Planning for the Peel Food Zone

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Planning for the Peel Food Zone
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Heather Percy
Cover: Grazing paddocks near Keysbrook (photo: H Percy)

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The project commissioned GHD to assess land suitability in the Peel Food Zone investigation area (GHD 2017a) and to develop a food transition strategy for the Peel Business Park (GHD 2017b). Extracts from these GHD reports are included in this report and are cited as references.

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Summary

Completing 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 food industries and agriculture in the Peel region
- align these activities with DPIRD’s 2018–21 strategic intent ‘to protect, grow, and innovate’ in our primary industries and regions in Western Australia over the next three years’ (DPIRD 2018).

Transform Peel is intended to be a ‘disruptive’ long-term program that supports economic growth, diversification and creates jobs in the Peel region. It addresses the region’s high population growth and unemployment rates, and its transition from a population-driven economy to an export-traded economy. Transform Peel recognises the importance of protecting the internationally recognised waterways and wetlands of the Peel–Harvey Estuary and aims to halve the nutrient loads entering its waterways from the surrounding catchment.

The $49.3 million Phase 1 program for Transform Peel comprises three main components:

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

To transform agriculture in the Peel region and, importantly, to reduce their excess nutrient loads entering into the Peel–Harvey Estuary and its Ramsar-listed wetlands, established farming businesses need to:

- adopt best management practices
- find alternative ways to manage soil and water
- develop new or different types of farms and production systems.

Consultation for the Peel Food Zone project recommended maintaining current land zoning to support diverse 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, but did not support forced land-use changes through restrictive zoning. Engaging with landholders supportive of land-use and management changes is also needed.

The Peel Food Zone 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 region
- continue to use planning strategies, schemes and policy as the primary way to identify and protect priority agricultural land across the region
- facilitate state and local government collaboration to carry out 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 clarifying planning requirements for protected cropping
• investigate the potential for closed-system protected cropping sites and precincts in the Peel region.

The Peel Food Zone project also recommends supporting existing agricultural producers in the region, encouraging food manufacturers to establish in the Peel Business Park, and increasing investment in innovative forms of intensive agriculture.

Most recommendations listed below will require additional funding to:
• provide incentives to help food processing and manufacturing businesses relocate to the Peel Business Park or the West Mundijong Industrial Area
• differentiate and promote the advantages offered by the Peel region and align the Transform Peel initiative with other regional, state and national initiatives
• promote and market food from the Peel region, and investigate regional branding and provenance, consistent with Western Australia’s (WA) overall branding strategy
• provide case management assistance to growers and agribusinesses seeking to establish or expand in the Peel region
• support the Peel Grower Group to increase information and knowledge sharing, and help coordinate activities among growers in the Peel region
• support research, development and innovation aimed at reducing nutrient export into the environment from agricultural uses while increasing productivity from current and emerging land uses (e.g. low-density mobile outdoor poultry farms) and closed-system protected cropping.
1 Introduction

In 2017, 136,850 people lived in the Peel region. From 2011 to 2016, the region’s population increased by 5.4%, more than double the state’s overall growth rate (2%) for the same period. Further growth will occur as Perth’s urban footprint shifts south. A long-term strategy to attract new industries and businesses to the Peel region is needed to deal with this rapid population increase and the corresponding need for local employment.

The Peel region is located 75 kilometres (km) south of Perth and its major regional centre is Mandurah. For regional development, the Peel region covers five local government areas of Boddington, Murray, Serpentine Jarrahdale, Waroona shires and the City of Mandurah. The Peel planning region is smaller and covers the City of Mandurah and the shires of Murray and Waroona. The Shire of Serpentine Jarrahdale is in the Metropolitan planning region and the shire of Boddington is in the Wheatbelt planning region. Figure 1.1 shows the location of the Peel region, for regional development purposes and its five local governments.

The Peel Development Commission (PDC) worked with local stakeholders to develop the Transform Peel initiative — a transformative 35-year economic development program for the region. The long-term aim of Transform Peel is to generate $16 billion
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per year and create 33,000 jobs in the region and to halve the nutrient load entering the Peel–Harvey Estuary from the Peel–Harvey coastal plain catchment.

Phase 1 of Transform Peel is a three-year program (2016–18) designed to activate, reduce risk, and establish market readiness of the integrated components:

- Peel Business Park (PBP) at Nambeelup
- Peel Food Zone (PFZ)
- Peel Integrated Water Initiative (PIWI).

The state government supports Phase 1 of Transform Peel with $49.3 million from the Royalties for Regions program. From this amount, DevelopmentWA (formerly LandCorp) manages $45.2 million, to install trunk infrastructure and services to the PBP. DevelopmentWA is seeking to release and sell lots on their landholding at Lot 600 Lakes Road, Nambeelup. The PBP is viewed as the main catalyst for economic growth and employment under Transform Peel.

DPIRD (formerly the Department of Agriculture and Food, Western Australia) managed the PFZ project. This involved preliminary planning for the food zone, developing a food transition strategy for the PBP, and supporting the PDC with their investment attraction activities.

The Department of Water and Environmental Regulation (DWER) manages the PIWI. This initiative involves technically assessing water supply and demand for the PBP and across the PFZ investigation area. It also investigates the technical feasibility of options to reduce nutrient loads flowing from agricultural land into the Estuary. This involves DWER modelling the impact of drainage interventions on water quality and quantity 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. The results of these studies are due for public release in early 2020.

The PDC, through the Transform Peel Strategic Advisory Committee, oversees the three projects; manages stakeholder relationships and communication; and implements specific projects related to investment attraction, workforce development, research and development facilities and innovation.

1.1 Purpose of this report

This report summarises the findings from the PFZ project. It recommends implementing a planning approach as well as initiatives and activities that support the agriculture and food aspirations for Transform Peel, including how they align with DPIRD’s strategic intent to protect, grow and innovate primary industries and regional areas of WA (DPIRD 2018).

The project required investigations and high-level planning to:

- encourage new and expanded investment in agriculture and food industries close to the PBP to expand and diversify the region’s employment base
- counter the pressure for urban development on the region’s rural land
- support the long-term goal of halving the nutrient loads (phosphorus and nitrogen) entering the Peel–Harvey Estuary.
The project involved:

- an investigation into the opportunities and constraints to agriculture in the Peel region, including a land suitability assessment and mapping for a range of agricultural uses
- consulting on the opportunities and constraints for agriculture, which was informed by the results of the land suitability assessment and mapping
- considering an appropriate planning approach to support agriculture and food in the Peel region
- developing a food transition strategy for the PBP
- supporting the PDC in their strategic approach to investment
- holding a statewide forum on protected cropping for horticulture.


2 Background

The business case for Phase 1 of the Transform Peel initiative supports technical investigations and high-level preliminary planning for a food zone, comprising up to 28 000 hectares (ha) of land that supports various rural and agricultural enterprises.

In the longer term, the business case proposes establishing irrigated agricultural land (1500ha by 2031 and 3000ha by 2050), with water supplied by pipelines.

2.1 Agriculture and food elements of Transform Peel

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

A key part of the business case is establishing 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 land zoned for rural purposes. The business case also recognises these needs:

- to enhance the competitiveness of the Peel agricultural sector
- to encourage more profitable agricultural land uses in the region
- to invest in innovative agriculture and food manufacturing and processing
- to support additional employment
- to supply additional produce for domestic and export markets.

The business case considered that this would require developing new areas of irrigated land with year-round, climate-independent water supplies.

A challenge for Transform Peel is to develop new industry and irrigated agriculture in a highly sensitive environment while also reducing excess nutrient loads, such as phosphorus and nitrogen, entering the Peel–Harvey Estuary from such developments.

Under Transform Peel, DWER’s PIWI project is investigating the impact of drainage interventions on water quality and quantity to waterways and wetlands feeding into the Peel–Harvey Estuary. In 2018, DWER funded an additional round of voluntary soil testing and agronomic advice, and targeted landholders who were not previously involved in the program. This funding was additional to that for the activities supported by the Regional Estuaries Initiative (REI; also managed by DWER) for the Peel–Harvey Estuary.

