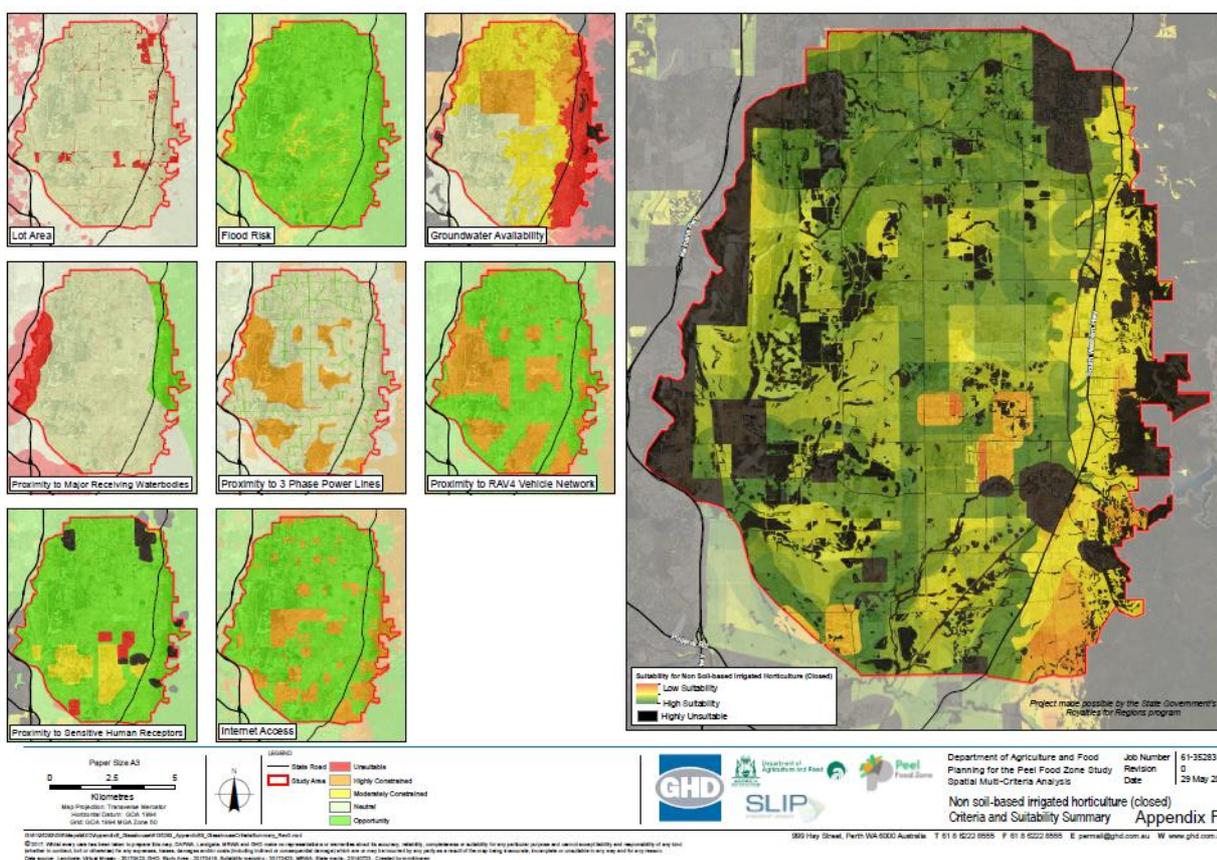


Figure 4 Land suitability mapping for soil based irrigated annual horticulture (GHD 2017)

3.2.3 Water resource information

Suitable land for intensive livestock is limited in PFZ due to the presence of shallow groundwater across most of the area. Intensive livestock premises will require landfill to achieve a minimum separation to watertables of two metres. Intensive livestock premises need to be located well away from settled areas, such as Mandurah, to minimise odour impact on residents.

The land suitability study used simplified assumptions about the availability of groundwater for irrigated crops, protected cropping and intensive livestock.

Understanding the quantity and quality of water resources is critical for planning new agricultural development.

The technical water resource investigations being undertaken by DWER in the PIWI project will provide important information about water resources and the technical feasibility of alternative water sources such as Managed Aquifer Recharge (MAR).

MAR refers to artificially adding water into suitable aquifers for environmental benefits and/or to allow the water to be stored for future use. It follows a managed process assures adequate protection of human health and the environment. It would be useful to reassess the assumptions made about water availability for the land suitability study in light of the completed PIWI studies.

3.2.4 Conclusions

The analysis concluded most of the PFZ would stay under extensive grazing. There may be site-specific opportunities in the PFZ for protected cropping with closed systems, where water is or becomes available from alternate sources. In-ground horticulture can occur on suitable soils in the eastern PFZ where suitable water for irrigation is available. The results of DWER's PIWI project is required to refine the land suitability assessments in the PFZ.



Figure 5 Cattle grazing will continue to be the main land use in the PFZ

4 Consultation

DPIRD held two evening workshops and two targeted meetings with stakeholders in the shires of Serpentine-Jarrahdale and Murray in October and November 2017 attended by about 50 people. At each event, DPIRD presented the land suitability mapping and key findings.

A facilitated discussion followed where participants were encouraged to discuss their aspirations for the PFZ, their concerns and future opportunities.

DPIRD promoted the workshops via the internet, in the PDC's Peel Magazine (Figure 6) and emailed invitations to landholders in DPIRD's property database. Feedback from attendees was the workshops could have been more widely promoted among local landholders and the community.



Figure 6 Advertisement and articles in the Peel Magazine promoted consultation about the Peel Food Zone project

4.1 Findings

There was significant diversity of views among those consulted, especially about the meaning and concept of a food zone for the Peel. Most supported the promotion and marketing of food produced in the Peel and many identified the need to improve the profitability of agriculture and food in the region. Some expressed caution, even scepticism, about the concept, feasibility and proposed timetable of establishing a large-scale food zone in the Peel.

4.1.1 Terminology

The concept of a “food zone” does not align with formal planning language, where the term Zone has statutory implications. This confused the stakeholders who attended meetings. Some suggested a different term, such as food area or food district, instead of food zone.

