

Peel Development Commission
**Transform Peel Workforce &
Skills Needs Analysis**

FINAL REPORT

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Abbreviations and Acronyms

ABS	Australian Bureau of Statistics
ATAR	Australian Tertiary Admission Rank
CALD	Culturally and linguistically diverse
CCI	Chamber of Commerce and Industry
CoM	City of Mandurah
DRD	Department of Regional Development
DTWD	Department of Training and Workforce Development
e.g.	Exempli gratia, which means ‘for example’
ICT	Information and communication technology
LGA	Local Government Area
LLN	Language, literacy and numeracy
OECD	Organisation for Economic Cooperation and Development
PDC	Peel Development Commission
PIWI	Peel Integrated Water Initiative
PWDA	Peel Workforce Development Alliance
R&D	Research and Development
RDS	Regional Development Strategy 2016-2015
RfR	Royalties for Regions
RTO	Registered Training Organisation
SHS	Senior High School
SME	Small to medium enterprise
STEAM	Science Technology Engineering Arts and Mathematics
STEM	Science Technology Engineering and Mathematics
TAFE	Technical and further education
VET	Vocational education and training
WA	Western Australia
WIL	Work Integrated Learning
WHS	Workplace Health and Safety
WSNA	Transform Peel Workforce and Skills Needs Analysis 2017

Executive Summary

Transform Peel is a 35 year multi-stakeholder development program to establish an innovative primary industry hub comprising three initiatives: the Peel Food Zone, Peel Business Park and Peel Integrated Water Initiative. Transform Peel has recently received approval from the State Government to proceed with the Activation Phase of the program and received \$49.3 million of funding which will contribute to detailed design and early implementation activities including key headworks. Following activation, it is intended that private sector investment will drive the initiatives and achievement of intended outcomes.

The initiative targets the generation of approximately 33,100 jobs and an annual economic output of \$16 billion by 2050. It will therefore be important to ensure a ready supply of suitable human resources for full-scale operations. It will be important for local employment generation within the Peel region to meet Transform Peel's economic development imperative. Because of this, the Peel Development Commission, with other key partners recognised the need to investigate workforce needs and skills analysis to identify likely skills profiles, job pathways, and education, training and business support requirements for prospective employment generation through the Transform Peel initiatives. The study comprised a desktop analysis, preparation of a discussion paper and stakeholder engagement to gain insights to the current context, opportunities and constraints for workforce development in relation to Transform Peel. Throughout the study a total of 156 stakeholder engagements were undertaken in the form of face to face and telephone interviews, focus group discussions and online surveys.

The study found that across the Transform Peel initiatives and possible scenarios, the jobs created are likely to comprise a full range of skill levels and will depend on the businesses that establish themselves there. It is difficult to predict the exact jobs that will be generated as research indicates that approximately 65% of the jobs in 2050 will be jobs that do not exist today. However, there were some common characteristics and skills that employers demand, that can be the focus of targeted workforce development. These include work readiness in terms of work ethic, attitudes, willingness to learn and communication, as well as basic skills and understanding in science, technology, engineering, mathematics and information communication technology (ICT). Other overarching trends relevant to Transform Peel are that the workforce will need to be generally higher skilled, as well as more multi-skilled and adaptable in a rapidly changing context.

There are already many initiatives related to workforce development within the Peel region that are working well and will need to be expanded and strengthened to meet the workforce needs of the future. These include school-based learning and vocational training, apprenticeships, tertiary education, and work based skills development. Many of these require strong and ongoing interagency partnerships.

To aid in analysis, four scenarios were proposed for how the focus and industry make-up of Transform Peel may eventuate:

- A. Mixed Industry and Food, involving a passive uptake of tenancies with some inclusion of food production and processing as well as a range of other light industries;
- B. Food-based cluster, a more specialised and high technology food production, processing and marketing hub;
- C. Technology-based cluster, and
- D. Alternative Specialist Hub (or 'game changer') scenario.

Each scenario would be expected to have different anchor tenants and accordingly a different profile of the skills and jobs required to make up the workforce. However there are also some key foundational skills and characteristics that are required of all workers, and some jobs such as in construction and the Integrated Water Initiative that will be likely across any scenario. The scenario most aligned with the Business Case for Transform Peel and the Peel Regional Investment Blueprint is Option B: Food-based cluster.

In light of the findings on workforce and skills needs, as well as the existing initiatives in workforce development, seven key recommendations have been developed:

1. **Promote Transform Peel**, which entails branding and ongoing promotion of the initiative, particularly to young people and in terms of positive promotion of agriculture;
2. **Encourage work adaptation** and skills development towards Transform Peel emerging opportunities, which focuses on credentialing and up-skilling to ensure a multi-skilled workforce;
3. **Transform school based work readiness** and skills development for Transform Peel, which targets the key characteristics, attitudes and core competencies required by the workforce to ensure that the future workforce are ready and willing to engage with Transform Peel;
4. **Motivate business investment** in local skills development, which involves supporting businesses to engage with taking on entry level employees and re-skilling or up-skilling their existing workforce;
5. **Stimulate Peel entrepreneurship**, particularly focusing on supporting new start-up businesses and small to medium enterprises; and
6. **Matching and mentoring for real work requirements**, to ensure good connections between employers, prospective employees and the education, training and employment support sectors.
7. **Future infrastructure requirements** Continue to liaise with industry and the education and training sectors to identify the potential for a multi-use facility between education and training bodies and businesses associated with Transform Peel. This may be a combination of upgrading current facilities and an on-site facility.

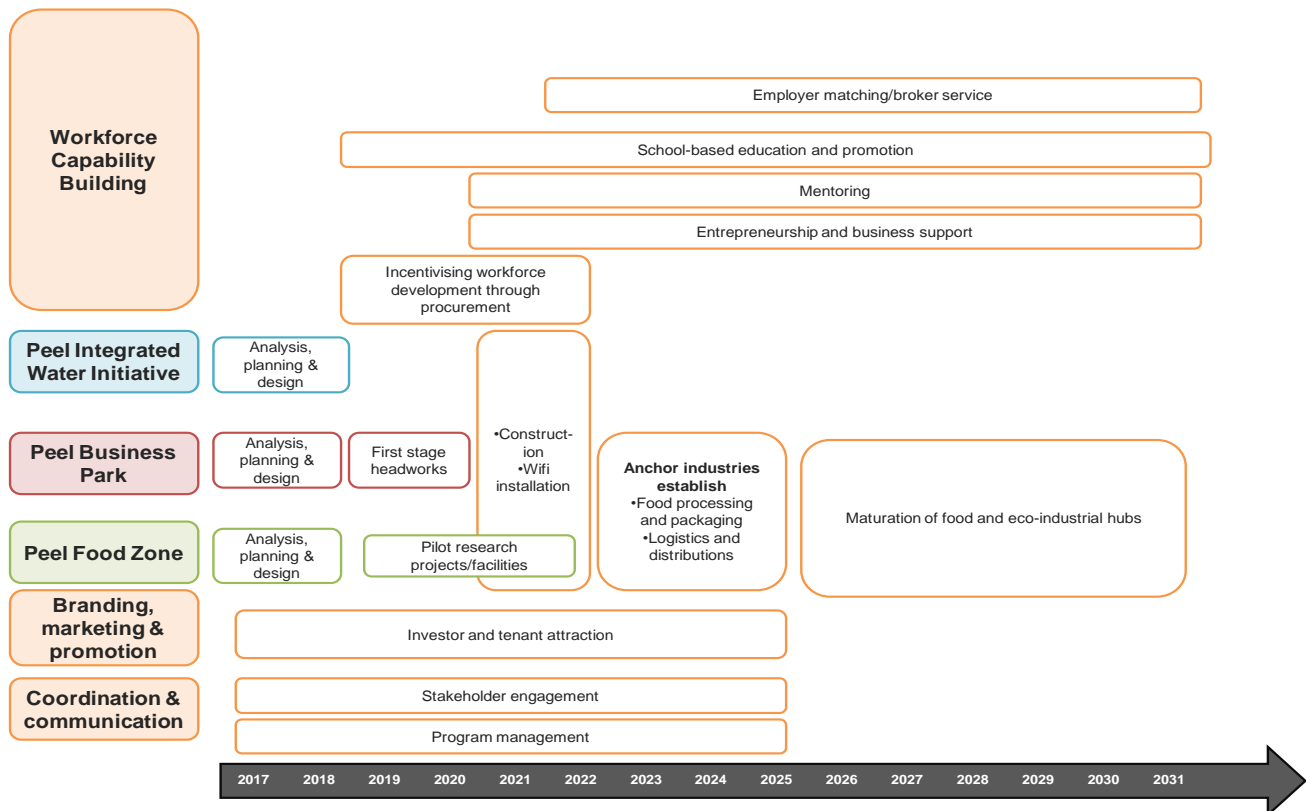
Immediate and longer term actions associated with each of these recommendations have been proposed. Given the long timeframe of Transform Peel, the actions to implement the recommendations will need to adapt to changes and opportunities that arise over time. Strong leadership and champions as well as ongoing key stakeholder partnerships will be critical for the progress of the Transform Peel initiative and to meet its workforce requirements. The Peel Workforce Development Alliance will play an important role in leading and progressing the recommendations, and adapting actions as Transform Peel unfolds.