The REI involves several estuaries in south-west WA and the Peel region. This initiative funds the Peel–Harvey Catchment Council (PHCC) to deliver, with assistance from DWER and DPIRD, on-ground actions to improve water quality in the Peel–Harvey Estuary and catchment. DWER, through the REI, does this by:

- working in partnership with the DPIRD, PHCC and farmers, to reduce the nutrient run-off from farms while supporting farm productivity
- working with catchment groups to restore stream function and modify drainage to improve water quality at priority sites
- trialling new materials to treat soil, water and drains
- updating models to evaluate potential estuary management actions
2 Background

- funding ongoing monitoring of the Peel–Harvey Estuary and its catchments.

Planning for new irrigated agricultural land development in the Peel-Harvey coastal plain catchment needs to mitigate environmental risk by encouraging closed agricultural systems that do not release nutrients into the environment. Traditional irrigated crops need to be located away from sensitive waterways and wetlands, and be on suitable soils that can assimilate nutrients. Planning needs to comply with State Planning Policy (SPP) 2.1 Peel–Harvey Coastal Plain Catchment and SPP 2.5 Rural Planning.

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

- the Strategic Assessment of the Perth and Peel Regions¹ (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 implement the PFZ
- some (or all) associated projects, such as the research facility, trial cropping and rural operations training facility, are not supported or funded²
- private sector investment is not forthcoming for the subprojects
- opportunities exist for private sector investment, but subprojects do not offer compelling value
- the PIWI cannot halve the nutrient loads, in particular phosphorus, from across the PFZ.

2.2 State government and policy changes since 2016

2.2.1 2017 election commitments for Peel

The WA Labor Party won the state election in March 2017. Their election commitments supported the Transform Peel initiative through local jobs and procurement, the PBP, the PFZ, food production precincts and improving the Peel–Harvey Estuary, specifically:

- working with industry and stakeholders to develop the PFZ
- working with the horticulture industry to establish food production precincts in outer metropolitan Perth and in regional WA
- investing in Nambeelup and ensuring the future development and growth of the PBP will be more streamlined by the Industrial Lands Authority making investment more attractive to businesses and industry
- developing a long-term plan to remediate the waterways of the Peel–Harvey Estuary in collaboration with the many local stakeholders, including the Peel–Harvey Catchment Council, local governments, the Peel Preservation Group and numerous local volunteer organisations that continue working hard to protect the Peel waterways
- providing funding to support the work of the Peel–Harvey Catchment Council and Peel Preservation Group.

¹ The Strategic Assessment of the Perth and Peel Regions is currently under review.
² These activities are not part of DPIRD’s PFZ project.
2.2.2 Machinery of Government changes
This report uses current (from 1 July 2017) names of state government departments, which amalgamated the previous government’s departments:

- Department of Primary Industries and Regional Development (DPIRD), which amalgamated:
  - Department of Agriculture and Food, Western Australia
  - Department of Regional Development
  - Department of Fisheries
  - staff that support the nine Regional Development Commissions.
- Department of Water and Environmental Regulation (DWER), which amalgamated:
  - Department of Water
  - Department of Environment Regulation
  - Environmental Protection Authority
- Department of Planning, Lands and Heritage (DPLH), which amalgamated:
  - Department of Planning
  - Department of Lands
  - State Heritage Office
  - land and heritage functions of the Department of Aboriginal Affairs.
- DevelopmentWA, which, in 2019, amalgamated:
  - LandCorp
  - Metropolitan Redevelopment Authority Department of Lands

2.2.3 Planning
In 2017 and 2018, the state government released two planning documents that influence the planning approach for rural and agricultural land uses for Transform Peel:

- *Peel Region Scheme Priority Agricultural and Rural Land Use Policy* (WAPC 2017a) includes relevant policy measures relating to agricultural land uses and reducing nutrient losses on the Peel–Harvey coastal plain
- *South Metropolitan Peel sub-regional planning framework* (WAPC 2018a), which is part of planning for the future of Perth. This framework identifies the Murray and southern half of Serpentine Jarrahdale shires remaining predominantly rural, with consolidation of urban areas, some new areas of rural lifestyle development in the Murray Shire and 1000ha of industrial land at Nambeelup, in the shire of Murray. The release of this framework reduces pressure for urban and rural-residential development in these shires out to a future date when the population of Perth and Peel reaches 3.5 million. The framework is part of the *Perth and Peel@3.5million* (WAPC 2018b) plans for Perth and Peel regions.

The DPLH is reviewing the following water-related SPPs on behalf of the WAPC: *SPP 2.1 Peel–Harvey Coastal Plain Catchment, SPP 2.9 Water Resources and SPP 2.10 Swan–Canning River System*. Section 6.2.2 of this report discusses the implications of this policy review for the PFZ project.
2.2.4 Strategic assessment of Perth and Peel regions

As part of the long-term planning for the Perth and Peel regions, the Department of Premier and Cabinet (DPC) released the draft *Perth and Peel green growth plan for 3.5 million* (GGP) in 2015, which was developed from the SAPPR. It is designed to secure approval under Part 10 of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and deliver streamlined approvals processes under the Western Australian *Environmental Protection Act 1986* for the following development actions or 'classes of action' in the Perth and Peel regions:

- urban and industrial development
- rural-residential development
- infrastructure development
- basic raw materials extraction
- harvesting of pine plantations.

The draft GGP contained an overarching Strategic Conservation Plan (Department of Premier and Cabinet [DPC] 2015a) which set out the conservation and environmental outcomes and objectives for the next 30 years, supported by a number of action plans.

The draft GGP complemented the WAPC’s land-use plan to support the growth of the Perth and Peel regions to 3.5 million people (WAPC 2018b).

The GGP’s draft Action Plan H (DPC 2015b) included actions to improve water quality and protect wetlands in the Perth and Peel regions:

- introduce targeted mandatory soil testing (including agronomic advice and reporting of fertiliser use) for properties greater than 40ha in the Peel–Harvey coastal plain catchment; the aim is to halve the nutrient inflows, specifically phosphorus, from agricultural fertiliser use
- implement a long-term drainage intervention program in the Peel–Harvey coastal plain catchment, similar to those implemented in the Swan–Canning catchment.

Action 36 in draft Action Plan G (DPC 2015c) was to review the *SPP 2.1 Peel–Harvey Coastal Plain Catchment*, the Environmental Protection (Peel Inlet – Harvey Estuary) Policy 1992 (Environmental Protection Authority 1992), and mechanisms under the *Planning and Development Act 2005* (WA) to prevent high nutrient export activities on soils with a low capacity to retain phosphorus. More about this review is in Section 6.2.2.

In April 2018, the state government decided to suspend work on the SAPPR and the draft GGP. In June 2018, an independent panel was appointed to review and make recommendations for the SAPPR.

Although the SAPPR process is under review, the health of the Peel–Harvey Estuary remains an important state government priority, with progress on election commitments (Section 2.2.1) relevant to this goal.
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3 Land suitability

In 2016, DPIRD appointed GHD to provide advice on the PFZ project, including land suitability mapping to identify opportunities and constraints to agricultural development. GHD reviewed interstate and international food zones and advised DPIRD on a suitable planning framework. GHD’s findings are included in this section (GHD 2017a).

The investigation area for the PFZ project was initially 28 000ha but, after consulting stakeholders, the area increased to 42 000ha, north to Karnup and Rowe roads and east of South Western Highway to the forest in the Darling Scarp (Figure 3.1). The investigation area includes the southern part of the Shire of Serpentine Jarrahdale, south-west corner of the City of Rockingham, and the northern part of the Shire of Murray. The PIWI project’s investigations used the same 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 native vegetation (GHD 2017a). The assessment mapped the opportunities and constraints associated with six agricultural land uses:

- nonirrigated (dryland) grazing of cattle, horses and sheep (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, a type of protected cropping
- covered closed-system horticulture, including glasshouses with hydroponics, a type of protected cropping
- closed intensive animal premises, such as shedded (indoor) poultry, piggeries and cattle feedlots.