4.1.2 Spatial extent

There was debate about the location and extent of a food zone. Some people thought it should include the whole region to ensure that it did not exclude landholders from being involved in Transform Peel.

Others thought the study area was too large for a single zone and that it would not gain support or momentum to proceed. There was a suggestion that food zones should be smaller and focus on areas of land and water with greatest potential for intensification.

There was no agreement about the number of focus areas or the location of the focus areas within the broader Peel region.

4.1.3 Other issues

While there was some support for intensive livestock in the PFZ, free-range systems were preferred as there was concerns about animal welfare if animals could not accessing outside areas in closed systems. At one workshop, there was discussion about the planning approvals needed for free to range poultry farms. Some participants mentioned that the Shire of Serpentine-Jarrahdale’s Poultry Special Control Area was a successful planning approach for intensive shedded poultry.

Ideas to improve on-farm profitability included investment in innovation with local research and protecting rural land from urban expansion. Some landowners did not want their rural land subdivision potential to be limited. Issues for small producers included access to markets and lack of demand for produce.

At one workshop, there were comments raised about the visual impact of glasshouses if the structures covered the whole of the PFZ and viewed from lookouts along the Darling Scarp. Other issues included the social impact of foreign investment and foreign workforce and impact on domestic food supplies of food exports. At most meetings, there was discussion about the capacity of the local workforce in the Peel region to supply suitably trained and skilled labour for current and future agricultural businesses.

4.2 Conclusion

Across the five meetings, there was broad agreement that:

- Mapping and promotional materials should focus on land with the most opportunities and least constraints.
- Understanding the quantity and quality of water resources was critical.
- Planning for the PFZ should not forcibly displace existing land uses.
- Intensification and land use change associated with the PFZ should not compromise the region’s environmental, cultural and social values.

Given the views expressed about the scale and purpose of the PFZ, DPIRD recommends an approach that:

- Maintains current land zoning to support a diversity of future agricultural land uses.
- Supports innovation in agriculture uses.
- Focusses investment in intensive agriculture on land with water which has the greatest potential for agricultural intensification and where possible is supported by current landowners.

5 Protected Cropping Forum

The PFZ needs innovative forms of horticulture using closed system protected cropping to increase the areas of irrigated horticultural production. Local consultation identified the need for wider state level consultation and more information about these systems and their place in the Peel region.

DPIRD and PDC hosted a statewide forum on protected cropping in Mandurah on 29 May 2018. Over 100 people attended the forum which was opened by Hon Alannah MacTiernan MLC, Minister for Agriculture and Food; Regional Development (Figure 7). The Minister used to opportunity to release a report on protected cropping commissioned by DPIRD for *Collie Futures – Protected Cropping Prefeasibility Investigation* (Arris 2018).



Figure 7 Hon Alannah MacTiernan MLC, Minister for Agriculture and Food; Regional Development opened the forum and released *Collie Futures – Protected Cropping Prefeasibility Investigation*

The program featured the following presenters:

- Graeme Smith from Graeme Smith Consulting, Victoria
- Jim Kelly from Arris Pty Ltd in South Australia
- Bao Duy Nguyen from Sun City Produce, Geraldton
- Paul Humble from Hydroponic Cucumber Grower Baldivis
- Alex Norman from Hydroponic Tomato Grower Baldivis
- Associate Professor Christopher Vas from Murdoch University Singapore, pictured in Figure 8
- Ben Cole from Wide Open Agriculture



Figure 8 Associate Professor Christopher Vas from Murdoch University Singapore presenting on vertical farming opportunities.

5.1 Workshop sessions

The forum included two workshop sessions. Initially participants about their insights and questions for increasing protected cropping in WA. The main points from this discussion were:

- Requirement to attract, build and upskill the potential labour force for more complex tasks.
- Need for access to capital, more corporate business models and investment structures, and risk sharing and support from Government.
- Need for clear market development and building of trust in the supply chain.
- Address barriers regarding access to water, land, energy and waste disposal.
- Biosecurity and food safety standards to maintain clean and green image and trust.
- Potential for value adding, secondary processing and complementary industry.
- Product development and local branding.
- The second question posed requested information on practical actions and initiatives needed to move forward with increased protected cropping in WA. Priorities include:
 - Promoting industry opportunities.
 - Addressing labour challenges.
 - Considering financing and taxation incentives to encourage industry development.

- Identifying upstream and downstream opportunities for use of product and any waste or by-product.
- Supporting the development of appropriate supporting service industries
- Conducting market analysis, facilitating industry investment and supporting establishment of export markets and local supply chains.
- Reviewing limiting planning requirements and legislation for protected cropping development and develop new standards for more efficient industry development.
- Ensuring biosecurity and traceability standards are adequate to demand clean, green prices.



Figure 9 Two workshop sessions provided opportunity for robust discussion between participants

The forum discussed the role of state government in protected cropping with opportunities for DPIRD to assist growth through market analysis and facilitating industry investment and to protect industry through biosecurity activities and by establishing traceability standards.

State government also play a significant role in reviewing planning requirements, building and other approvals that apply to protected cropping and developing guidelines for protected cropping. The following suggestions from the forum are highly relevant to planning for the PFZ:

- Standardising requirements for glasshouses across all levels of red tape (State and Local Government).
- Review of planning zones, bush fire mitigation and firefighting requirements and building codes of Australia to allow for the development of this infrastructure.

5.2 Feasibility of protected cropping in the Peel

A high priority for protected cropping in the Peel is to ensure wastewater, including brine, and solid waste do not increase nutrients in the Peel-Harvey Estuary.

Industry practice for hydroponic systems is to use wastewater with high levels of nutrients to irrigate perennial crops such as vines or fruit trees. This is not be a suitable option in the Peel Harvey catchment where alternative approaches to disposal of nutrient rich wastewater is needed along with disposal options for brine from water treatment plants.

The environmental and economic feasibility of protected cropping systems in the Peel needs to be assessed to inform future planning and de-risk future investment into these systems, particularly if there are additional costs associated with removing nutrient rich waste water off the coastal plain.