1. Introduction

1.1. Transform Peel

Transform Peel is a 35 year multi-stakeholder development program to establish an innovative primary industry hub comprising three initiatives: the Peel Food Zone, Peel Business Park and Peel Integrated Water Initiative.¹ Collaborating partners currently include CSIRO, City of Mandurah, Department of Water, Department of Agriculture and Food WA, Food Fibre Timber Industries Training Council, Landcorp, Peel Harvey Catchment Council, and Shire of Murray. Transform Peel has recently received approval and \$49.3 million of funding from the State Government to proceed with the Activation Phase of the program, that entails detailed design and early implementation activities including key headworks.² Following activation, it is intended that private sector investment will drive the initiatives and achievement of intended outcomes. Transform Peel intends to generate an annual economic output of \$16 billion by 2050, including an export value of \$1.8 billion per annum.³ Figure 1 displays an indicative timeframe to 2031, though the program is intended to continue on to 2050, and changes and adaptations in the activities included in this timeframe are to be expected.

Figure 1. Indicative Timeline for Transform Peel to 2031.



Source: Transform Peel Workforce Skills Needs Analysis Study team, 2017

1.2. Workforce and Skills Needs Analysis

Transform Peel targets the generation of approximately 33,100 jobs. It will therefore be important to ensure a ready supply of suitable human resources for full-scale operations. In particular it will be important for local employment generation within Peel to meet Transform Peel's regional economic development imperative. The Peel Development Commission (PDC) recognised the need to investigate workforce needs and skills analysis to identify likely skills profiles, job pathways, and education, training and business support requirements for prospective employment generation through Transform Peel initiatives. A statement of requirements for the Workforce and Skills Analysis can be found in Appendix 1.

1.3. Alignment

1.3.1. Regional Development Strategy

The Department of Regional Development (DRD), Regional Development Commissions and the Royalties for Regions (RfR) program are guided by the Regional Development Strategy 2016-2025 (RDS). The strategy outlines a vision for “Vibrant regions with strong economies through jobs growth, economic growth and capable people”.⁴

Workforce development through the Transform Peel initiatives can contribute to a number of the results areas within the RDS. These include:

- People are job ready and available to take up regional employment opportunities;
- Local leadership owns and drives local development agendas;
- New businesses establish and prosper in key centres;
- Regional people and businesses can adopt economically beneficial technologies; and
- Service delivery models that support the economic success and well being of regional people.

1.3.2. Royalties for Regions Objectives

The *Royalties for Regions Act 2009* was established to promote and facilitate economic, business and social development in regional Western Australia (WA) through the operation of the RfR Fund. The realisation of employment generation and workforce development will contribute to the six RfR objectives:

- Building capacity in regional communities;
- Retaining benefits in regional communities;
- Improving services to regional communities;
- Attaining sustainability;
- Expanding opportunity; and
- Growing prosperity.⁵

1.3.3. Peel Regional Investment Blueprint

The Peel Regional Investment Blueprint (the Blueprint) identifies the importance of strengthening the economy and community in the Peel region with a context of rapid population growth. The Blueprint articulates a vision for Peel as “A progressive, prosperous and dynamic region with a culture of care”. Workforce development through Transform Peel will contribute to all five of the Blueprint’s themes:

1. Thriving industry;
2. Agriculture and food innovation;
3. Tourism excellence;
4. Capable people; and
5. Strong and resilient communities.

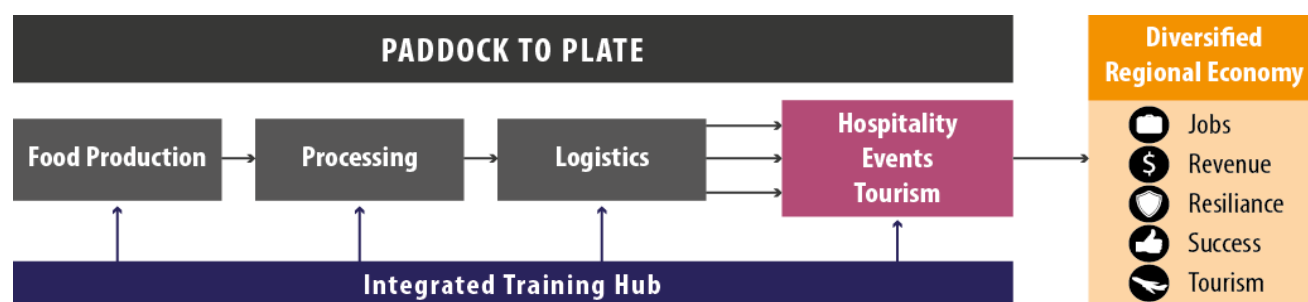
Principally, it will contribute to increasing the capability of people within Peel, while supporting the success of those themes relating to industry development. The Blueprint defines achievement of the theme ‘capable people’ as “The availability of an educated and highly skilled workforce with the capacity and capability to flexibly respond to workforce requirements of the future”. The focus areas for enhancing capability are boosting productivity and pathways to employment. The workforce and skills needs analysis for Transform Peel has sought to provide pathways for the Commission to work towards the vision and themes of the Blueprint.

1.3.4. Peel Development Commission Legacy Projects

In progressing implementation of the Blueprint the Commission has developed legacy project concepts, of which Transform Peel is one. The workforce development activities as part of Transform Peel have potential to be progressed alongside and contribute to the success of other legacy projects such as the Peel Hospitality and Personal Services Training Centre and Peel Secure Housing and Employment Support Project.

In particular, in undertaking feasibility for the Peel Hospitality and Personal Services Training Centre it was recognised that one of the key outcomes of Transform Peel is to build regional economic resilience by developing the ‘paddock to plate’ concept for the Peel as a gourmet food and dining destination (Figure 2).⁶ This links well with the food production and processing aspects of Transform Peel.

Figure 2. Paddock to Plate Vision.



Source: Pracsys, 2016

In order to achieve this vision, the jobs created at each stage of the primary production and service delivery process will require investment in infrastructure and human capital. It will be critical to the success of an integrated vision that the training delivery mirrors the production process. The feasibility study concluded that there was an immediate need for the development of training infrastructure for hospitality in the Peel but also that further analysis was required to determine the longer term training needs of Transform Peel and the opportunities of appropriate workforce development throughout the supply chain.

2. Methodology

The workforce skills and needs analysis for Transform Peel was overseen by a sub-group of the Peel Workforce Development Alliance (PWDA) and comprised the development of a project plan, a desktop analysis, and stakeholder engagement (see Appendix 2 for a more detailed timeframe) with associated outputs (Table 1).

Table 1. Workforce and Skills Needs Analysis Outputs

Output	Deadline (Draft)	Deadline (final)
Project Plan	14 November 2016	
Desktop Research Summary	2 December 2016	9 December 2016
Stakeholder Engagement Strategy	14 December 2016	13 January 2017
Workforce and Skills Needs Analysis	31 March 2017	14 April 2017

2.1. Peel Workforce Development Alliance sub-Group

The Peel Workforce Development Alliance (PWDA) established a sub-group to oversee the implementation of the workforce and skills needs analysis. An inception meeting and three subsequent meetings were held. The sub-group members contributed feedback on outputs, and guidance on stakeholders to be engaged (see Appendix 3 – Terms of Reference).

2.2. Desktop Analysis

The aim of the desktop review was to gain a robust understanding of the context and current knowledge around skills and workforce development in the Peel region. This was to inform the findings relating to workforce and skills needs, and recommendations on pathways to ensuring workforce readiness in the employment opportunities expected to arise from the activation of Transform Peel initiatives. Available documentation relating to regional and industry strategies, as well as any relevant national or global level trends in workforce development, academic and industry based research relating to economic development through workforce and skills development in areas applicable to Transform Peel were reviewed (see Appendix 4 Bibliography).

A Summary Report was produced from this analysis, which was used as a discussion tool in the subsequent stakeholder engagement. The report summarised the findings around trends and challenges in workforce development and explored some initial suggestions of potential needs and solutions. Its findings have been integrated throughout this final report.

2.3. Stakeholder Engagement

The aims of the stakeholder engagement stage were to identify the workforce and skills needs in the industries relevant to the Transform Peel initiatives, and potential solutions to address these needs. Contact was made with key bodies in the education and training; agriculture, forestry and fishing; professional, scientific and technical services; electricity, gas water and waste services; public administration and safety; mining; construction; wholesale trade; and research/innovation sectors through face-to-face meetings and focus groups, telephone interviews and online surveys (see Appendix 5 for a list of stakeholders engaged).

The engagement was guided by a stakeholder map and consultation strategy that identified and prioritised stakeholders, the proposed method and timeline of engagement for each stakeholder, and key guiding questions for the engagement process. The consultation strategy was approved by the PDC's Project Manager and PWDA sub-group. Refer to Appendix 6 for a list of guiding questions for stakeholders.

All stakeholders were sent introductions including the Transform Peel Summary pamphlet and research summary paper to introduce the process. They were then followed up to arrange a suitable time for contact in line with the agreed method within the stakeholder engagement plan. Each stakeholder representative was then engaged via a face-to-face interview, focus group discussion, telephone interview, or sent an online survey version of the agreed stakeholder interview questions.