Covered horticulture production, whether soil-based or closed-system, is a form of protected cropping. Protected Cropping Australia, the peak industry body representing commercial hydroponic and greenhouse growers, defines protected cropping as a generic term to cover all systems under some form of protection, cover, shade cloth, greenhouse or glasshouse.

GHD used spatial software to analyse regional-scale data 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. Maps of phosphorus export risk indicate areas with the highest risk of nutrient export from agricultural and other uses (van Gool et al. 2005).

Other datasets included information on land-use zones, lot sizes, and road, electricity and internet services. While data on gas and water pipelines was available, the project team did not consider these were critical for most agricultural land uses.
These datasets generated draft land suitability maps, which were finalised using feedback from a stakeholder workshop held in April 2017. DPIRD published the GHD’s report and the summarised land-use suitability maps (GHD 2017a) online in 2017.

Figure 3.1 The investigation area for the Peel Food Zone project
3.2 Findings

GHD (2017a) 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 investigation area. It concluded most of the rural land would remain used for extensive grazing. Future intensification of agriculture needs to consider the environmental importance of the Ramsar-listed Peel–Harvey Estuary and wetland systems, and adequately separating intensive farming from urban and rural-residential areas.

GHD (2017a) found the eastern part of the investigation area is most suited for a wide range of agriculture, with western areas better suited to closed-system protected cropping 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 3.2 shows GHD’s land suitability map for soil-based irrigated annual horticulture (Appendix C in GHD 2017a). It highlights land most suitable for annual horticulture in green, mainly in the east and south of the investigation area. This land has high capability soils, relatively low risk of phosphorus export and is located well away from the Serpentine and Murray rivers.

Yellow areas on Figure 3.2 are moderately constrained for annual horticulture and orange areas are highly constrained because of the combination of three factors:

- low or very low land capability for annual horticulture
- high, very high or extreme phosphorus export risk
- proximity to the Serpentine and Murray rivers.

Land considered unsuitable for annual horticulture is coloured black in Figure 3.2. This includes land set aside as conservation reserves, areas of native vegetation and land zoned for urban and rural living.

GHD produced similar maps for land suitability for perennial horticulture (Appendix D in GHD 2017a) and for covered soil-based irrigated horticulture (Appendix E in GHD 2017a). These maps show that the main factors affecting suitability for these uses are land capability and the high to extreme risk of phosphorus export.
Source: GHD (2017a)

Figure 3.2 Land suitability mapping for soil-based irrigated annual horticulture in the Peel Food Zone investigation area
3.2.2 Closed-system horticulture (protected cropping)

Because innovative food production is integral to Transform Peel, GHD’s land suitability investigation considered closed-system agricultural systems that do not discharge excess water or nutrients into the environment. These systems are innovative because standard industry practice in protected cropping for horticulture involves disposing of nutrient enriched waste by irrigating other farmland with that wastewater.

Figure 3.3 shows the land suitability map for closed-system horticulture (protected cropping) in which crops do not grow directly in the soil (Appendix F in GHD 2017a). For this reason, the soil-based datasets, such as land capability and phosphorus export risk, were not included in the land suitability analysis.

The most suitable areas for closed-system horticulture (protected cropping) are areas close to suitable road infrastructure and power supplies and appear as green on Figure 3.3. Yellow areas on Figure 3.3 are moderately constrained, and orange areas are highly constrained because of the lack of groundwater and proximity to rural living areas.

Commercial-scale intensive horticulture is not a permitted land use in rural-residential areas, which are mainly in the southern portion of the investigation area. These areas appear as yellow or orange in Figure 3.3 because the analysis assumed that the protected cropping would minimise the negative impacts on neighbouring residents.

Land considered unsuitable for closed-system horticulture (protected cropping) is coloured black in Figure 3.3. This includes land set aside as conservation reserves, native vegetation and urban areas.
Figure 3.3 Land suitability mapping for closed-system horticulture (protected cropping) in the Peel Food Zone investigation area
3.2.3 Intensive livestock production

As innovative food production is integral to Transform Peel, GHD’s land suitability investigation considered closed-system agricultural systems that do not discharge excess water or nutrients into the environment. These systems are innovative because standard industry practice in intensive livestock production involves disposing of nutrient enriched waste by composting or directly spreading the solid waste on farmland.

Land suitable for closed-system intensive livestock production is limited in the investigation area because of the shallow groundwater across most of the area. Intensive livestock premises require landfill to achieve a minimum 2m separation to watertables, and must be located distant from settled areas, such as Mandurah, to minimise odour impact on residents. GHD’s constraints and land suitability maps for closed-system intensive livestock is available in Appendix G in GHD (2017a).

Many free-range livestock premises, such as free-range poultry sheds and outdoor rotational piggeries, are not suitable in the Peel–Harvey catchment because of the high nutrient export risk these premises pose to the environment. The suitability of low-density mobile outdoor poultry farms and piggeries was not analysed in the PFZ project, but it is likely to be similar to the suitability of nonirrigated (dryland) grazing (Appendix B in GHD 2017a). Section 6.2.4 has more information about the difference between free-range and low-density mobile outdoor production systems.

3.2.4 Water resource information

The GHD land suitability investigation used simplified assumptions about the availability of groundwater for irrigated horticulture, protected cropping and intensive livestock uses. Figure 3.4 shows groundwater availability for agriculture assigned as a level constraint to map units based on DWER’s groundwater allocation subareas and DPIRD’s soil-landscape system mapping (GHD 2017a).

The investigation assumed that most groundwater for agricultural purposes is either moderately constrained (yellow areas in Figure 3.4) or highly constrained (orange areas) across the PFZ investigation area. In the south-west, where limited additional groundwater is available, the map is coloured light green to represent availability as neutral — neither a constraint nor an opportunity. Areas where shallow groundwater is unavailable, such as along the footslopes of the Darling Range, are considered unsuitable for irrigation and are shown in red (Figure 3.4).

Understanding the quantity and quality of water resources is critical for planning new agricultural development. The GHD groundwater availability map was prepared in 2017 before DWER’s technical water resource investigations in the PIWI project. The results of the PIWI investigations will provide additional information about groundwater resources and the technical feasibility of alternative water sources, such as managed aquifer recharge, where water is added into suitable aquifers for environmental benefits or for storage for future use. The process used by managed aquifer recharge assures adequate protection of human health and the environment.
Source: GHD (2017a)

Figure 3.4 Groundwater availability for soil-based irrigated annual horticulture in the Peel Food Zone investigation area
3.3 Conclusion

GHD (2017a) concluded most of the PFZ investigation area would remain under its current use for cattle, horse and sheep grazing. There may be site-specific opportunities for protected cropping within closed systems, where water is or becomes available from alternative sources.

In-ground horticulture can occur on suitable soils in the east of the investigation area where water suitable for irrigation is available. It will be useful for DPIRD and DWER to reassess the assumptions made about water availability for the land suitability investigation (GHD 2017a) once the results of the PIWI studies are available.
4 Consultation

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

After each presentation, participants were encouraged to discuss their aspirations for a possible food zone, their concerns and future opportunities.

DPIRD promoted the workshops via the internet, in the PDC’s Peel Magazine, and emailed invitations to relevant landholders in DPIRD’s property database. Feedback from participants was that the workshops could have been more widely promoted among local landholders and the community.

4.1 Findings

Participants’ views varied widely, 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 region and many identified the need to improve the profitability of agriculture and food in the region. However, some expressed caution, even scepticism, about the concept, feasibility and proposed timetable of establishing a large-scale food zone in the region.

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 participants with some suggesting different terms, such as food area or food district, instead of food zone.

4.1.2 Spatial extent

There was debate among participants about the location and extent of a food zone. Some thought it should include the whole region so that more landholders and communities were included in Transform Peel.

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

No agreement was reached about the number or location of potential ‘food zones’ in the Peel region.