Initial analysis of supply and demand scenarios for water resources for the PIWI project confirmed there is insufficient groundwater resources available to develop all suitable land across the PFZ. The development of irrigated cropping or pasture across 1 500ha to 3 000ha, as per the Transform Peel business case, would require alternative piped water sources to ensure a year round supply which is independent of climate variability.

The pre-feasibility study of greenhouse production at Collie and Brunswick, undertaken by Arris Pty Ltd, is a useful approach to consider for the PFZ. Such a study would need to specifically address wastewater disposal within the Peel-Harvey and would rule out methods proposed for Collie such as irrigating nutrient rich water on tree crops and disposing of brine waste stream from reverse osmosis into the Collie Saline Discharge Pipeline.

6 Planning Approach

This report proposes a preferred planning approach and includes recommendations to support Transform Peel and the intent of the PFZ. It informs future discussions with stakeholders about agricultural land uses within the Peel region, specifically between DPIRD, PDC, DPLH and the Chair of the Western Australian Planning Commission (WAPC).

In particular, the WAPC's *Southern Metropolitan Peel Sub-regional planning framework* and the overarching *Perth-Peel @3.5 million* released in March 2018 influences the preferred planning approach along with work undertaken by GHD on behalf of DPIRD.

6.1 Southern Metropolitan Peel sub-regional planning framework

The Southern Metropolitan and Peel sub-region covers both the Metropolitan and Peel Region Schemes and includes the shires of Murray and Serpentine-Jarrahdale, as well as the cities of Rockingham, Mandurah, Cockburn, Armadale, Gosnells and Kwinana.

Public submissions on the draft *Perth and Peel @3.5 million* and draft *South Metropolitan Peel sub-regional planning framework* (framework) closed in July 2015, while planning for Transform Peel and the PFZ was underway but before the project commenced. Relevant to the PFZ, the final framework released in 2018 includes:

- Extra information about protecting water quality in the Peel-Harvey and refers to the review of SPP2.1.
- Agricultural land as a natural resource and acknowledgement of the urgent need to preserve land for food production close to urban areas.
- The potential for synergies between land use planning for Keralup (east) and the Transform Peel initiative including the Peel Integrated Water Initiative and the Nambeelup industrial area, as the Peel Business Park and/or a broader agricultural precinct.
- Implementation actions for the WAPC, DPIRD and local government to identify and protect priority agricultural land.

The framework guides anticipated timeframes and sequencing for the delivery of urban development and identifies industrial sites and key infrastructure, while recognising that the actual development depends on a number of factors including demand for land, progress of more detailed planning and provision of infrastructure.

The framework promotes consolidated urban areas with limited support for new rural residential development. Four principles in the framework support the outcomes promoted by Transform Peel:

- Facilitate increasing the number of people living close to where they work and protect employment land from other competing land uses.
- Provide effective and sustainable management of water resources including, drainage, nutrient management and water allocation to minimise environmental impacts, particularly in a drying climate.

- Identify ultimate land uses for industrial and public purposes sites, while promoting access to finite basic raw materials, through the staging and sequencing of development.
- Retain land for agriculture and food production.

Figure 10 is an extract from the South Metropolitan Peel sub-regional plan, from the framework, coinciding with the PFZ study area and surrounds.

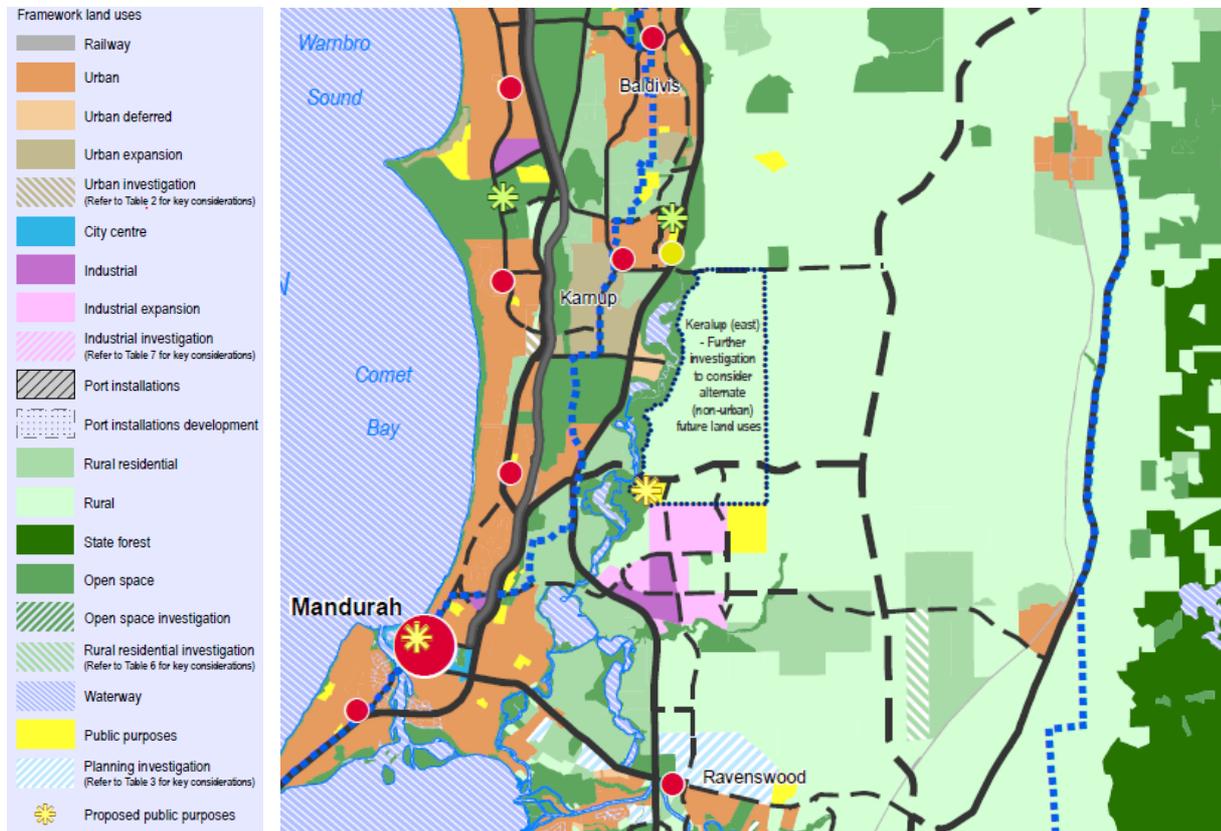


Figure 10 Peel Food Zone study area from the Southern Metropolitan Peel sub-region planning framework (Plan 1)

Figure 10 shows most of the PFZ area retained as Rural apart from the industrial area at Nambeelup and rural-residential zones on the outskirts of North Dandalup and Serpentine. Keralup (East), which is in the northwest corner of the PFZ, requires further investigation to consider alternate (non-urban) future land uses.