An additional survey for Peel region businesses was designed to broaden the reach of the engagement and assist to identify the main constraints and gaps in skills and workforce development needs for businesses, as well as understand business' perceptions of past and future trends. The survey questions are included in Appendix 7.

A total of 156 stakeholder engagements were undertaken out of an initial list of 206 contacts. This included:

- 88 Face to Face interviews (inclusive of six Focus Groups);
- 39 Telephone interviews;
- 13 responses to an online stakeholder survey (sent to 38 contacts, 34% response rate); and
- 17 responses to an online survey for businesses distributed via existing networks .

2.4. Data analysis

Data analysis consisted of triangulation between the different qualitative and quantitative data sources from both the document review and stakeholder engagement. Emerging themes were tested and built upon in discussion with the PWDA sub-group.

3. Current status, trends and challenges

3.1. Industries and workforce of the Peel region

The Peel region comprises the City of Mandurah and Shires of Serpentine-Jarrahdale, Murray, Waroona and Boddington with a total resident population of 131,893 in 2015. The region has experienced rapid population growth; increasing by 31.4% in the decade 2005 to 2015.⁷ Employment in Peel's economy is currently predominantly in mining, construction, retail and manufacturing industries, and there is limited employment available in professional and technical services (Table 2).⁸ Employment in agriculture and related industries has steadily declined in Peel, which is consistent with trends Australia wide; associated with technological advances as well as an ageing agricultural workforce that is not being replaced with new workforce entrants.⁹

Table 2. Peel region industry employment profile

Industry	% of general employment within the Peel economy as a whole			
	1996	2001	2011	Forecast 2016
Retail Trade	15.3%	17.3%	11.1%	18.7%
Manufacturing	15.6%	14.3%	11.6%	13.6%
Health and community services	7.2%	8.1%	9%	9.4%
Construction	9.6%	10.2%	13.7%	8.5%
Mining	6.0%	5.8%	7.8%	8.3%
Property and business services	7.2%	7.5%	Not listed	7.3%
Education	6.1%	5.9%	7.1%	6.1%
Accommodation, cafes and restaurants	4.0%	4.3%	6.1%	4.3%

Source: Australian Bureau of Statistics, 2001: State Training board, 2005; Geografia, 2006, ABS 2012.

A major challenge for the region is persistently high unemployment, particularly among young people.¹⁰ Mandurah currently has the second highest unemployment rate in Australia at 11.5% and a youth (ages 15-24) unemployment rate of 16.9%.¹¹ Workforce participation is constrained by a lack of career aspirations and work readiness among young people as well as poor linkages of training and education sectors with industry.¹²

The unemployment numbers are compounded by the fact that many of those that are counted as unemployed have other challenges such as no driver's license, or are disadvantaged due to disabilities, mental health, homelessness, being sole parents or aged over 55, ex offenders, culturally and linguistically diverse (CALD) etc. These challenges all have an impact on the actual employability of the portion of the population that are unemployed and under-employed. This is an important consideration that workforce development activities may need to specifically target to ensure that these segments of the population can be effectively engaged. Another influencing factor in the Peel region is the changes in market since 2008 towards increased part time/casual work; this is leading to a transition in structure of the labour market where people have several jobs rather than one.

Population growth in Mandurah in particular has been driven by lifestyle-based migration, rather than employment driven. As a result, approximately 28.6% of those living in the region work in the Perth metropolitan area.¹³ Many employers in the Peel region engaged in the consultation find that there is a ready supply of un-skilled or lower skilled labour locally but tend to employ professional, specifically qualified staff from outside the region. Approximately 8% of vacancies advertised in the Peel region remain unfilled due to inability to source appropriately skilled staff.¹⁴

3.2. Work Readiness

There are many trends and characteristics noted in global and national workforce development literature that are evident in the Peel region. Many of these relate to foundational workforce skills and characteristics that are required across all industries. There was a strong level of agreement among

key stakeholders that there are certain characteristics and skills that are foundational for employees across all industries and types of jobs to ensure that employees are ready to operate successfully in the work environment. In terms of characteristics, those commonly mentioned included: a positive attitude, willingness to learn, work ethic, integrity, resilience, initiative and critical thinking.

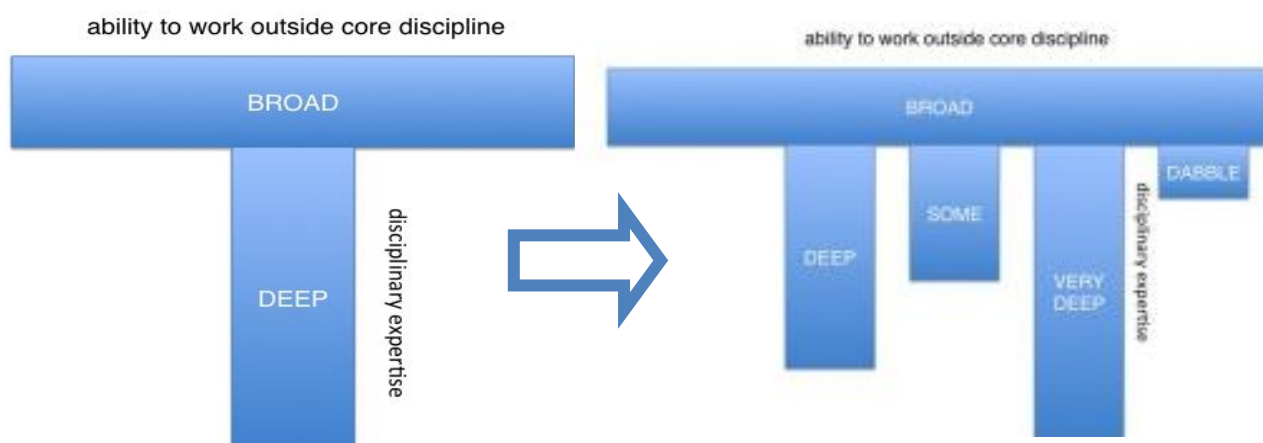
Common skills or abilities for work readiness mentioned were the ability to communicate effectively in a variety of situations, good customer service, creativity, understanding of basic workplace health and safety (WHS), ability to collect, analyse and communicate data and information, good organisation and project management skills, basic finance skills, basic technology skills, problem solving, cultural sensitivity, and working as part of a team. In this respect, work readiness does not equate to job readiness, as the latter relates to specific skills for that position. A work ready applicant may not have the full range of skills required for the specific job but would have a basic level of knowledge and a positive attitude to learning that provides a basis for job-ready training and skills development.

This is supported by a 2016 survey of Mandurah based employers which found that businesses wanted employees who were enthusiastic about learning, were punctual, well prepared and adaptable, could plan ahead, cope with pressure, use their initiative and had a positive attitude¹⁵ (See Appendix 8). Among those employers engaged in this study, a consistent approach of 'hire for attitude, train for skills' was demonstrated, which highlights the importance of these characteristics.

3.3. 'Multi-skills' requirement and adaptability

Employers and job requirements are changing to demand multi-skilled workers, meaning that today's and future school leavers will need to not only have foundation work readiness skills and a specific qualification, but most likely they will be required to have at least two other qualifications or skill bases to be readily employable. For example, they may need to have skills in (i) minor trades, (ii) mechanics and (iii) basic business to be of value to a food producer. In factory situations, workers are expected to be workplace health and safety (WHS) certified, have a white card and have evidence of science or technology knowledge. Please refer to Figure 3 below.¹⁶

Figure 3. Shift from 'T-shaped people' to 'key-shaped people'



Source (adapted): Bridgstock, R 2015. KEY-shaped people, not T-shaped people – disciplinary agility and 21st century work. <http://www.futurecapable.com/?p=102>

In addition, almost all respondents for this study indicated that they require their employees to be more multi-skilled than previously (40% strongly agree; 47%, agree). One business survey respondent stated that the main changes they require in employees' skills are "employees need to be multi skilled and prepared to support others". Other comments related to requiring broader and more transferable skills so that the employer can build teams that are adaptable to different work requirements at different times, for each client. This is a trend that can be expected to continue across many industries in the coming decades.

An important trend in the Peel workforce, and particularly in agriculture, is that jobs generally require a higher level of skill than in the past.¹⁷ While many jobs in agricultural production and food processing still require basic manual and mechanical skills (e.g. operating and maintaining machinery), they are also requiring higher level skills such as the ability to learn, use and maintain technology, or to collect, analyse and visualise data.¹⁸ This is applicable in dairy and horticulture industries for example, where producers interviewed require their staff to have both traditional agriculture skills as well as the ability to learn, use and maintain technology such as computer-controlled mechanised production and input delivery systems. Data skills are increasingly important in production, for example to allow farm operators to conduct in-house monitoring to increase their use efficiency of scarce resources (e.g. water, fertilisers etc).