4.1.3 Other issues

Although there was some support for closed system intensive livestock such as poultry sheds, most participants preferred free-range and low-density mobile outdoor production systems and expressed concerns about animal welfare if animals were confined.

At one workshop, participants discussed the planning approvals needed for low-density mobile outdoor poultry farms, which is an emerging use in the region. More information about low-density mobile outdoor poultry farms is in Section 6.2.4. Some participants
mentioned that the Shire of Serpentine Jarrahdale’s Poultry Farm Special Control Area was a successful planning approach for intensive shedded poultry.

Many participants discussed the need to improve on-farm profitability by investing in innovation with local research, while others were more concerned about protecting rural land from urban expansion.

Some participants did not want the subdivision potential of their rural land to be limited. Issues for small producers included access to markets and lack of demand for produce.

At one workshop, comments were raised about the visual impact of glasshouses if the structures covered 42,000ha across the Swan coastal plain and were viewed from lookouts along the Darling Scarp. Other issues raised at the meetings included the social impact of foreign investment and a foreign workforce. Some were concerned about the negative impact on local food security if large volumes of agricultural produce and processed food was exported from the Peel, reducing supplies available for the local domestic market.

At most meetings, there was discussion about the capacity of 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 among participants 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 should not forcibly displace existing land uses
- intensification and land-use change associated with the PFZ project should not compromise the region’s environmental, cultural and social values.

Given the views expressed about the scale and purpose of the “food zone”, DPIRD recommends an approach that:

- maintains current land zoning to support a diversity of future agricultural land uses
- supports innovation in agricultural land uses
- where possible, focuses investment in intensive agriculture on land with water — this has the greatest potential for agricultural intensification and is supported by current landowners.
5 Protected cropping forum

To succeed, the Transform Peel initiative needs innovative forms of closed-system protected cropping if it seeks to increase horticultural production from the region. Local consultation identified the need for wider state-level consultation and more information about these systems and their place in the Peel region.

On 29 May 2018, DPIRD and PDC hosted a statewide forum in Mandurah on protected cropping, which was attended by more than 100 people. The forum was opened by the Hon. Alannah MacTiernan, MLC\(^3\), who used to opportunity to release a report by Arris Pty Ltd (2018) on protected cropping commissioned by DPIRD.

The forum featured these presenters:
- Graeme Smith (Graeme Smith Consulting, Victoria)
- Jim Kelly (Arris Pty Ltd, South Australia)
- Bao Duy Nguyen (Sun City Produce, Geraldton, WA)
- Paul Humble (hydroponic cucumber grower, Baldivis, WA)
- Alex Norman (hydroponic tomato grower, Baldivis, WA)
- Associate Professor Christopher Vas (Murdoch University, Singapore)
- Ben Cole (Wide Open Agriculture, Williams, WA).

5.1 Workshop sessions

The forum included two workshop sessions. The first asked participants about their insights and questions about increasing protected cropping in WA. The main points from this discussion were:
- need 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 trust in the supply chain
- address barriers regarding access to water, land, energy and waste disposal
- implement biosecurity and food safety standards to maintain a ‘clean and green’ image and trust
- investigate the potential for value adding, secondary processing and complementary industry
- develop products and local branding.

The second workshop asked participants about the practical actions and initiatives needed to increase protected cropping in WA. Participant priorities included:
- promoting industry opportunities
- addressing labour challenges
- considering financing and taxation incentives to encourage industry development
- identifying upstream and downstream opportunities for use of products and any waste or by-products

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\(^3\) Minister for Regional Development; Agriculture and Food; Ports; Minister Assisting the Minister for State Development, Jobs and Trade
• supporting the development of appropriate allied service industries
• conducting market analysis, facilitating industry investment and supporting the establishment of export markets and local supply chains
• reviewing restrictive planning requirements and legislation for protected cropping development
• developing new regulatory standards for more efficient industry development
• ensuring biosecurity and traceability standards are adequate to justify premium prices for clean, green produce.

The forum discussed the role of state government in protected cropping, and how DPIRD could assist growth through market analysis and facilitating industry investment, protecting industry through biosecurity activities, and by establishing traceability standards.

State government also plays a significant role in reviewing planning requirements, building approvals and other approvals that apply to protected cropping, and in developing guidelines for protected cropping. These suggestions from the forum are highly relevant to planning for these land uses:

• standardising requirements for glasshouses across state and local government
• reviewing planning zones, bushfire mitigation and firefighting requirements, and Australian building codes to allow for the development of this infrastructure.

5.2 Feasibility of protected cropping in the Peel region

A high priority for protected cropping in the Peel region is to ensure wastewater (including brine) and solid waste do not increase nutrient loads 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 a suitable option in the Peel–Harvey coastal catchment. An alternative approach for disposing 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 region needs to be assessed to inform future planning and mitigate the risk of future investment into these systems, particularly if additional costs are associated with removing nutrient-rich wastewater from the coastal plain.

Initial analysis of supply and demand scenarios for water resources for the PIWI project confirmed that insufficient groundwater resources are available to develop all suitable land across the 42,000ha of the PFZ investigation area. Developing protected cropping to produce a similar volume of produce from 1500ha to 3000ha of irrigated agriculture, as per the Transform Peel business case, would require alternative piped water sources to ensure a year-round supply that is independent of climate variability.

The feasibility study of greenhouse production at Collie and Brunswick (Arris Pty Ltd 2018) is a useful approach to consider for Transform Peel. Such a study would need to specifically address wastewater disposal within the Peel–Harvey coastal catchment and would rule out methods proposed for Collie, such as using nutrient-rich water to irrigate tree crops and disposing of the brine waste stream from reverse osmosis into the Collie power station saline wastewater pipeline and ocean outfall system.
6 Planning approach

This report proposes a preferred planning approach and includes recommendations to support Transform Peel and the aims of the PFZ project. It will inform future discussions with stakeholders about agricultural land uses within the Peel region, specifically between DPIRD, PDC, DPLH and the WAPC.

The South Metropolitan Peel sub-regional planning framework (WAPC 2018a) and the overarching Perth and Peel@3.5million (WAPC 2018b) influence the approach to planning, along with work undertaken by GHD on behalf of DPIRD.

6.1 South Metropolitan Peel subregional planning framework

The South Metropolitan and Peel subregion includes the shires of Murray and Serpentine Jarrahdale, as well as the cities of Rockingham, Mandurah, Cockburn, Armadale, Gosnells and Kwinana.

Two region schemes apply to the South Metropolitan Peel subregion: the Metropolitan Region Scheme in the north, including the Shire of Serpentine Jarrahdale, and the Peel Region Scheme (PRS) covering the Shire of Murray. Region schemes are the principal statutory mechanisms to implement strategic land-use and infrastructure proposals. Local government planning, including local planning schemes and policies are required to be consistent with the broad land uses assigned under these region schemes.

Public submissions on the draft Perth and Peel@3.5million suite of plans, including the draft South Metropolitan Peel sub-regional planning framework, closed in July 2015, when planning for Transform Peel was underway, but before the PFZ project commenced.

The final South Metropolitan Peel sub-regional planning framework (the framework; WAPC 2018a) includes these points, which are highly relevant to the PFZ project:

- extra information about protecting water quality in the Peel–Harvey Estuary and refers to the review of SPP 2.1 Peel–Harvey Coastal Plain Catchment
- agricultural land as a natural resource and acknowledgement of the urgent need to preserve land close to urban areas for food production
- future planning for state-owned land in the north-east of the PFZ investigation area, which is known as East Keralup, which could complement planning for Transform Peel
- implementation actions for the WAPC, DPIRD and local government to identify and protect priority agricultural land.

The framework guides anticipated timeframes and sequencing for urban development, identifies industrial sites and key infrastructure, and recognises that actual development depends on various factors including demand for land, more-detailed planning in region and local planning schemes, 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 (WAPC 2018a):

- facilitate increasing the number of people living close to where they work and protect land required for employment from other competing land uses
- provide effective and sustainable management of water resources, including drainage, improved 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.