One driver behind establishing a food zone under the Transform Peel business case to counteract the threat of urban expansion on rural land in and around the Nambeelup industrial development. The framework confirms that there are no plans for urban development in the PFZ. The framework describes the need to preserve land for food production close to urban areas by identifying and protecting priority agricultural land in local planning strategies and schemes.

The framework includes the statement that “the creation of new rural residential lots/ areas beyond those classified within the framework is unlikely to be supported by the WAPC.” Rural residential development areas in PFZ include existing rural residential zones, areas identified within endorsed or draft strategies or other planning documents, and one areas rounded-off from an existing area.

One rural-residential investigation area is included in the PFZ. The investigation area is at North Dandalup and is next to existing rural-residential zoned land. Outside the PFZ, the framework identifies a planning investigation area north of Ravenswood requiring planning and environmental studies before any change in zoning may be considered.

6.2 Preferred Planning Approach

Figure 11 represents the recommended planning approach for agricultural land and land uses outlined below.

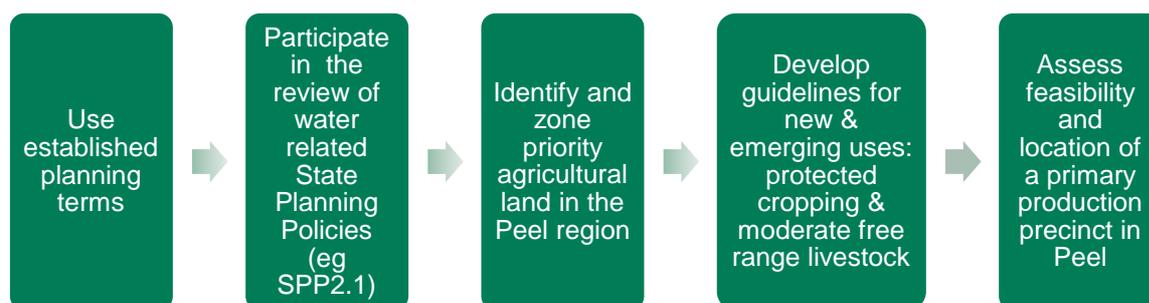


Figure 11 Recommended planning approach for agriculture in the Peel region

6.2.1 Use established planning terms

Stakeholder consultation indicates the term “zone” in the “Peel Food Zone” is confusing and misleading. Some people believed it meant that rural land had changed to a different land use zone, and the WAPC had approved the change in zone without public consultation. They were concerned that the “food zone” would restrict or limit the development or uses on their land.

Others were disappointed that the “food zone” was not already in place, as they wanted to use this to promote their land to investors. People use the term food zone interchangeably with food bowl, another ill-defined term meaning different things to different people.

Protecting agricultural land

The WAPC’s *State Planning Policy 2.5 Rural planning (SPP2.5)* aims to support existing, expanded and future primary production through the protection of rural land, particularly priority agricultural land and land required for animal premises and/or the production of food. Its accompanying rural planning guidelines includes information about recognising areas of high quality agricultural land as priority agriculture land in local planning schemes which are defined as:

- High quality agricultural land is land identified in a dataset generated by the agency responsible for agriculture and food, based on land capability, water and climate.
- Priority agricultural land is land of State, regional or local significance for food production purposes due to its comparative advantage in terms of soils, climate, water (rain or irrigation) and access to services.

- Priority agricultural land derives from High Quality Agricultural Land data that has been subject to consultation and refinement, and has removed land required for existing and future urban/development areas, public use areas and land required for environmental purposes.

Primary production and processing precincts

SPP2.5's rural planning guidelines includes a section on primary processing and primary production precincts. Such precincts are an approach that local governments might use to promote economic development, primary production or processing on rural land in local planning strategies and schemes.

- When a local government seeks to identify and justify such precincts in their local planning strategy, they need to consider:
- Whether industry trends or needs supports the proposed precinct.
- The scale of the precinct, which are generally large scale, for rural activities, with no residential component.
- Access to freight, rail, road, ports and airport linkages, which depends on the scale and type of industry the precincts under consideration.
- The servicing and access conditions including investigating potential costs of the providing these services.
- Any potential risks or benefits associated with co-locating industries.
- Relevant environmental matters, including adequate land for buffers.
- Whether, and the type of, additional studies are required.

Local government seeking include food production or processing precincts into their local planning scheme need to consider:

- The adequacy of scheme provisions and whether Special Control Area, under Part 5 of the scheme, is used to designate the precinct.
- Appropriate standards for servicing and access.
- The need for development contribution plans if shared infrastructure is required.
- The impact on the rural amenity of the area, including any impact on the landscape.
- The inclusion of adequate measures to address impacts on sensitive land uses, such as separation distances, which may be dependent on the specific production or processing industries, proposed for the precinct.
- Planning for potential cumulative impacts.

Recommendation

- DPIRD recommends using established planning terms, which stakeholders, including local government, DPLH and the WAPC, accept and understand. To assist in communications avoid using the term "food zone" in the context of land use planning.

- Use terms defined in *State Planning Policy 2.5 Rural planning* and rural planning guidelines including high quality agricultural land, priority agriculture land, primary production precinct and primary processing precinct.

6.2.2 Participate in the review of water-related state planning policies

State planning policies provide the highest level of planning policy control and guidance in Western Australia and are prepared under Part 3 of the *Planning and Development Act 2005*.