Furthermore, specific blends of skills are likely to be required by Transform Peel industries such as Science, Technology, Engineering and Maths (STEM) skills. STEM is a curriculum approach based on the idea of educating students in four specific disciplines — science, technology, engineering and mathematics — in an interdisciplinary and applied approach. STEM skills are required for intensive food production and research and development (R&D) worldwide. In addition to the STEM skills it is recognised that the Arts are an equally important element to guide student inquiry, dialogue, and critical thinking, leading the acronym to sometimes be referred to as STEAM. The current workforce Australia-wide is lacking in these skills. The Global Competitiveness report ranked Australia lower in performance in terms of innovation compared with other similar countries.¹⁹ Australia also lags behind other countries in terms of skills diversity in education and the workforce, particularly due to deficiencies in STEM and ICT education.²⁰ Training and support for skills development in these areas is already available but as with all training areas, uptake is constrained by the willingness of individuals and perceptions of return on investment of undertaking skills development.

3.4. Negative perception of Agri-business employment pathways

Stakeholders in this study agreed that there is a general lack of interest in farm-related employment across the Peel region community and a perception that the agriculture industry does not provide viable employment or career paths. Agriculture is perceived by many in the general community to be a sector that relies upon low cost, manual labour and therefore offers little financial gain and limited career pathways. This has resulted in the majority of the local labour force in agriculture comprising of immigrants, new Australians, backpackers or being solely run by family owner-operators.

Conversely, it is also perceived by some that the pace of advancement in technology in agriculture through semi or fully automated facilities reduces the need for human labour and is resulting in fewer manual job opportunities and an increase in opportunity at the high end of science and technology job market. However, local agriculture employers have advised this study that the need for labour is still strong, particularly in relation to animal handling, packing, processing and other manual labour related jobs. Tasks such as harvesting strawberries, leafy vegetables and blueberries rely upon people as does much work in pig and chicken farming and beekeeping.

In relation to the Peel Integrated Water Initiative (PIWI), there are similar perceptions around jobs in the water industry as in agriculture. That is, workforce entrants do not understand and are not interested in pursuing jobs in the water industry. However, interest in conservation and land management training and jobs has been high, including through initiatives such as the federally funded Green Army for school leavers and Binjareb training program for young Aboriginal men.

3.5. Lifelong learning, re-skilling and up-skilling

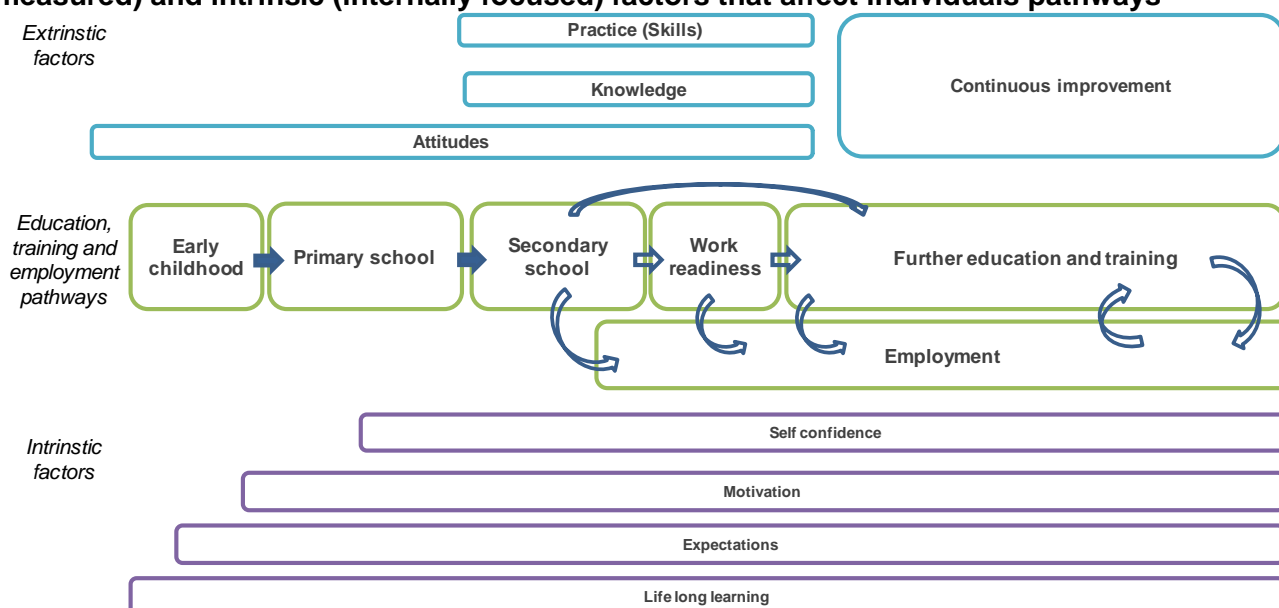
A trend of importance is that the workforce is increasingly characterised by a lack of 'skills stability', so in the future workers of all skill levels will need to be more regularly re-skilled and up-skilled.²¹ This calls for the fostering of a 'culture of lifelong learning' to ensure ongoing employment mobility. This was articulated by one survey respondent who commented that "The workforce of [the] future needs to have the mindset of being able to contribute and make a difference to their employer of choice. Education and continuous improvement on a personal level is a prerequisite to suit the employment

opportunities available.” A good example of actions to foster a culture of lifelong learning is in Denmark where employees are allocated two weeks of paid training or skills development each year, which has contributed to greater employment mobility compared with other countries.²²

Lifelong learning and re-skilling are important but can be challenging. For example, industry representatives engaged indicated they see a gap in computer skills proficiency for some existing workers. Businesses indicated that in most cases employees, and particularly older employees are willing to up-skill and re-skill in relation to changing technology. However, in many cases the pace of technological change is currently faster than businesses can afford to keep up with. For example, where updates to particular computer programs require re-training, these are happening too often and resulting in high costs for businesses.

This study found that there is a perception in Peel that foundational characteristics and skills are lacking in the workforce generally and particularly low in school leavers and long-term unemployed. These basic characteristics and skills were also mentioned by training and education sector representatives as important pre-requisites for successful engagement in education and training. Some stakeholders highlighted the perception that Peel’s high unemployment is, in part, due to low willingness and capacity to engage with education, training and employment, rather than lack of access to the workforce. To illustrate the inter-play between these factors, a workforce development model for Transform Peel has been constructed. It displays the pathways an individual may follow to employment, showing the ‘intrinsic’ factors of self-motivation and development within individuals and ‘extrinsic’ factors that are learned and demonstrable through training, skills development and work-based experience that affect their employability or workforce readiness (Figure 4).

Figure 4. Model of pathways towards employment, and the extrinsic (outwardly showing and measured) and intrinsic (internally focused) factors that affect individuals pathways



Source: Transform Peel Workforce Skills Needs Analysis Study team, 2017

4. Workforce Development Activities in Peel

The Peel region already has a wide range of primary, secondary and tertiary education opportunities provided through the Department of Education, Department of Training and Workforce Development, South Metropolitan TAFE, private training providers and a Murdoch University satellite campus. A range of training and education pathways are available through schools, vocational education and training (VET) providers, apprenticeships, traineeships and on-the-job training. Engagement with and outcomes from these pathways are complex and variable, with changes stimulated by industry and student demand as well as a range of public interventions.

4.1. School-based learning

Stakeholders across all industries engaged throughout this study emphasised the important role that both primary and secondary school education have in setting young people up for their engagement in the workforce. Schools have a strong influence on young peoples' attitudes towards work in general, as well as towards particular industries such as agriculture or science. At high school level, stakeholders understand the important role of career advisors in influencing student interests and pathways. Some gave examples of careers advisors working effectively with industry and government stakeholders to ensure the relevance of the advice they offer. Existing networks of Peel schools provide a platform to engage with career advisors and promote Transform Peel workforce development opportunities. Teachers' interests and capabilities are also important in influencing students' attitudes and opportunities for employment. Some challenges expressed by stakeholders are around the difficulty of teachers keeping up with technology to be able to teach relevant skills to students. Resource constraints for schools affect their ability to provide good teaching and careers advice services, as well as computers and other technology.

The existing agriculture colleges were perceived by those engaged in the sector as providing an important source of workers in agriculture; particularly Harvey Agriculture College due to its proximity to the Peel region. However, Harvey may need to expand its facility to meet increasing demand as their residential student numbers are almost full and there are also 30 day students currently attending their courses. Denmark Agriculture College is also full with approximately 30 students bussing in from Albany and surrounds. Narrogin and Morawa have some places available because of their distance from the Metropolitan area. There are currently approximately 7 jobs advertised for each one graduate from these colleges. Despite this, employers in agriculture have difficulty recruiting local workers, which suggests more demand for high school level education in agriculture. In Peel, Pinjarra Senior High School (SHS) and Coodanup Community College are delivering VET programs in rural operations. These are successful but reach only a small number of students at present. Costs of agricultural education are a constraint to delivering these programs (e.g. associated with buying and maintaining land, machinery and livestock).

There are currently two established Australian Tertiary Admission Rank (ATAR) recognised agriculture units available for schools in plant production systems and animal production systems. These can be applied to any plant or animal context and where delivering practical sessions is considered valuable but not essential. However, critical mass is required to make the subjects sustainable to put on offer for students. More schools need to offer the subjects to broaden the skill set of students to be able to enter into the agriculture industry not just through the Agricultural College pathways. The WA College of Agriculture is currently working with selected schools with the objective of introducing the subjects in 2018/19.