The *South Metropolitan Peel sub-regional planning framework* includes a map of proposed land uses for the subregion in Plan 1.

Figure 6.1 is an extract from Plan 1 showing the proposed land uses for the PFZ investigation area.

The plan shows Mandurah and Rockingham as strategic metropolitan activity centres, Pinjarra as a secondary centre, and Baldivis, Karnup and Ravenswood as district level centres. A planning investigation area for future urban, immediately north of Ravenswood, is marked by light blue hatching. This potential urban area is south of the PFZ investigation area.

The PBP is located in the industrial land (coloured purple) in the lower centre of Figure 6.1. Future industrial land to make up the 1000ha is shaded pink.

The plan shows that most of the PFZ investigation area will be retained as rural zoned land. In the north-west of the investigation area, Keralup (east) — marked with a blue dashed line — requires further investigation to consider alternative (non-urban) future land uses.

Land zoned for rural-residential use is shaded green, with future areas hatched green. These areas are mainly located close to urban areas, except for two areas in the southern half of the PFZ investigation area, south-east of the PBP. The green hatched rectangle indicates the only additional rural-residential land planned for the investigation area.
One driver behind establishing a food zone under the Transform Peel business case is 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 investigation area, and describes the need to preserve land close to urban areas for food production 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’ (WAPC 2018a). Rural-residential development areas in the PFZ investigation area include:

- existing rural-residential zones
- areas identified within endorsed or draft strategies or other planning documents
- one additional area next to an existing area.
East of Karnup is an area marked on Figure 6.1 as ‘Keralup (east)’ and called ‘East Keralup’ in the framework. This large landholding, in the north-west corner of the PFZ investigation area, consists of 4000ha in the City of Rockingham and 1600ha in the Shire of Murray. The Department of Communities (formerly the Department of Housing) owns East Keralup, which they purchased in 1991 for future housing.

Environmental assessment concluded that East Keralup is unsuitable for urban development. The framework states that this area requires ‘further investigation to consider alternative (non-urban) future land uses’ (WAPC 2018a).

**6.2 Preferred planning approach**

Figure 6.2 represents the recommended planning approach for agriculture as part of Transform Peel. This will be most effective if local governments in the Peel region collaborate with the WAPC, DPLH, PDC and DPIRD to establish a consistent approach to planning for agriculture, food and for rural land. For this reason, the Chair of the WAPC needs to be briefed about the preferred planning approach described in this section.

**Recommendation**

- Representatives from DPIRD and PDC brief the Chair of the WAPC about the PFZ project and the preferred planning approach in this report.

**Figure 6.2 Recommended planning approach for agriculture in the Peel region**

**6.2.1 Use established planning terms**

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

Others were disappointed that a food zone was not already in place because they wanted to use this to promote and sell 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

*SPP 2.5 Rural Planning* aims to support existing, expanded, and future primary production by protecting rural land, including priority agricultural land, land required for animal premises, and land for food production. SPP 2.5’s accompanying rural planning guidelines include information about recognising areas of high-quality agricultural land (HQAL) as priority agricultural land in local planning schemes.

SPP 2.5 defines these terms:

- HQAL 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 HQAL data that has been subject to consultation and refinement, and has removed from it land required for existing and future urban and other development areas, public use areas and land for environmental purposes.

Primary production and processing precincts

Section 6.3 of SPP 2.5’s rural planning guidelines relates to primary processing and primary production precincts. Such precincts are an approach that local governments might use in local planning strategies and schemes to promote economic development, primary production or processing on rural land.

Section 6.3 states that local governments seeking to identify and justify such precincts in their local planning strategies need to consider:

- if industry trends or needs support the proposed precinct
- the scale of the precinct (generally large) for rural activities, with no residential component
- access to freight, rail, roads, ports and airports, which depends on the scale and type of industry in the precincts under consideration
- servicing and access conditions, including investigating potential costs of providing these services
- any potential risks or benefits associated with co-locating industries
- relevant environmental matters, including adequate land for buffers
- if additional studies, and what type, are required.

In relation to local planning schemes, Section 6.3 states that local governments seeking to include food production or processing precincts into their schemes need to consider:

- the adequacy of scheme provisions and whether to designate the precinct a Special Control Area
- 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 depend on the specific production or processing industries proposed for the precinct
- planning for potential cumulative impacts.
Recommendations

- DPIRD recommends using established planning terms that stakeholders, including local government, DPLH and the WAPC, accept and understand. Be clear when using the term ‘food zone’ that this is not a statutory land-use planning zone. DPIRD’s preferred term is food production district.
- DPIRD recommends using terms defined in *SPP 2.5 Rural Planning* and its rural planning guidelines, including HQAL, priority agricultural 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 WA and are prepared under Part 3 of the *Planning and Development Act 2005*. Although most apply statewide, some have a geographic focus. *SPP 2.1 Peel–Harvey Coastal Plain Catchment* ensures that land-use changes within the Peel–Harvey coastal plain catchment that are likely to cause environmental damage to the estuary are brought under planning control and prevented. This 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 production sector
- increase high water-using vegetation cover within the Peel–Harvey coastal plain catchment
- reflect the environmental objectives in the environmental protection policy for the Peel–Harvey estuarine system (Environmental Protection Authority 1992)
- prevent land uses likely to result in excessive nutrient export into the drainage system.

The WAPC has directed the DPLH to review the various water-related SPPs with the view to amalgamating these into a single simplified state policy. Three of the SPPs within the scope of this review are:

- *SPP 2.1 Peel–Harvey Coastal Plain Catchment*
- *SPP 2.9 Water Resources*
- *SPP 2.10 Swan–Canning River System*.

The DPLH held a series of preliminary meetings in 2017 with key stakeholders of each policy and prepared an issues paper. In 2018, the DPLH set up a stakeholder reference group to guide the review of these policies. This group includes representatives from DWER, DPIRD and the Shire of Murray.

Because Transform Peel and the PFZ investigation area are located within the SPP 2.1 policy area, the review team needs to be aware of the Transform Peel initiative and the results of the land suitability and water resource investigations. Similarly, the PDC must also be aware of the SPP review process to anticipate potential ‘fatal flaws’ for
proposals to intensify agriculture in the Peel region and to align future investment with the revised policy.

**Recommendation**

- DPIRD participates in the WAPC’s current review of water-related state planning policies, specifically for *SPP 2.1 Peel–Harvey Coastal Plain Catchment*, to support Transform Peel’s long-term aim to reduce nutrient loads in the Peel–Harvey Estuary, and to plan for intensive agriculture using innovative closed-system protected cropping.

**6.2.3 Identify and zone priority agricultural land in the Peel region**

*SPP 2.5 Rural Planning* and its rural planning guidelines guides planning for priority agricultural land, which is based on HQAL mapping (if available), or available published information on land resources and capability, climate and water for irrigation. Where appropriate, Priority Agriculture zones can be included in local planning schemes.

The implementation section of the framework (WAPC 2018a) lists an action to identify and protect priority agricultural land by amending local planning strategies and schemes. The preference for a coordinated regional approach to identifying and protecting agricultural land at a regional level requires collaboration between the various Peel local governments, WAPC, DPLH and DPIRD.

GHD’s land suitability assessment and mapping (GHD 2017a) is a valuable starting point for local government to identify HQAL. This assessment used limited information on groundwater quantity and quality available for irrigated agriculture. The Transform Peel’s PIWI project will improve information about water resources and land suitability assessment.

The GHD investigation covered the northern section of the Shire of Murray and the southern section of the Shire of Serpentine Jarrahdale. A similar approach to that taken by GHD, using existing regional datasets, would allow land suitability mapping to cover all shires in the Peel region and help DPIRD map areas of HQAL. Access to updated HQAL maps would then allow local governments in the Peel region to identify and protect priority agricultural land in their local planning schemes.