While most apply across Western Australia, some have a geographic focus. The Peel-Harvey coastal plain catchment policy (SPP2.1) ensures that land use changes within the Peel-Harvey estuarine system likely to cause environmental damage to the estuary are brought under planning control and prevented. The policy's objectives are to:

- Improve the social, economic, ecological, aesthetic, and recreational potential of the Peel-Harvey coastal plain catchment.
- Ensure that changes to land use within the catchment to the Peel-Harvey estuarine system are controlled to avoid and minimise environmental damage.
- Balance environmental protection with the economic viability of the primary sector.
- Increase high water-using vegetation cover within the Peel-Harvey coastal plain catchment.
- Reflect the environmental objectives in the draft Environmental Protection Policy (Peel-Harvey Estuarine System) 1992.
- Prevent land uses likely to result in excessive nutrient export into the drainage system.

The WAPC has tasked the DPLH to review the State Planning Policy (SPP) suite of water related policies with the view to amalgamating these into a single, simplified state level policy. The three SPPs within the scope of this review are:

- SPP2.1 Peel-Harvey Coastal Plain Catchment
- SPP 2.9 Water Resources
- SPP 2.10 Swan-Canning River System

The DPLH held a series of inception meetings in 2017 with key stakeholders of each of the policies and prepared an issue paper. In 2018, the DPLH established a Stakeholder Reference Group to guide the review of these policies.

As Transform Peel and the PFZ study area are located within the SPP2.1 policy area, it would be useful for the review team to be aware of the Transform Peel initiative and the results of the land suitability and water resource investigations. It is also important for the PDC to be aware of the review process to be able to anticipate potential 'fatal flaws' for proposals to intensify agriculture in the Peel.

Recommendation

- DPIRD participates in the review process for state planning policies, specifically for the Peel-Harvey (SPP2.1), to ensure the aims of Transform Peel to reduce nutrient reduction in Peel Harvey catchment and to plan for intensive agriculture using innovative closed protected cropping.

6.2.3 Identify and zone priority agricultural land in the Peel region

SPP2.5 *Rural planning* and the Rural Planning Guidelines provides guidance on planning for priority agricultural land, which is based on mapping of high quality agricultural land if available, or available published information on land resources and capability, climate and water for irrigation. Where appropriate, Priority Agriculture zone can be included in local planning schemes.

The implementation section of the Southern Metropolitan Peel sub-regional planning framework lists an action to identify and protect priority agricultural land through local planning strategy/scheme amendment. This will require close collaboration between the WAPC, DPIRD and local government.

GHD's land suitability assessment and mapping is a valuable starting point for local government to identify high quality agricultural land. The assessment used limited information on groundwater quantity and quality available for irrigated agriculture. The Transform Peel's PIWI project, managed by DWER, will improve information about water resources and once available will improve the land suitability assessment.

The GHD study covered the northern Murray shire and the southern Serpentine-Jarrahdale shire. A similar approach to that taken by GHD and using existing regional data sets, would allow land suitability mapping to cover all shires in the Peel region and assist DPIRD to map areas of high quality agricultural land. Access to updated mapping of high quality agricultural land would then allow local governments in the Peel region to identify and protect Priority Agriculture in local planning schemes.

Recommendations

- Recognise the importance of agriculture and food in local planning strategies and schemes in the City of Mandurah and the shires of Boddington, Murray, Serpentine-Jarrahdale and Waroona to support the goals of Transform Peel.
- Use land suitability analysis to help the shires of Boddington, Murray, Serpentine-Jarrahdale and Waroona identify and protect priority agricultural land in support of Transform Peel.

The Peel and Greater Bunbury Region Schemes are supported by policies and mapping including a strategic agriculture policy. The WAPC adopted the policies, developed concurrently, in 2002 and reviewed them in 2015 so that they reflected SPP2.1. DPIRD reviewed the priority agriculture mapping for each region scheme area using regional maps of land capability and phosphorus export risk but did not use water resources data.

In 2017, the WAPC released updated Priority Agricultural and Rural Land Use Policies for the Peel and Greater Bunbury region schemes in 2017. Priority agricultural land in the Peel region scheme includes the Waroona irrigation district and Dwellingup in the

Shire of Murray. The Shire of Serpentine-Jarrahdale is in the Metropolitan Region Scheme, which does not have an equivalent policy.

The GHD land suitability study also used maps of land capability and phosphorus export risk. As outlined in section 3, the study combined these maps with other spatial data including indicative information about groundwater. Once the results of the PIWI water resource investigations become available, the improved groundwater information will improve the GHD land suitability maps to identify areas of high quality agricultural land and inform future reviews of priority agricultural land identified in the Peel Region Scheme policy.

Recommendation

- Propose to the WAPC that it consider the findings of the Transform Peel land and water studies in the next review and update of the 2017 Peel Region Scheme Priority Agricultural and Rural Land Use Policy.

6.2.4 Develop guidelines for new and emerging uses

The Peel Sustainable Agriculture Technical Working Group (TWG) is a collaborative group involving the Peel Development Commission, the DPIRD (previously Department of Agriculture and Food), DWER, DPLH, the local governments of Serpentine-Jarrahdale, Murray, Waroona and Harvey and the Peel-Harvey Catchment Council. It reports to the Peel Regional Leaders Forum.

In 2015, the Peel Sustainable Agriculture TWG published a brochure to guide new horticulture development in the Peel-Harvey and drafted a model local planning policy (LPP) for local governments to tailor and apply to their areas. The Shires of Murray and Waroona have adopted locally specific planning policies for horticulture development.

In July 2017, the Peel Sustainable Agriculture TWG identified the need for similar guidance for proponents and local government on small to moderate scale free-range poultry and pig farms in the Peel-Harvey. At its meeting in October 2018, the group resolved to proceed with the development of guidelines for moderate scale poultry enterprises.

Recommendation

- Support the Peel Sustainable Agricultural TWG to develop guidance for proponents and local government on small to moderate scale free to range poultry and pig farms in the Peel-Harvey and extending across the Peel region to include the shires of Boddington, Murray, Serpentine-Jarrahdale and Waroona.