Some models of school-based VET have been particularly effective at engaging students, by building basic employment skills as well as increasing familiarity with agriculture and related industries. One successful model is Pinjarra Senior High School's Rural Operations Certificate in partnership with C-Wise. However, it is recognised that resource constraints limit the variety of VET courses that each school can offer. As funding is not sufficient for most schools to engage external registered training organisation's (RTOs), offerings are often dependent on the skills and qualifications of teachers. Increased funding to TAFEs and VET could provide government funded courses to meet industry demand and increase take-up due to lessened consumer pay requirements.

Similarly there are often poor outcomes and low level skills and knowledge in some high school graduates who have followed the ATAR pathway. Limited offerings of ATAR subjects available in public high schools can also be a constraint for students. Increased offerings of quality ATAR subjects would diversify the workforce and employment and further study options for school leavers.

4.2. VET Training

Across the VET sector in Australia some training organisations are responding to workforce needs by tailoring and delivering training to individual regional employers or groups of employers. However, this is mainly for large employers, whereas for small to medium enterprises (SMEs) it is more difficult to engage with training organisations. According to Australian Bureau of Statistics definitions, a micro business is one that employs less than five people, a small business 5-20, a medium business 20-200, and a large business more than 200 people.²³ For SMEs, engagement with third parties who can facilitate design of training for groups of SMEs with shared interests is usually more appropriate. In addition, employees often do not understand that the skills they use on a day to day basis could be formally recognised and become part of a Certificate or Apprenticeship, thereby providing increased confidence and the potential for additional recognised training or up skilling.

Some of those engaged in this study indicated that industry have lost faith in VET as many students are not job ready upon completion of the certificate. There is also an increasing share of enrolments by private training providers compared with government providers; however, in some instances the quality of training from private providers has been questioned. This results in students achieving the same certificate with varying levels of competency. In relation to apprenticeships and traineeships, completion rates are consistently higher compared with other VET courses. In addition, some very relevant traineeships e.g. logistics and warehousing are not currently available in the Peel region due to a lack of large employers and trainees have to travel to Perth to get work experience in the field. The cost and time involved in travelling makes pursuing these in demand skill inhibitive to many. In addition it is recognised that RTOs often have challenges keeping up with new technology. There may be an opportunity for RTOs to partner with industry and universities to keep abreast of emerging technologies and deliver courses in partnerships.

In the VET sector in Australia, there is already an emerging increasing focus on 'micro-credentialing' through skill set competencies rather than an entire qualification tailored to particular jobs.²⁴ The use of skill sets is generally appropriate to, and supported by, the agriculture industry as credentialing is not generally required for entry into agriculture industries.²⁵ Industry stakeholders, particularly those in the agriculture industry, confirmed that these are increasingly the types of training they require. The current funding model of school-based VET through the Department of Training and Workforce Development (DTWD) does not easily allow for skill sets to be supported outside of delivery of whole qualifications. Nonetheless, South Metropolitan TAFE have demonstrated a range of innovative and tailored VET courses for industry requirements and suggested that once clear requirements for industry development have been identified, more tailored courses can be developed and delivered within a short time frame. The idea of micro-credentialing, while having potential for the Transform Peel context does require an adjustment in the training system as for example training provider success has traditionally been measured in course completions; whereas delivering skill sets requires alternative means of performance measurement and funding mechanisms.

4.3. Apprenticeships

Industries in the Peel with a high take up of apprenticeships and traineeships during 2016 include community service, retail, electrical, hairdressing and light vehicle mechanics with 80% of these trainees remaining employed in the industry in which they trained. These industry areas do not strongly align with the requirements of Transform Peel. Additionally, according to representatives from the WA Chamber of Commerce and Industry (CCI), only 50 to 60% of current trainees complete their traineeship and only 36% of apprentices will complete their apprenticeships. This is likely to be due to a wide range of individual decisions relating to interests, personal situations, capabilities, as well as quality and appropriateness of the traineeship and apprenticeships. The number of apprenticeship and traineeship commencements is declining in Peel resulting in local RTOs closing due to lack of business, resulting in trainees and apprentices needing to travel to Rockingham or Perth for block release training.

Overall the rate of apprentices and trainees in the region has declined in recent years, with the current numbers at the lowest point recorded per capita in WA²⁶. Impacting on this is that in the Peel region,

small and micro businesses make up the majority of businesses and there are many home based businesses. In addition, costs for employers are increasing due to decline in government incentives and increases in apprentice and trainee wage costs.

4.4. Tertiary education

In the university sector, enrolments and completion of higher education has been steadily increasing in recent decades. Student completion rates have increased in the last 15 years, though graduate outcomes in relation to securing employment and entry level wages have worsened since the global financial crisis.²⁷ The employers engaged who employ university graduates indicated that while graduates have good subject knowledge, they often have very limited exposure to the workplace. Thus, in higher skilled industries such as natural resources management, and in businesses based around science and technology, on-the-job training is also important for new graduates. In these cases, internships are more favoured than traineeships and employers are interested in ways to find suitable candidates and engage them through internships to build their capability for the graduate level positions.

In addition, in the Peel region there is no local comprehensive university. Murdoch University's Mandurah Campus offers the successful nursing program, post graduate counselling, and enabling programs for local students who do have ATAR admission or Certificate IV entry. For courses outside of this scope local students of all ages must move or commute to the metropolitan area to study. In future a first year 'university college' could be created, which would allow linkages to Transform Peel, for example through Work Integrated Learning (WIL) and Internships.

In Peel, stakeholders recognise that a lack of retention of tertiary qualified and highly skilled employees is currently a constraint to workforce development. The common perception is that highly skilled people live in Peel, but work in Perth. There is also a perception that these workers would be willing to work in Peel if suitable opportunities were available. This is an opportunity for Transform Peel, and there would be a ready supply of skilled workers for higher level jobs that are generated.

It was suggested that some particularly tertiary skills are lacking in the region, such as in high level rural planning, resulting in wrong information from poorly skilled urban planning (agriculture) consultants contributing to delays in planning approval in agriculture and limited responsiveness to market changes. Similarly, some stakeholders believe that there is a lack of accredited soil scientists in WA and irrigation designers, who need to go through a post-graduate accreditation process to make the industry more professional in relation to industry changes.

4.5. Work-based skills development

While there are some challenges, employers and industry representatives engaged indicated they place a high level of importance on development of their workforce and are generally able to provide them with the required skill development. Most business survey respondents indicated that they believe investment in skill development of staff is very important (71%) or important (29%). Stakeholders interviewed confirmed this high importance.

Most survey respondents indicated they are able to support employees to access external education or training (40% strongly agree; 47% agree for both statements). Most agreed that external education or training options are available that suit the needs of their business (13% strongly agree; 73% agree). Stakeholders interviewed highlighted that engaging employers with developing the skills and qualifications of their staff requires them to be convinced of the return on investment of formal skills development opportunities.

Many of the employers interviewed indicated that all of their skills development is conducted on-the-job and they don't engage with formal education or training. This was particularly the case for lower skilled jobs such as in warehousing, packing and food processing, as well as in agricultural production where industry requirements are specific and require on the job training. In relation to providing skills development, most survey respondents indicated they can provide employees with the on-the-job

training they need (40% strongly agree; 47%, agree). The most common challenges faced by business' in developing the skills of their staff among survey respondents were the cost involved (86% of respondents); time constraints (79%); and willingness of staff to undertake training (36%).

4.6. Entrepreneurship

The future workforce in Australia is likely to be increasingly made up of self-employed owner-operators.²⁸ Australia's rates of entrepreneurship and new business start-ups are among the highest in the Organisation for Economic Cooperation and Development (OECD).²⁹ As such, Transform Peel employment is likely to be mainly generated from a collection of small to medium sized enterprises rather than several large enterprises, and many of these are likely to be new and start up businesses. While the Peel economy is currently mainly made up of micro or small businesses (employing fewer than 20 people) there is a perception that entrepreneurialism is low in the region and employment relies on established businesses. However, there is also increasing interest and willingness, including among young people, in starting businesses, but they require support as generally their readiness and basic business skills are low. Mentoring is particularly important to support entrepreneurialism. In Mandurah this is mainly delivered by Business Foundations with funding from the Small Business Development Corporation (SBDC). Other entrepreneurial support and development programs are run through the City of Mandurah and Make Place. There is currently high demand for these services and they could be scaled up if demand increased with Transform Peel.

In addition, many existing small businesses need support and information on how to scale their business for growth resulting in more employment opportunities for the community. Another obstacle is that many banks or financiers are not knowledgeable in agriculture technology and therefore do not understand the business or benefits of investment in such, or the potential outcomes. This ultimately stunts growth and innovation in areas such as non-traditional agriculture ventures.

4.7. Matching employers with education and training

RTOs and employment support agencies agree that local employers lack awareness of the benefits and incentives available for apprenticeships and traineeships and are therefore less likely to engage in this employment pathway. Business stakeholders interviewed acknowledged that they have a role in proactively communicating their needs to the training sector to ensure that they are met. However, constraints faced including available time and resources prevent them from doing so. Across the VET sector in Australia, RTOs are increasingly responding by engaging with the private sector, taking a greater interest in regional and local economic development, and investing in better technology and online delivery models.