**Recommendations**

- DPIRD assists local government to recognise the importance of agriculture and food in local planning strategies and schemes in the City of Mandurah and the shires of the Peel region to support Transform Peel.
- DPIRD analyses land suitability to help the shires of the Peel region identify HQAL and protect priority agricultural land in support of Transform Peel.

The PRS and Greater Bunbury Region Scheme (GBRS) are supported by policies (including a strategic agricultural policy) and mapping. The WAPC adopted the strategic agriculture policies in 2002 and reviewed them in 2015 so that they reflected SPP 2.1.

In support of the review, DPIRD reviewed the priority agricultural land mapping for each scheme area using regional maps of land capability and phosphorus export risk (as a basis for nutrient risk mapping), but did not use water resources data.
In 2017, the WAPC released updated priority agricultural and rural land-use policies for the PRS (WAPC 2017a) and the GBRS (WAPC 2017b). Priority agricultural land in the PRS 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 land suitability investigation also used maps of land capability and phosphorus export risk (GHD 2017a). As outlined in Section 3, the investigation combined these maps with other spatial data, including indicative information about groundwater. Once the results of the PIWI water resource investigations become available, this improved groundwater information will be used with the GHD land suitability maps to help identify HQAL and inform future reviews of priority agricultural land identified in the PRS.

**Recommendation**

- DPIRD proposes that the WAPC consider the findings of the Transform Peel land and water studies in the next review of regional HQAL and update of the Peel Region Scheme Priority Agricultural and Rural Land Use Policy (WAPC 2017a).

### 6.2.4 Develop planning guidelines for new and emerging land uses

The Peel Sustainable Agriculture Technical Working Group (TWG) is a collaborative group involving the PDC, DPIRD, DWER, DPLH, various local governments in the Peel–Harvey coastal plain catchment (Serpentine Jarrahdale, Murray, Waroona and Harvey) and the PHCC. It reports to the Peel Regional Leaders Forum.

A priority for the TWG is to ensure planning decisions about new land uses in the region include an assessment of land capability, drainage and nutrient impacts, to manage the potential risks to the Peel–Harvey Estuary.

In 2015, the TWG published a brochure to guide new horticultural development in the region and drafted a model local planning policy for local governments to adapt and apply to their areas. The shires of Murray and Waroona have adopted local planning policies for horticulture development in their shires.

**Low-density mobile outdoor poultry farms**

In July 2017, the TWG identified an emerging land use involving small rural landholders wanting to establish low-density mobile outdoor poultry and pig farms. These have fewer animals than free-range poultry farms and rotational outdoor piggeries.

Given greater free-range access to pasture, chickens live in mobile coups, which are moved around the farm. This report uses 'low-density mobile outdoor poultry farms' to distinguish them from commercial free-range operations, where chickens are housed in sheds and have access to a fixed outside range area.

It is difficult to apply existing guidelines and codes of practice and to assess environmental impacts, including nutrient risk, to low-density mobile outdoor poultry farms. At its meeting in October 2018, the TWG resolved to proceed with developing guidelines for these types of mobile outdoor poultry farms.
Recommendation

- DPIRD provides technical support to the Peel Sustainable Agricultural Technical Working Group to develop guidance on low-density mobile outdoor poultry farms and piggeries in the Peel–Harvey coastal plain catchment.

Protected cropping

As described in Section 5, participants at the forum on protected cropping made two suggestions relevant to the PFZ project:

- standardise requirements for glasshouses across state and local government
- review planning zones, bush fire mitigation and firefighting requirements, and Australian building codes to allow for the development of this infrastructure.

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

WA’s planning system defines ‘agriculture – intensive’ to mean premises (including outbuildings and earthworks) used for commercial production purposes associated with any of these:

- producing grapes, vegetables, flowers, exotic or native plants, fruit or nuts
- establishing and operating plant or fruit nurseries
- developing land for irrigated fodder production or irrigated pasture (including turf farms)
- land-based aquaculture.

Recommendation

- DPIRD works with DPLH, DWER and local government, as needed, to review definitions, land-use permissibility, and planning and development guidelines for horticultural protected cropping systems (e.g. tunnel houses, greenhouses, glasshouses, vertical farming).

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

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 mitigate risks for 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 investment costs 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 how protected cropping may utilise an eco-industrial precinct to dispose of solid waste and wastewater.

The precinct could focus investment in closed-system protected cropping for intensive horticulture enterprises on land close to the PBP and into key services, such as roads, power and gas, while reducing nutrient export into the Serpentine and Murray rivers.
Potential sites for investigation include the western parts of the Nambeelup/Punrak/Dirk Brook subcatchments, incorporating state-owned land in East Keralup — these areas are major exporters of nutrients into the Serpentine River.

Alternative precinct sites in the Peel region would need to be assessed on infrastructure availability, including roads, services including electricity and gas, and disposal options for brine and nutrient enriched wastewater. Other considerations would be the proximity to potential food manufacturing and processing facilities in the PBP.

**Recommendation**

- DPIRD commissions studies into closed-system protected cropping in the Peel region 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 help DevelopmentWA (formerly LandCorp), PDC, and DPIRD support food manufacturing, processing and related industries to relocate to the Peel region, and to inform DevelopmentWA on industry infrastructure requirements and lot composition in the planning phase for the PBP.

This section contains extracts from the executive summary of GHD’s report to DPIRD (GHD 2017b). In their, GHD used the term ‘agrifood business’ to describe food manufacturers, processors, exporters, importers, packaging suppliers and transport distributors. It does not include food producers, wineries and broad-scale agriculture businesses. Figure 7.1 shows the process used by GHD to develop this strategy.

Source: GHD (2017b)

Figure 7.1 Process for developing the food transition strategy for the Peel Business Park

7.1 Agrifood businesses in Perth and Peel under relocation pressure

GHD (2017b) identified 401 agrifood businesses in the Perth and Peel regions. Half (51%) are located in industrial zones, with the remaining businesses located in zones that may be less suitable, such as commercial (26%), agricultural/rural (9%), development (7%) or residential (6%) zones. The 31 businesses currently 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 zones near major infrastructure, specifically North Coogee, near the Port of Fremantle.

GHD (2017b) classified the most common agrifood businesses as gourmet, fresh produce, meat, seafood, food wholesaler, baking, oils, exporter/importer, and packing. These businesses represented 77% of all agrifood businesses in the Perth and Peel regions.
Nine areas in the Perth and Peel regions have the most agrifood businesses under pressure to relocate:

- Tapping and Wanneroo
- Osborne Park and Innaloo
- Canning Vale
- Cockburn Central and Treeby
- Bibra Lake
- North Coogee
- Aubin Grove
- Casuarina
- Byford.

GHD (2017b) developed business profiles to understand the specific requirements of different agrifood businesses that may seek to relocate to the Peel region. The business profiles include eight existing types of agrifood business and six emerging or new types.

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

- poultry processing
- fish processing and packaging
- beef boning and packing
- manufacturing processed meats (sausages, bacon, ham)
- dairy processing (milk powder, cheese, yoghurt)
- mushroom farming
- cold storage
- distribution.

New or emerging business profiles were:

- premium or organic food processing shared facility or hub
- vertical farming
- medicinal honey processing
- online grocery and meal delivery
- non-meat protein processing
- nutraceuticals (foods with health-giving properties, such as dietary supplements).