Protected cropping

As described in section 5, participants at the forum on protected cropping made two suggestions relevant to land use planning in the PFZ:

- Standardising requirements for glasshouses across all levels of red tape (State and Local Government).
- Review of planning zones, bush fire mitigation and firefighting requirements and building codes of Australia to allow for the development of this infrastructure.

While not specific to the Peel region, planning for the possibility of protected cropping systems such as vertical farming on industrial zoned land in the Peel Business Park pointed to issues with the land use definition for agriculture-intensive. Land zoned for industry generally does not permit intensive agricultural uses.

In Western Australian planning system “agriculture – intensive” means premises used for commercial production purposes, including outbuildings and earthworks, associated with any of the following:

- The production of grapes, vegetables, flowers, exotic or native plants, or fruit or nuts.
- The establishment and operation of plant or fruit nurseries.
- The development of land for irrigated fodder production or irrigated pasture (including turf farms).
- Aquaculture.

Recommendation

- Establish a state wide Technical Working Group, or working under the Peel Sustainable Agricultural TWG, review definitions, land use permissibility, planning and development guidelines for protected horticulture cropping systems (e.g. tunnel houses, green houses, glass houses, vertical farming).

6.2.5 Assess feasibility and location of a primary production precinct in Peel

As discussed in section 5.2, investors and regulators require more information about the feasibility of protected cropping systems in the Peel region, to inform future planning and de-risk future investment. A high priority is to ensure wastewater, including brine, and solid waste do not increase nutrients in the Peel-Harvey Estuary. Solutions may increase the costs and/or require new approaches.

A feasibility study into protected cropping could consider a primary production precinct based on closed systems of protected cropping. The study might investigate synergies with an eco-industrial precinct for disposal of solid waste and wastewater.

The precinct could provide a focus for investment in protected closed systems for intensive horticulture enterprises on land close to the Peel Business Park and to key services such as roads, power and gas while at the same time reducing nutrient export into the Serpentine and Murray Rivers. Potential sites for investigation include the western parts of the Nambelup/Punrak/Dirk Brook sub-catchments incorporating state owned land in Keralup (East), which are major contributors to nutrients into the Serpentine River.

Assessing alternative precincts sites in the PFZ would be based on key infrastructure availability, including roads, power, access to gas supplies and brine waste disposal options. Proximity to potential food manufacturing and processing facilities in the Peel Business Park is another criterion considered in the study.

Recommendation

- Commission a pre-feasibility study into closed protected cropping in the Peel to inform future investigation of a primary production precinct.

7 Food transition strategy

In 2017, DPIRD commissioned GHD to develop a food transition strategy to assist LandCorp, the PDC and DPIRD to support industries to relocate to the Peel and to inform LandCorp on industry infrastructure requirements and lot composition in the planning phase for Peel Business Park. Figure 12 shows the process used by GHD to develop this strategy.

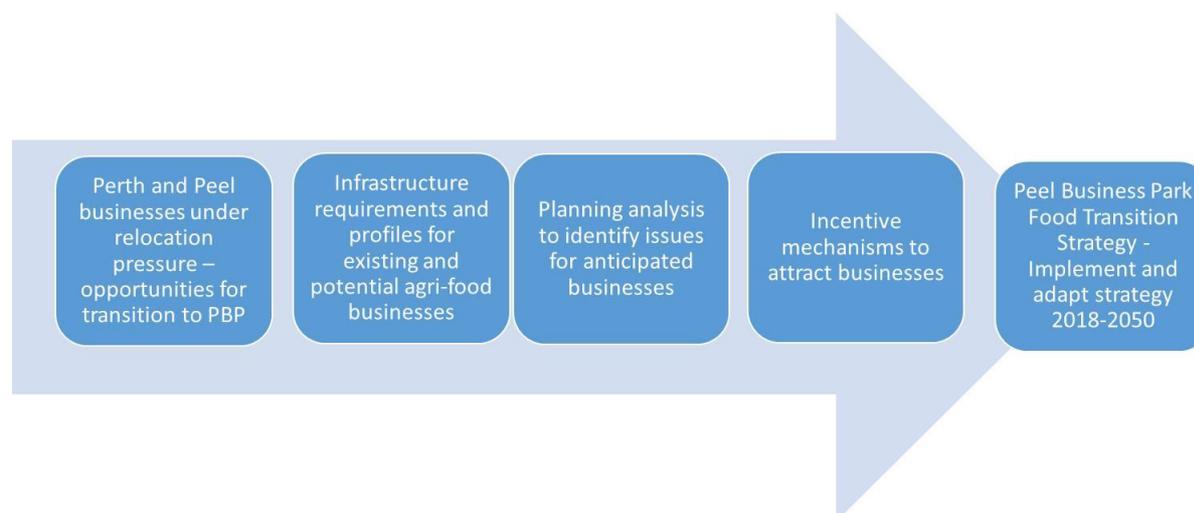


Figure 12 Food transition strategy (GHD 2017)

7.1 Agri-food businesses in Perth and Peel under relocation pressure

The analysis identified 401 agri-food businesses in the Perth and Peel regions. Half (51%) of these businesses are located within industrial zones, with the remaining businesses located in zones which may be less suitable including commercial (26%), agricultural/rural (9%), development (7%) or residential (6%) zones. The 31 businesses currently located in development zones may be under the most pressure to relocate before their surrounding area transitions to higher density development (e.g. residential). Many of these businesses are located in urban development zonings around North Coogee, where they currently enjoy strategic proximity to major infrastructure such as the Fremantle Port.

The study classified the most common agri-food businesses as gourmet, fresh produce, meat, seafood, food wholesaler, baking, oils, exporter/Importer and packing. These businesses represented 77% of all agri-food businesses in the Perth and Peel regions.

Nine areas in the Perth and Peel regions have the most agri-food businesses under pressure to relocate:

- Tapping/Wanneroo
- Osborne Park/Innaloo
- Canning Vale
- Cockburn Central/Treeby
- Bibra Lake
- North Coogee

- Aubin Grove
- Casuarina
- Byford

GHD developed business profiles to understand the specific requirements of different agri-food businesses, which may seek to relocate to the Peel region. The business profiles include eight existing types of agri-food business and six emerging or new agri-food and related business types.