However, training and education pathways are not always well matched and responsive to industry requirements. This is a widening gap in Australia with the increasing pace of technological and economic changes that affect the skills demanded by employers.³⁰ This results in graduates that are not 'job-ready' upon completion of secondary school, VET or university education, and requires strong ongoing partnerships between industry, government and education and training providers to reduce the gap.³¹ Respondents to the business survey indicate that some of the challenges faced by Peel business in recruiting and hiring appropriately skilled and qualified staff are the time taken to train new staff (38% of survey respondents); the availability of suitably skilled applicants (31%); staffing costs (ie wages/salaries/on costs) (31%); and the reliability/attitude/work culture of new staff (25%).

Many stakeholders who provided input to this study indicated that the education and training options that are currently available through schools and via VET certificates do not always align with local industry and business needs. This is a significant risk to future employment of students from the Peel region as a high percentage of students currently undertake some form of VET training. However, it is important to note that in some cases, VET activities that engage students and do not directly align to industry requirements or employment opportunities, can be important 'stepping stones' that provide basic skills and familiarity with training and employment. This can allow development that will benefit individuals to transition to other opportunities that are more available.

The challenges reported among employers interviewed generally related to engaging with formal traineeship and apprenticeship systems. Cost imposts of engaging with these systems and reduced government incentives for taking on trainees and apprentices are resulting in lower engagement. In relation to solutions to these challenges, employers and industry representatives expressed demand for third party services or 'brokers' to help them navigate these systems, as well as enhanced financial incentives. The demand for third party services are to assist with navigating 'red tape' and ensuring administrative requirements are met to reduce the cost, time and stress for businesses of taking on trainees and apprentices. For example, assistance with applications, keeping of records and reporting. Some also indicated that a constraint for small businesses is the risk associated with taking on trainees and apprentices if the individual taken on is unsuitable or drops out, which results in sunk costs. Broker or case manager type services were seen as a good option to reduce the risk for businesses. For example, services can help in screening and preparing individuals, and in cases where a trainee drops out or is unsuitable, the service can more easily and quickly select another.

Similarly, schools note that students are unaware of the types of opportunities that are available within the Peel region. There are limitations on job active providers which do not enable them to actively service the school leaver market through job matching with potential employers. There is a gap in the region between job seekers who may be capable of fulfilling the agriculture sector workforce needs and employers who are unable to find the staff required.

5. Future workforce in Transform Peel

The current status, trends and activities in employment and in workforce development outlined in the previous section, as well as the vision and objectives for Transform Peel give indications of what the future workforce will look like in Transform Peel. This is a complex picture, as at this early stage of the program the nature of the industries and businesses that will establish in Transform Peel remains uncertain. This will affect the types of jobs that will be generated, and the skills and qualifications they require. Reflecting this uncertainty, this section outlines several possible scenarios for the direction that Transform Peel will take.

The scenarios following are general indications of the focus and direction of the industries that may make up Transform Peel in 2050. They are intended to be illustrative only, to explore how different scenarios in the focus of Transform Peel will affect the workforce and skills needs. The next section (5.1) outlines each scenario, while the following sections outline the priority workforce and skills needs, (5.2) and workforce and skills development requirements to meet these needs for each scenario (5.3).

5.1. Scenarios for Transform Peel Employment Generation

Four scenarios are outlined in the following pages for how the focus and industry make-up of Transform Peel may eventuate. Figure 5 describes the key characteristics for each scenario and gives examples of some of the key industries or anchor tenants that may be expected in each scenario. Figure 5 also includes construction, headworks and foundational skills and characteristics which are expected to be consistent regardless of the scenario that eventuates. The option most aligned with the Business Case for Transform Peel and the Peel Regional Investment Blueprint is Option B - Food-based cluster. That is, it is aligned with the visions for the Business Park and Food Zone to comprise an innovative agri-food and agri-processing hub supported by transport and logistics and other ancillary businesses.

Figure 5. Industry scenarios for Transform Peel





<p>Foundational skills and characteristics Some skills and characteristics are required for employment across all industries and jobs.</p>			
<p>Construction/ Headworks Required for all new industry establishment across the business park, food hub and integrated water initiatives. Includes both establishment of common use trunk infrastructure and construction of private infrastructure for individual businesses.</p>			
<p>A. Mixed Industry and Food</p> 	<p>B. Food-based Cluster</p> 	<p>C. Technology-based Cluster</p> 	<p>D. Alternative Specialist Hub</p> 
<p>What Business Park + Light industrial zone comprising mixed industries, including some increase from current in agriculture and horticulture sectors with a slow and passive uptake of technology.</p> <p>How Passive uptake of available land and resources in the business park and food zone with minimal intervention.</p> <p>Who Mainly small to medium enterprises in logistics, small scale food production, wholesaling, other mixed light industry.</p>	<p>What Specialised, high value food production, processing and marketing hub encompassing the food zone and business park. Servicing mainly international but also high value local markets.</p> <p>How Targeted intervention/ incentives through Transform Peel for high-tech, innovative food-based industries to establish in the food zone and business park, and to support the technology adoption.</p> <p>Who Variety of food producers adopting emerging technologies, supported by food processing and wholesaling businesses in the business park.</p>	<p>What High-tech food production and processing combined with other, naturally clustered technological industries.</p> <p>How Targeted attraction of pioneering food technology developers and support for R&D. Eventual transfer of technology emerging from food production and processing to other industries which can then be attracted to cluster in the area.</p> <p>Who Variety of food production and processing businesses plus technology-based businesses that leverage of tech adopted in food zones. e.g. packaging, pharmaceuticals,</p>	<p>What Alternative, 'game-changer' industry development led by a large-scale anchor industry that is high value, specialised, cutting edge. E.g. businesses adopting 'circular economy' approach – designing/ manufacturing products specifically to be re-purposed once used.</p> <p>How Specific attraction of one anchor tenant in a specialised industry, enough so that support industries are encouraged to establish to leverage on the opportunities presented.</p> <p>Who Large-scale anchor tenant with supporting small to medium businesses (e.g. suppliers, buyers, technicians etc).</p>

Image sources: A. <http://dandenong.starcommunity.com.au/journal/2014-06-02/logis-in-logical-win/> B. <https://www.linkedin.com/pulse/vertical-farming-dr-tohid-nooralvandi> C. <http://tajpharma.com/active-pharmaceuticals-ingredients-capacity.htm> D. <http://www.mckinsey.com/business-functions/sustainability-and-resource-productivity/our-insights/remaking-the-industrial-economy>

5.2. Priority Workforce and Skills Needs

Across the Transform Peel initiatives the jobs created are likely to comprise a full range of skill levels and will depend largely on the businesses that establish themselves within the business park and the food zone. Overall, it is difficult to predict the exact jobs that will be generated due to the stage of development Transform Peel is in as well as predictions that estimate that approximately 65% of the jobs in 2050 will be jobs that do not exist today.³² However, there are good prospects for increasing employment in industries such as manufacturing, as well as transport and logistics, which are projected to increase for WA in the coming decade.³³ The number of jobs in agriculture in WA is projected to decline. If Transform Peel can successfully attract new businesses to establish intensive agricultural production operations, there is potential to reverse this trend.

This section attempts to depict the priority workforce and skills needs that will be required for each of the scenarios described in the previous section, as well as for the foundational and construction skills that will be required regardless of the scenario that eventuates. A more detailed list of potential jobs is included in Appendix 9.

5.2.1. Foundational

Foundation skills are those that are considered essential for successful workforce participation. They cover the English language, literacy and numeracy (LLN) - listening, speaking, reading, writing, digital literacy and use of mathematical ideas. These are supported by the skills and knowledge expected to be learned through Science, Technology, Engineering, Arts and Mathematics (STEAM) education throughout formal schooling. Alongside these foundation skills are employability skills, such as collaboration, problem solving, self-management, and information and communication technology (ICT) skills required for participation in modern workplaces and contemporary life.³⁴ These skills are often transferable from one job to another and can also include ability to work independently, as part of a team, be a leader, organise, manage time, listen, present and use diplomacy etc. Additional skills viewed to be important by stakeholders were customer service, effective communication, data analysis and visualisation, and understanding of basic WHS. These foundational skills are complemented by foundational characteristics of individuals including a positive attitude, willingness to learn, work ethic, integrity, resilience, initiative and critical thinking.

There are also some professional skills and occupations such as business management, finance and accounting, project management, legal support for business that would also be required across all scenarios.

5.2.2. Construction

Headworks Construction of the trunk infrastructure for the business park and food zone will require specific skills such as engineering and design, project management and logistics, trades, manual labour, materials supply and installation etc that is standard with infrastructure projects. According to stakeholders these are the jobs and skills that are most readily available in the existing workforce. Therefore it will be important to capitalise on the existing workforce as well as use the opportunity presented by the headwork's construction to engage new workforce entrants, and those who require up-skilling or re-skilling from the local workforce.

Construction Skills and jobs required in construction will be similar to those required for headworks. Depending on the scale and type of businesses there may also be opportunities for local manufacturing industries.