GHD (2017b) used these profiles to estimate the overall requirements for land, utilities, transport, waste disposal etc., assuming 60.8ha of the PBP was fully developed for this purpose.
7.2 Suitability of proposed servicing

GHD (2017b) reviewed the planned servicing for the PBP to determine its suitability in meeting the estimated requirements. They found that the proposed servicing is generally suitable and adequate; however, to attract new and existing businesses to the PBP, 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 (2017b) concluded there is a need to offer incentives for new and existing businesses to relocate to the PBP. However, rather than providing grants to individual businesses, which only address relocation costs, GHD (2017b) recommended these 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 — many potential businesses will require larger lots than proposed or will need multiple lots
- underground electricity (where possible)
- alternative long-term wastewater treatment options:
  - limited remaining capacity at the Gordon Road Wastewater Treatment Plant (WWTP)
  - many businesses will require on-site treatment before discharge — potential opportunity for a shared WWTP within the PBP
  - consider installing a separate sewage line for human waste
- address solid waste in planning and consider support for developing a nearby eco-industrial precinct
- shared services to reduce the need for individual businesses to develop stand-alone facilities; opportunities for shared services and facilities include:
  - backup water supply tanks, chlorination and boilers
  - backup electricity generator(s)
  - telecommunications
  - truck wash
  - cold storage
  - security services
  - research and development laboratory or agri-innovation facility
  - administration and 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, local generation options, solar generation or converting waste to energy
- assist with planning applications and provide certainty around approvals and permits
- attract specific businesses by offering different types of tenure and payment options
- offer a range of tenure options — some businesses may prefer the security of freehold tenure; others may prefer lease arrangements
- provide the option of making deferred payments against land acquisitions — this will likely help businesses secure development finance.
Ongoing and coordinated engagement with existing and new agrifood businesses by DevelopmentWA, PDC, DPIRD and Shire of Murray will be required to ensure the PBP is successful in meeting their individual needs and therefore attracting investment (GHD 2017b).

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**

- DPIRD works with DevelopmentWA, PDC and local government to implement the food transition strategy to attract and support food processing and manufacturing businesses into the PBP or the West Mundijong Industrial Area.
8 Supporting agriculture to grow and innovate

8.1 Peel Regional Investment Blueprint

The *Peel regional investment blueprint* (Peel Development Commission [PDC] 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, particularly Thriving industry and Agriculture and food innovation. The blueprint identifies a number of high-level competitive advantages including proximity to the Perth metropolitan region, transport links to Asian markets, large workforce, and a natural resource base, including extensive areas of rural land.

The PDC reviewed the blueprint in 2018 and published a scorecard (PDC 2018) describing the Peel region’s progress against the five themes. Feedback from the review process meant that the blueprint now recognises that the Peel region’s environment is central for the five themes, highlighting the importance of balancing social and economic development with conservation (PDC 2018).

8.2 Economic development in the Perth and Peel regions

In 2018, Regional Development Australia (Perth; RDA) and Economic Development Australia (EDA) released *Driving change: Perth and Peel economic development strategy and infrastructure plan to 2050* (RDA & EDA 2018). Producing the report involved extensive stakeholder consultation, especially with local government, and it sets out a 30-year strategy for economic development, employment and infrastructure for the Perth and Peel regions. The Peri-Urban Development initiative discussed in the report is highly relevant to Transform Peel and the PFZ project. It aims to retain productive agricultural land in the Perth and Peel regions, while encouraging residential and urban development and lifestyle options.

These suggestions, taken directly from RDA and EDA (2018), are relevant to growing and innovating agriculture and food industries in the Peel region:

- Governance – Establish and grow industry collaboration structures to build the critical mass needed to break into global markets. These collaborations can be industry or geographically based, depending on the demand and relationships established.
- Capability – Identify opportunities to build the global capability of local producers and suppliers to ensure they have the capacity and skills to operate in this market.
- Cost – Work with relevant government and industry stakeholders to ensure the cost of getting products to market (distribution) compares with major competitors.
- Relationships – Identify opportunities and develop strong relationships with strategic Asian markets where mutually beneficial outcomes can be achieved. Identify areas
with complementary needs that are consistent with the existing and emerging strengths of the Perth and Peel region.

- Market knowledge – China, Indonesia and Bangladesh are within two hours of the WA time zone. There is a need to develop a strong understanding around the current gaps and associated opportunities within these markets and to establish what are the key drivers that influence relationships and business decision-making.

8.3 Attracting investment

The PFZ project funded an officer from DPIRD to support the PDC in its planning to attract investors to the Peel region. An important step in attracting investors is to describe how the Peel region differs from Perth and other regions in WA, as well as regions interstate and overseas, so the PDC can communicate to potential investors what the Peel region has on ‘offer’. There is fierce competition for capital investment, human capital and knowledge within Perth and WA, as well as interstate and internationally.

To promote investment in the Peel region, the PDC has started developing strategic international partnerships (for example, with Singapore). This needs to continue, with PDC and DPIRD working with other WA regions as well as state and national promotion, trade and investment programs. An example is the Buy West Eat Best program, which is a voluntary labelling and marketing initiative developed by the Western Australian Government to assist local food producers to promote their products to WA consumers.

Instead of competing, the Peel region would benefit from cooperating and developing alliances with neighbouring agricultural 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 unlock extra resources and funding needed to support Transform Peel. For example, the food processors wanting to establish in the PBP could source produce from the South West region, including the fruit and vegetables from the Southern Forests district at Manjimup and vegetables from the Myalup district in Harvey. The Myalup Primary Industries Reserve project is looking to repurpose state forest in the Myalup region from plantation forestry to agriculture. Once developed, up to 2000ha of new land for irrigated horticulture may be released about 60km south of the PBP.

Recommendation

- PDC and DPIRD promote the Peel region’s relative advantages and support Transform Peel through collaborating with relevant regional, state and national supported initiatives.

Consultation for the PFZ project (Section 3.3) highlighted local interest in promoting food produced in the region and the challenges, with planning approvals, faced by businesses trying to expand or establish new agribusiness in the Peel region.

Recommendations

- PDC works with Peel region growers to promote and market food from the Peel region, and investigate regional brand and provenance, consistent with WA’s overall branding strategy.
8 Supporting agriculture to grow and innovate

• DPIRD provides officer support to assist growers and agribusinesses seeking to establish or expand in the Peel region.

8.4 Support innovation

Most rural land in the PFZ investigation area will remain used for grazing (cattle, sheep and horses) and for producing hay. There has been recent interest among some landholders in the Peel region to establish a grower group as a way to share expertise within the region and with growers from nearby areas. At the PDC’s Peel regional investment blueprint review workshop in June 2018, participants discussed the need for, and possible grower willingness to be involved in, establishing a Peel grower group. Consequently, PDC (2018) has identified ‘establishment of a regional grower group’ as a short-term regional priority.

Grower groups in WA are usually incorporated not-for-profit organisations. Typically, they aim to increase the production and profitability of their members and their farm businesses by adopting new production technologies. These groups deliver locally relevant research, development and extension, and provide a social hub that supports participatory research and farmer-to-farmer learning.

Grower groups are farmer-centred and volunteer-driven by motivated and leading growers and community members. They 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.

In the Peel region, a grower group would provide local and state government with an improved way to consult and communicate with food growers, for example, when considering proposals’ branding and provenance. Future consultation with growers about Transform Peel may benefit from having an established growers group.

Recommendation

• PDC and DPIRD support a Peel Grower Group to increase coordination and sharing of information and knowledge among growers in the Peel region.

The aim to halve the load of nutrients entering the Peel–Harvey Estuary and waterways requires ongoing funding to undertake research and development into nutrient management from existing and emerging agricultural land uses. Such research must build on more than 20 years of research and extension activities in the Peel region, and continue to support extension and demonstration activities by groups such as the PHCC, Landcare Serpentine Jarrahdale and the CY O’Connor Foundation at North Dandalup.

This work should comply with the Soil and Land Conservation Act 1945 (WA), and align with DPIRD’s sustainability responsibilities.

Recommendation

• DPIRD works with DWER, PHCC and other researchers to research and support innovation to reduce nutrient export from agricultural uses while increasing productivity from current land uses, protected cropping and emerging land uses.
9 Conclusion

The primary goal of Transform Peel is to grow the Peel region’s economy and create new jobs by activating industrial land in the PBP at Nambeelup. It also aims to protect the region’s natural resources by encouraging growers to use innovative production techniques to lessen nutrient loads into the Peel–Harvey Estuary, and to support the sustainable use of groundwater through studies into alternative water sources.

A core tenet of Transform Peel is innovation, the need to do things differently based on knowing that ‘business as usual’ will not drive the region’s economic growth, while also protecting the region’s unique natural features.