The profiles of existing businesses assume modern, best practice operations, outlining typical functions, inputs, outputs and business capability requirements. The profiling results informed cumulative estimates required for land, utilities, transport and waste disposal. Existing agri-food businesses profiles were:

- Poultry processing
- Fish processing and packaging
- Boning and packing - Beef
- Processed meats – Sausages
- Dairy processing (milk powder, cheese, yoghurt)
- Mushroom farming
- Cold Storage
- Distribution

New or emerging business profiles were:

- Premium/organic food processing incubator
- Vertical farming
- Medicinal honey processing
- Online grocery and meal delivery
- Non-meat protein
- Nutraceuticals (dietary supplements)

These profiles were used to estimate the overall requirements for land, utilities, transport and waste disposal etc. assuming 60.8ha of the Peel Business Park was fully developed for this purpose.

7.2 Suitability of proposed servicing

GHD reviewed the planned servicing for the development to determine if it is likely to be suitable in meeting the estimated requirements. They found that the proposed servicing of the development is generally suitable and adequate, however in order to attract new and existing businesses to the park, additional servicing and facilities will be required, such as increased capacity for wastewater disposal and shared facilities.

7.3 Relocation incentives and transition strategy

Through desktop analysis and industry interviews, GHD concluded there is a need to incentivise new and existing businesses to relocate to the Peel Business Park. However rather than providing grants to individual businesses, which only addresses the relocation cost impediment, GHD recommended the following strategies:

- Additional investment in improved services and infrastructure.
- Future planning for public transport to cater for staff movements.
- Flexibility in local structure planning regarding lot size to allow amalgamation or subdivision in appropriate circumstances as many potential businesses will require larger lots than what is proposed or will need to acquire multiple lots.
- Wherever possible electricity should be underground.
- Limited remaining capacity at the Gordon Road Waste Water Treatment Plant (WWTP) means alternative options in the longer term. Many businesses will require on-site treatment before discharge, which may provide an opportunity for a shared WWTP within the business park. Consider installing a separate sewage line for human waste.
- Address solid waste in planning and consider support to developing an Eco Industrial precinct nearby.
- Providing shared services would reduce the need for individual businesses developing stand-alone facilities.
- Opportunities for shared services and facilities include:
 - backup water supply tanks, chlorination and boilers
 - back-up electricity generator(s)
 - telecommunications
 - truck wash
 - cold storage
 - security services
 - research and development laboratory
 - administration and/or training facilities and labour hire.
- Consider the financing, governance and management of shared facilities.
- Negotiate discounted utility rates, for example, cheaper electricity through bulk purchase or local generation options, via waste to energy or solar.
- Provide assistance with planning applications and certainty around permitting.
- Attract specific businesses with different types of tenure and payment options.
- Offer a range of tenure as some businesses may prefer the added security of freehold tenure, while others may prefer lease arrangements.

- Provide the option of making deferred payments against land acquisitions as this is likely help businesses secure finance for developments.

Ongoing and coordinated engagement with existing and new agri-food businesses will be required to ensure the Peel Business Park is successful in meeting their individual needs and therefore attracting investment.

These strategies also apply to attracting agribusiness to establish or relocate in other industrial areas in the Peel region including the West Mundijong Industrial Area in the Shire of Serpentine-Jarrahdale.

Recommendation

- Implement the food transition strategy to support food processing and manufacturing businesses relocating to Peel Business Park and/or West Mundijong Industrial Area.

8 Supporting agriculture to grow and innovate

The Peel Regional Investment Blueprint (2015) articulates the vision for the Peel as being a progressive, prosperous and dynamic region with a culture of care and outlines five themes to achieve this vision:

- Thriving Industry
- Agriculture and Food Innovation
- Tourism Excellence
- Capable People
- Strong and Resilient Communities

The need to attract private and public investment underpins these themes, in particular **Thriving Industry** and **Agriculture and Food Innovation**. The Peel Blueprint identifies a number of high-level competitive advantages including proximity to the Perth Metropolitan region, transport links to Asian markets, large workforce and natural resource base including extensive areas of rural land.

It is important to clearly articulate how the Peel region differs from Perth and other regions, not only within Western Australia, but in the context of fierce competition for capital investment, human capital and knowledge from other regions across Australia and internationally.

The challenge of articulating specific details of the Peel offer highlights the need to cultivate strategic international partnerships (e.g. with Singapore) but also work in concert with efforts being made at national and state level (e.g. in the marketing of Western Australia).

It will also benefit the Peel to cooperate and develop alliances, rather than compete, with neighbouring regions such as the South West, Wheatbelt and the southern areas of Perth. Taking a strategic and collaborative approach and developing relationships and partnerships can leverage extra resources and funding needed to support Transform Peel.

For example, the Peel Business Park can source produce from the South West including the Southern Forrest and the Myalup-Wellington. The later includes up to two thousand hectares of production in the Myalup Primary Industries Reserve. State level initiatives include Buy West Eat Best.

Recommendation

- Differentiate Peel's offer and leverage Transform Peel with other regional, state and national supported initiatives.

Consultation for the project highlighted local interest in promoting food produced in the region and challenges faced by businesses trying to expand or establish new agribusiness in the PFZ. The following recommendations support investment attraction and assist new or existing agribusiness in the Peel region.

- Promote and market food from the Peel, and investigate regional brand and provenance, consistent with WA's overall branding strategy.

- Provide officer assistance to growers and agri-businesses seeking to establish or expand in the Peel

Most rural land in the PFZ will remain used for grazing of cattle, sheep and horses and for fodder production. There has been recent interest among some landholders in the Peel to establish a grower group as a mechanism to encourage sharing of expertise within the region and with growers from nearby areas.

Grower groups in Western Australia are usually incorporated, not-for-profit organisations which generally aim to increase the production and profitability of their members farm businesses through the adoption of new production technologies, and delivery of locally relevant research, development and extension, while providing a social hub supporting participatory research and farmer-to-farmer learning.