Peel Integrated Water Initiative (PIWI) The PIWI will also be present across the four scenarios. This initiative is currently in an early stage of scenario modelling that will determine the approach to be taken. As such, there is some uncertainty around the volume and type of jobs that may be

generated associated with PIWI, and the jobs associated with both construction and ongoing implementation of PIWI will depend on the approach taken and technologies adopted to implement the initiative. However, in a general sense there are likely to be some construction and manufacturing jobs associated with any infrastructure that needs to be constructed for PIWI that will require a skills mix consistent with that described above for construction of other headworks and infrastructure. Other jobs specific to PIWI may include soil scientists and water scientists (both field and laboratory based), hydrologists, natural resource management and land management professionals, environmental scientists, agriculture extension and education specialists, sales and marketing consultants specialising in sales of agriculture water supplies, and trades such as drilling, plumbing and general maintenance of infrastructure. There are also opportunities for linking PIWI to promotion of better understanding of water and agriculture through engagement with schools and community, which would require teachers and community engagement specialists e.g. citizen science. Australia is a leading innovator in integrated water management, which is already a highly technical and professional industry.³⁵ As such, the water initiative is likely to generate a smaller number of higher skilled jobs in professional and technical services compared with the jobs associated with the food zone and industrial park. In addition, it is possible that a greater share of the workforce in the integrated water initiative can be sourced from the private sector compared with currently.³⁶

5.2.3. Mixed Industry and Food

The skills required in this scenario would be some horticulture and agriculture specific skills as well as logistics, small to medium scale food processing and manufacturing and light industry. This scenario would include a greater proportion of unskilled labour and jobs that can be taken up with Certificate or apprenticeship qualifications. There would be some professional level jobs (requiring tertiary qualifications and experience), but a lesser proportion compared with the other scenarios. These jobs would mainly be in small businesses with some medium businesses also likely. On the whole, having the least intervention this scenario would be likely to require similar skills to those already existing in the region. As such, it would also have fewer benefits in terms of diversifying and developing the workforce.



5.2.4. Food-based Cluster

The food-based cluster would require substantial skills development and shifts for the region's workforce as it is a considerable departure from the current industry profile. In food production the key skills would include traditional agriculture skills (e.g. operating and maintaining machinery, manual labour, horticulture and animal husbandry, finance and project management). However, there would also be the requirement for some additional skills. In particular, skills would be required to use and maintain technology that changes rapidly. Data analysis and presentation skills would also be important. The focus of this scenario on adopting emerging technologies also means that research and design skills will be critical. There is potential for a higher proportion of highly skilled and professional jobs in this scenario compared with the previous.



This scenario would also include innovative food processing and value-adding that would require similar skills to the production side. It would also require skills in economics, manufacturing and food handling and processing skills. Across the production and processing elements, this scenario would be innovative in its use of cutting edge technologies in resource use efficiency as well as in waste

minimising. This element may require some specific skills in supply and operation of renewable energy technologies, water use specialists, and agricultural extension workers. Where mutually beneficial industries establish collectively and share some resources (e.g. infrastructure or energy, waste products directed to other production industries), specialist skills in partnerships and communication would also be required.

For example, over and above the standard utility headworks to the Peel Business Park, it is envisioned that there will be three key areas of demand for common use infrastructure (and some additional on-site utility services): i) food manufacturing/processing, ii) food production and iii) industrial ecology/technology (eco industrial precinct). Common use infrastructure identified to date against these areas are:

- Food manufacturing/processing – laboratory facilities, industry teaching/training rooms, workers accommodation, school based training facilities, labour mobilisation
- Food production – horticulture – new technology (glasshouse) training facility, new technology trial project, cold storage facilities, bio-security facilities, school based training facilities, labour mobilisation
- Food production - animals – veterinary facilities, abattoir facilities, bio-security facilities, school based training facilities, labour mobilisation
- Eco industrial precinct – waste to energy capabilities, solar, energy storage, grid connection, local water supply, local waste water treatment facility

Marketing and promotion skills will be very important to the success of the food-based cluster. Profitability, and thus employment generated through food production businesses, depends highly on their access to high value markets. In order to access niche, high value and international markets in addition to local markets, this will require a sound understanding and marketing of the competitive advantage of the region and individual producers. Some examples of comparative advantage for Australian produce include high quality and food safety, and good labour standards. In line with this, quality monitoring and control is also an important skill area which is currently in demand and underrepresented in the existing agricultural workforce in WA. This requires development of specific knowledge and skills in quality management and bio-security, particularly to tap into niche international markets.

5.2.5. Technology-based cluster

This scenario would require the jobs and skill profile discussed above for the food-based cluster, however it would also require additional skills relating to research and development and industries to which technology is transferred from food production and processing. These could include various high technological manufacturing industries such as development of packaging materials to supply the food processing or drones for supervising and basic maintenance.



Skills transfer from the Food Hub to other associated technical industries is certainly possible. For instance, if drone technology is used for agricultural purposes, a factory supplying drones could also supply drones for other purposes such as crowd control or leisure use. These types of industries would require high level research skills as well as technicians capable of development, use, and maintenance of technology.

For this scenario, the companies attracted to the Transform Peel project would be more specialised. They may bring senior staff with them and hence the additional employment opportunities for tertiary qualified staff would be higher, but not substantially so from the other scenarios. However, the semi-

skilled workers are likely to require a higher and more complex range of technical skills and knowledge. While some on-the-job training would be provided, the semi-skilled work is likely to be based on known technical skills and hence would be a prime candidate for micro-credentialing training e.g. in a particular software and its application. Skills in partnership management would be required to work to transfer the technologies between different industries and businesses.

5.2.6. Alternative Specialist Hub ('Game Changer')

The alternative specialist hub would have a different and higher level skill profile compared with the other scenarios. The skills required would be more specialised to the particular 'game changer' tenant industry. The example case is a manufacturing sector adopting a 'circular economy' approach, which would entail designing and manufacturing products in such a way that they can be re-purposed once used and leased rather than owned (for example white goods or cars).

This would require specialist designers, engineers, researchers and technicians as well as specialised promotion and education around this novel approach and products. In the case of circular economy it would require high level customer service and salespeople to promote and manage leases of products and coordinate their collection for re-purposing. It would also involve a range of lower skilled labour in factory operations and logistics. In this scenario, the large scale anchor tenant/s would be significant employers and generate further employment through use of local suppliers and support businesses.



A "game changer" industry would be likely to introduce new jobs that have never been identified in the list of standard occupations. For instance in this scenario, job titles might include "micro-plastics retrieval officer" or a Carbon Emissions counter.

5.3. Workforce and Skill Development Requirements and Opportunities

Based on the review of the scenarios and consideration of the current status of employment, projections were generated to assess what types of jobs profiles might be generated for each different scenario. The results as indicated in Tables 3 and 4 show that different patterns emerge for each scenario, resulting in differing proportions and numbers of unskilled and semi-skilled labour, as well as other categories. Table 4 illustrates that if converted into potential numbers of jobs based on estimated jobs generated by 2050, the number of categories with over 2,000 new jobs is considerable, with the greatest spread of jobs for the technology cluster and the 'game changer' scenario. The sections following present some of the requirements and opportunities raised that could be considered as the Transform Peel project evolves.

Table 3. Estimated Distribution of Labour Force Requirements (percentage)

Distribution of labour force requirements (estimated only %)	Mixed industry	Food Cluster	Technology hub	Game changer
Unskilled labourers	25%	15%	10%	16%
Semi-skilled labourers (standard skills)	30%	40%	30%	10%
Semi-skilled specialised /micro-credentialed employees	3%	9%	15%	30%
Apprentices /trainees	2%	4%	6%	5%
Professional employees	8%	8%	8%	10%
Self-employed Entrepreneurs	25%	15%	15%	10%
Tertiary educated employees	5%	5%	8%	12%
Highly specialised employees	2%	4%	8%	7%
Total	100%	100%	100%	100%

Source: Workforce Skills Needs Analysis (WSNA) 2017

Table 4. Estimated distribution of Labour Force Requirements (number)

Distribution of labour force requirements (estimated only no. of jobs)	Mixed industry	Food Cluster	Technology hub	Game changer
Unskilled labourers	8,250	4,950	3,300	5,280
Semi-skilled labourers (standard skills)	9,900	13,200	9,900	3,300
Semi-skilled specialised/micro-credentialed employees	990	2,970	4,950	9,900
Apprentices/trainees	660	1,320	1,980	1,650
Professional employees	2,640	2,640	2,640	3,300
Self Employed Entrepreneurs	8,250	4,950	4,950	3,300
Tertiary educated employees	1,650	1,650	2,640	3,960
Highly specialised employees	660	1,320	2,640	2,310
Total	33,000	33,000	33,000	33,000

Source: WSNA 2017

The analysis suggests that if either the mixed industry or the Food Cluster (Transform Peel’s targeted scenario) proceeds, there will still be a strong opportunity for unskilled and semi-skilled labour, based on standard and available training and skills development. The specialised job skills are most likely to be achieved for the majority of the workforce through on-the-job training. For the Technology cluster and a “game changer” scenario, a higher level of specialisation is expected to be required. This may entail greater partnerships between industry and RTOs to develop and tailor the training required.

Work Readiness

Regardless of the scenario that eventuates, the stakeholders interviewed and surveyed for this study were clear that one of the most critical aspects to achieve a vibrant and appropriate workforce for Transform Peel is to focus on a transformational attitudinal change towards work readiness amongst Peel residents. A distinct priority was placed on needing to change attitudes to work in general and to agricultural work specifically. Basic qualities such as a willingness to learn, promptness, manners, personal hygiene, presentation, customer service and communication are seen as lacking in today’s school leavers and job seekers. It was felt that the education system will need to train people to be generalists or specialise in one area and have at least one other complimentary qualification – e.g. hairdresser and business, trades and finance.