This report marks the end of PFZ project. Sixteen recommendations for future work are listed in Section 10. Ten relate to a preferred planning approach that will see DPIRD collaborating with local governments, DPLH, DWER, PHCC and WAPC to:

- use existing planning terminology and the current planning framework to plan for agriculture and food in the Peel region
- continue to use planning strategies, schemes and policy as the primary way to identify and protect priority agricultural land across the region
- facilitate state and local government collaboration to carry out land suitability and HQAL mapping across the Peel region
- streamline regulation by developing guidelines for low-density mobile outdoor poultry farms and clarifying planning requirements for protected cropping
- investigate the potential for closed-system protected cropping sites and precincts in the Peel region.

The recommendations about extending the land suitability and HQAL analysis closed-system protected cropping will require new funding.

This report considers other ways to encourage growth and innovation in agriculture and food businesses across the Peel region and makes six recommendations, which will require additional funding to:

- provide incentives to help food processing and manufacturing businesses relocate to the PBP or the West Mundijong Industrial Area
- differentiate and promote the advantages offered by the Peel region and align the Transform Peel initiative with other regional, state and national initiatives
- promote and market food from the Peel region, and investigate regional branding and provenance, consistent with WA’s overall branding strategy
- provide case management assistance to growers and agribusinesses seeking to establish or expand in the Peel region
- support a Peel Grower Group to increase information and knowledge sharing and help coordinate activities among growers in the Peel region
- support research, development and innovation aimed at reducing nutrient export from agricultural uses while increasing productivity from current and emerging land uses.
## 10 Recommendations from Peel Food Zone project

<table>
<thead>
<tr>
<th>No.</th>
<th>Type</th>
<th>Recommendation</th>
<th>Partners in delivery</th>
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<tbody>
<tr>
<td>1</td>
<td>Brief the Chair of the WAPC about planning approach</td>
<td>Representatives from DPIRD and PDC brief the Chair of the WAPC about the PFZ project and the preferred planning approach in this report.</td>
<td>DPLH, WAPC</td>
</tr>
<tr>
<td>2</td>
<td>Terminology</td>
<td>DPIRD recommends using established planning terms that stakeholders, including local government, DPLH and the WAPC, accept and understand. Be clear when using the term ‘food zone’ that this is not a statutory land-use planning zone. DPIRD’s preferred term is food production district.</td>
<td>DPLH, DWER, DevelopmentWA, local governments in Peel, WAPC</td>
</tr>
<tr>
<td>3</td>
<td>Terminology</td>
<td>DPIRD recommends using terms defined in <em>SPP 2.5 Rural Planning</em> and its rural planning guidelines, including HQAL, priority agricultural land, primary production precinct and primary processing precinct.</td>
<td>DPLH, DWER, DevelopmentWA, local governments in Peel, WAPC</td>
</tr>
<tr>
<td>4</td>
<td>Peel–Harvey state planning policy review</td>
<td>DPIRD participates in the WAPC’s current review of water-related state planning policies, specifically for <em>SPP 2.1 Peel–Harvey Coastal Plain Catchment</em>, to support Transform Peel’s long-term aim to reduce nutrient loads in the Peel–Harvey Estuary, and to plan for intensive agriculture using innovative closed-system protected cropping.</td>
<td>DPLH, DWER, Shire of Murray</td>
</tr>
<tr>
<td>5</td>
<td>Identify and zone priority agricultural land in the Peel region</td>
<td>DPIRD assists local government to recognise the importance of agriculture and food in local planning strategies and schemes in the City of Mandurah and the shires of the Peel region to support Transform Peel.</td>
<td>DPLH, DWER, local governments in Peel, WAPC</td>
</tr>
<tr>
<td>6</td>
<td>Identify and zone priority agricultural land in the Peel region</td>
<td>DPIRD will analyse land suitability to help the shires of the Peel region identify HQAL and protect priority agricultural land in support of Transform Peel.</td>
<td>DPLH, DWER, local governments in Peel, PHCC, WAPC</td>
</tr>
<tr>
<td>7</td>
<td>Identify and zone priority agricultural land in the Peel region</td>
<td>DPIRD proposes that the WAPC consider the findings of the Transform Peel land and water studies in the next review of regional HQAL and update of the Peel Region Scheme Priority Agricultural and Rural Land Use Policy (WAPC 2017a).</td>
<td>DPIRD, DWER, local governments in Peel, WAPC</td>
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<tbody>
<tr>
<td>8</td>
<td>Streamline regulation</td>
<td>DPIRD provides technical support to the Peel Sustainable Agricultural Technical Working Group to develop guidance on low-density mobile outdoor poultry and pig farms in the Peel–Harvey coastal plain catchment.</td>
<td>Peel Sustainable Agriculture Technical Working Group, DPIRD, DPLH, DWER, local governments in Peel, PDC, PHCC</td>
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<tr>
<td>9</td>
<td>Streamline regulation</td>
<td>DPIRD works with DPLH, DWER and local governments, as needed, to review definitions, land-use permissibility, and planning and development guidelines for horticultural protected cropping systems (e.g. tunnel houses, greenhouses, glasshouses, vertical farming).</td>
<td>DPLH, DWER, local governments with covered cropping, PHCC, Peel Sustainable Agriculture Technical Working Group, peak industry bodies</td>
</tr>
<tr>
<td>10</td>
<td>Protected cropping</td>
<td>DPIRD commissions studies into closed-system protected cropping in the Peel region to inform future investigation of a primary production precinct.</td>
<td>PDC, landowners at the nominated sites</td>
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<tr>
<td>11</td>
<td>Food transition strategy</td>
<td>DPIRD works with Development WA, PDC, and local government to attract and support food processing and manufacturing businesses into the PBP or the West Mundijong Industrial Area.</td>
<td>Development WA, Industrial Lands Authority, PDC, Shires of Murray and Serpentine Jarrahdale</td>
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<td>12</td>
<td>Marketing and investment attraction</td>
<td>PDC and DPIRD promote the Peel region’s relative advantages and support Transform Peel through collaborating with relevant regional, state and national supported initiatives.</td>
<td>Local governments in Peel</td>
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<td>13</td>
<td>Marketing</td>
<td>PDC work with Peel region growers to promote and market food from the Peel region, and investigate regional brand and provenance, consistent with WA’s overall branding strategy.</td>
<td>DPIRD, food businesses, local governments in Peel, Peel Grower Group, tourism groups</td>
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<td>14</td>
<td>Assistance to investors</td>
<td>DPIRD provides officer support to assist growers and agribusinesses seeking to establish or expand in the Peel region.</td>
<td>PDC, DWER, local governments in Peel, industry groups, PHCC</td>
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<td>15</td>
<td>Coordination and information sharing – innovation and growth</td>
<td>PDC and DPIRD support a Peel Grower Group to increase coordination and sharing of information and knowledge among growers in the Peel region.</td>
<td>Peel Grower Group Hub, PHCC, local governments in Peel</td>
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<td>16</td>
<td>Support research into new farming methods – innovate and protect</td>
<td>DPIRD works with DWER, PHCC and other researchers to research and support innovation to reduce nutrient export from agricultural uses while increasing productivity from current land uses, protected cropping, and emerging land uses.</td>
<td>DWER, landholders, PHCC, Peel Grower Group, researchers from Murdoch University, CY O'Connor Foundation</td>
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### Shortened forms

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<tr>
<td>DPIRD</td>
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<td>DPLH</td>
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<td>DWER</td>
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<td><em>South Metropolitan Peel subregional planning framework</em></td>
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<td><em>Perth and Peel Green Growth Plan for 3.5 million</em></td>
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<td>ha</td>
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<td>HQAL</td>
<td>high-quality agricultural land</td>
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<td>kilometre</td>
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State Planning Policy 2.5 Rural Planning Guidelines, version 3 (December 2016)
State Planning Policy 2.9 Water Resources (December 2006)
State Planning Policy 2.10 Swan–Canning River System (December 2006)