They are farmer-centred and volunteer-driven by motivated and leading growers and community members. Grower Groups often focus on adding value to farm businesses, natural resources, communities and social capital. They encourage and foster a culture of two-way information sharing. Growers groups provide a coordinated avenue for communication between farmers, local and state government, for example when considering in branding and provenance.

Recommendation

- Increase coordination and information/ knowledge sharing among Peel farmers by supporting the establishment of a Peel growers group.

The requirement to reduce nutrients by 50% entering the Peel-Harvey estuary and waterways necessitates ongoing research and development into nutrient management from existing and emerging agricultural land uses. This requires resourcing research that builds on more than twenty years of research and extension activities in the Peel region. This work should be undertaken in support of the *Soil and Land Conservation Act 1945*, aligning with DPIRD's sustainability responsibilities.

Recommendation

- Support research, development and innovation in reducing nutrient export from agriculture uses and increasing productivity from current land uses, protected cropping and emerging land uses (e.g. free to range poultry).

9 Conclusion

The primary goal of Transform Peel is to **grow** the Peel region's economy and create new jobs in the region by activating industrial land at Peel Business Park in Nambeelup

Transform Peel seeks to **protect** the natural resources of the Peel by reducing nutrient entering the Peel-Harvey from agricultural land use through use of innovative production techniques and scientifically investigating the groundwater resources that can sustainably support the growth of industry and agriculture in the region.

A core tenant of Transform Peel is **innovation**, the need to do things differently based on the knowledge that “business as usual” will not drive the economic growth needed for the region while also protecting the region's unique natural features. **Innovation** occurs across all elements of Transform Peel.

Most of the actions arising from the PFZ project involve land use planning to **protect** agriculture land and water resources of the region. This will involve DPIRD collaborating with local governments, the DPLH and the WAPC to identify and protect priority agricultural land in the region. The report also consider other ways to encourage agriculture and food businesses across the whole Peel region to grow and innovate. DWER's PIWI project will improve our understanding of water resource and water quality within the PFZ.

The report includes recommendations that allow alignment with DPIRD's operational plan and potential to allocate staff and other resources to support agriculture and food businesses across the broader Peel region under the Transform Peel program.

9.1 Planning to protect agricultural land and natural resources

9.1.1 Terminology

- DPIRD recommends using established planning terms, which stakeholders, including local government, DPLH and the WAPC, accept and understand. To assist in communications avoid using the term “food zone” in the context of land use planning.
- Use terms defined in *State Planning Policy 2.5 Rural planning* and rural planning guidelines including high quality agricultural land, priority agriculture land, primary production precinct and primary processing precinct.

Partners in delivery: WAPC, DPLH, DPIRD, PDC, Local Government, LandCorp, DWER.

9.1.2 Peel-Harvey state planning policy review

- DPIRD participates in the review process for state planning policies, specifically for the Peel-Harvey (SPP2.1), to ensure the aims of Transform Peel to reduce nutrient reduction in Peel Harvey catchment and to plan for intensive agriculture using innovative closed protected cropping.

Partners in delivery: WAPC, DPLH, DWER, DPIRD, PDC, Local Governments in Peel-Harvey.

9.1.3 Identify and zone priority agricultural land in the Peel region

- Recognise the importance of agriculture and food in local planning strategies and schemes in the City of Mandurah and the shires of Boddington, Murray, Serpentine-Jarrahdale and Waroona to support the goals of Transform Peel.
- Use land suitability analysis to help the shires of Boddington, Murray, Serpentine-Jarrahdale and Waroona identify and protect priority agricultural land in support of Transform Peel.
- Propose to the WAPC that it consider the findings of the Transform Peel land and water studies in the next review and update of the 2017 Peel Region Scheme Priority Agricultural and Rural Land Use Policy.

Partners in delivery: Local government, DPIRD, WAPC, DPLH, DWER.

9.2 Planning to grow new and existing agribusiness

9.2.1 Streamline regulation

- Support the Peel Sustainable Agricultural TWG to develop guidance for proponents and local government on small to moderate scale free to range poultry and pig farms in the Peel-Harvey and extending across the Peel region to include the shires of Boddington, Murray, Serpentine-Jarrahdale and Waroona.
- Establish a state wide Technical Working Group, or working under the Peel Sustainable Agricultural TWG, review definitions, land use permissibility, planning and development guidelines for protected horticulture cropping systems (e.g. tunnel houses, green houses, glass houses, vertical farming).

Partners in delivery: Peel Sustainable Agriculture TWG, DPIRD, PHCC, Shire of Murray, DWER, DPLH, Local Government.

9.2.2 Protected Cropping

- Commission a pre-feasibility study into closed protected cropping in the Peel to inform future investigation of a primary production precinct.

Partners in delivery: DPIRD, DWER, Local government, DPLH, WAPC.

9.3 Grow investment in agribusiness

9.3.1 Food transition strategy

- Implement the food transition strategy to support food processing and manufacturing businesses relocating to Peel Business Park and/or West Mundijong Industrial Area.

Partners in delivery: LandCorp, Industrial lands Authority, Shires of Murray and Serpentine-Jarrahdale, DPIRD, PDC.

9.3.2 Marketing and investment attraction – grow the Peel

- Differentiate Peel's offer and leverage Transform Peel with other regional, state and national supported initiatives.

- Promote and market food from the Peel, and investigate regional brand and provenance, consistent with WA's overall branding strategy.
- Provide officer assistance to growers and agri-businesses seeking to establish or expand in the Peel.

9.4 Innovate to grow and protect

9.4.1 Coordination and information sharing – innovation and growth

- Increase coordination and information/ knowledge sharing among Peel farmers by supporting the establishment of a Peel growers group.

Partners in delivery: Growers, Serpentine-Jarrahdale Farm and Food Alliance, PHCC, local government, DPIRD, PDC.

9.4.2 Support research into new farming methods – innovate and protect

- Support research, development and innovation in reducing nutrient export from agriculture uses and increasing productivity from current land uses, protected cropping and emerging land uses (e.g. free to range poultry).

Partners in delivery: DWER (PIWI & REI), DPIRD, landholders, PHCC, Peel Growers Group, Murdoch University, CY O'Conner Foundation.

References

.STILL TO BE ADDED