Innovation in agriculture

In order to respond to the low level of popularity of agriculture jobs there is a need to take a fresh look at the industry and re-present agriculture in a more up-to-date and positive light. There are already a range of innovative approaches to the agriculture sector that could be harnessed and expanded within the Peel region (see Box 1). Based on the success of the Pinjarra High School/C-Wise Rural Operations Certificate partnership programme there is opportunity for farmers and scientists to go out to schools and talk to students as well as take students to working farms on excursions to see live demonstrations of how technology is put to play in the sector.

Box 1. Innovation in agriculture – current examples

- The **Industry Skills Fund**: Businesses that apply for a grant under the fund must financially contribute to the proposed Project. The fund primarily targets micro, small and medium businesses, which plan to up-skill and re-skill their workforces to better position for Growth Opportunities. Large businesses are also eligible for the fund, but they will be required to make a higher contribution to the costs of Training.
- **Innovation Connections** is a service provided under the Entrepreneurs' Programme by the Australian Government. It offers easy to access advice, assistance and tailored support to small and medium businesses to improve business capability and competitiveness.
- There are over 200 applications a year for the **Horizons Scholarship** which is open for first year uni students in agriculture and there are only 10 scholarships awarded. The scholarship is an initiative of the Rural Industries Research and Development Corporation that, in partnership with industry sponsors, supports undergraduates studying agriculture at university by providing a bursary, professional development workshops and mentoring, annual industry work placement and opportunities to network and gain knowledge.
- **Grow Agriculture Summit** (100 young and brightest minds across) future leaders in agriculture aged 25 to 40. EOI put out and 200 people applied. They inform problems and come up with solutions to farming issues such as succession planning. The Summit aim to advance the contribution of our farming leaders and agricultural professionals towards a dynamic, competitive and prosperous agricultural sector by: developing knowledge and skills for utilising adopting new technologies; innovative business and investment strategies; and developing leadership and entrepreneurial skills facilitating wider discussion and consideration of the opportunities, barriers and roles for farmers in agriculture; and providing an opportunity for sharing knowledge, a platform for innovation and an entrepreneurial environment for our future farming leaders.
- **The Muresk Institute** provides a good model for engaging with schools to positively promote agriculture for those that are not able to offer their own agriculture courses. This includes a 'careers caravan' that visits schools, as well as interactive competitions such as a drone flying competition, with competing schools visiting Muresk Institute. The Institute finds that students are interested in and lured by technology, and this can allow a conduit to interest them in other aspects of agriculture and break down misconceptions. There is opportunity to include Peel schools in this if they have interest in doing so, and for the Institute to upscale their current activities. Local innovators in farming may allow opportunity for regular visits/tours by students to automated greenhouse businesses and other intensive farming businesses to showcase technology.
- **Science and Agribusiness Connect (SAC)** aims to build the capability of Western Australia's agricultural science sector by boosting the work readiness of students in agriculture; fostering entrepreneurship in the sector and developing the State's research excellence in agriculture. It was developed by the Office of Science in consultation with key stakeholder and consists of three constituent programs: **Premier's Agriculture and Food Fellowship Program, Tertiary Program and Premier's Agriculture and Aquaculture, Entrepreneurship Program**. All three programs could be leveraged towards building skills within the region for Transform Peel.

Private Sector Partnerships

It is recognised that more education and training programs need to offer ongoing experiential learning, in particular in relation to how food is grown and processed, if the region is to meet the vision and demands of the Transform Peel workforce requirements. Training and education bodies need to seek out, develop and nurture private sector partnerships and good relationships to ensure an ongoing and willing amount of placement and partnership to develop a suitably equipped workforce.

Engaging with broader public, particularly volunteers, to participate in collaborations between private and public sector programs to promote agriculture/horticulture/renewable energy will be essential. There are some positive partnerships that are currently in place within the region that are working to address some of the identified gaps but not in all industries. A good example is Pinjarra SHS, which has a partnership with C-Wise in delivering VET Certificates in Rural Operations for their students. This is working very well because of the hands on experience the students are able to obtain and access. It is important to note that the success of this model depends on the ongoing partnership between the school and private sector partner. In addition, given that maintaining a farm with livestock requires continuous work, it also depends on the dedication of the teacher responsible (e.g. to maintain livestock during holidays). The Pinjarra program has engaged a volunteer and has found this beneficial. If replicating or up-scaling this program there would be opportunities for engaging with volunteers to both assist with running the program and maintaining farm sites outside of school times. Some other examples of programs and partnerships that are working or have worked in developing good partnerships can be found in Box 2.

Promoting STEM and STEAM

A strong approach to STEM students is required to prepare the workforce for the cutting edge careers that Transform Peel brings, including roles in intensive agriculture ventures. Teaching the community and students what STEM is will be important; "STEM is not exclusive to the subjects of science, engineering, technology or math. Teachers and educators must continue engaging students in the Science, Technology, Engineering, Arts and Mathematics (STEAM) disciplines and encouraging them to combine technical knowledge and skills with the creativity that leads to innovative idea - ideas that give the arts new technologies, music new instruments, farmers new machines, and our businesses a competitive advantage. Unless we continue building the STEAM pipeline, each profession suffers."³⁷

Working towards a Diversified Workforce

Although there are incentives and acknowledgements such as the Rural Women's Awards which identifies and supports emerging women leaders who have the desire, commitment and leadership potential to make a greater contribution to primary industries and rural communities, promotion of women in agriculture and science is required. Additionally, diversity in relation to employing people with a disability should be encouraged. Many manual or repetitive tasks can be completed by people with challenges and there are often government incentives for employers. Employers need to employ

Box 2. Achievements through partnerships – some examples

- Higher Education Participation and Partnerships Program - building on the MAP4U aspirations program that operated in Rockingham, Mandurah and Kwinana, to provide mathematics support and mentoring to students in selected schools throughout the Great Southern, Wheatbelt and Peel regions.
- Clontarf Model – Program run at Coodanup Community College which uses football to engage young men who attend regular classes but receive additional pastoral care and access to Aboriginal support workers.
- Goals for Girls program at Coodanup Community College works similarly with students attending normal classes with an additional dedicated support worker.
- The Inspire Academy launched in 2014 at Coodanup Community College. The Academy engages students in their education and helps them develop their academic potential for university entrance. The Academy provides the opportunity for students to be mentored by students from Murdoch University.
- Young Professionals Network (Murdoch/CCI).
- Just Start it - a high school program that teaches students based on Silicon Valley's lean methodology how to create their own tech start up.
- Mentoring through South West Science Council.
- Regular Rural Land Owners meetings in the Shire of Murray where farmers are embracing technology and plan on working with local training providers to develop a specific training package to meet their combined requirements.
- Entrepreneur programs are run at the City of Mandurah for unemployed people as well as through Make Place for school students.
- Peel Harvey Catchment Council regularly supports sessions that promote sustainable agriculture practices and land care approaches.
- The Knowledge Hub through Business Foundations offers a portal for local businesses that draws together business advice from experts for each sector for free.

'outside the box' if they want to have a dependable supply of labour into the future (including people with a disability). Service providers advocate that employing people with challenges can result in fewer staff turnovers and retraining and therefore lessened recruitment costs as people with a disability tend to stay with employers longer.³⁸

There are flexible workforce opportunities for those employers that can afford to be innovative with their workforce. For instance, farmers could target stay at home parents to work on a rotating shift during school hours to align with current Centrelink requirements for parents to work 15 hours per week to receive social security payments.

5.4. Long Term Training and Research Infrastructure Requirements

Throughout the study the potential requirements for future infrastructure were discussed. It became apparent from stakeholder feedback that there is not strong demand for a new stand alone training facility specifically designed for Transform Peel. It was recognised that there are already many training facilities available within the region and that it would be better to optimise the existing facilities.

The commonly raised option was for infrastructure related to an on-site multi-functional centre that could be used for both industry and training. It could be a fee-for-service facility that would be available to all businesses for teleconference, staff training and meetings as well as by training organisations for on-site training and skills development activities. It could also be a promotional centre for Transform Peel and the Peel Food Zone.

The lack of skills in modern glasshouse technology systems has been identified as one of the highest risks for investors into this form of production. Chisholm Institute of TAFEs Controlled Environment Horticulture Unit (in Victoria) is the only facility of its kind in Australia, designed to facilitate training for the Controlled Environment Horticulture industry on a local, regional, national and international level. The glasshouse is now operating as both an educational platform and production facility. Seeking funding for suitably interested people to attend this facility will assist in making the Peel workforce more prepared for the coming technology. As this type of industry locates to the Peel region, consideration could be given for a joint venture between industry, TAFE and government to develop a similar facility as part of the above mentioned common use multi-functioned centre to provide training for the emerging glasshouse industry in WA.

In the long term, several stakeholders mentioned there is potential to build on the success of Transform Peel through the development of unique features, capitalising on the innovations emerging through Transform Peel. One example was the establishment of "agri-villages" that are fully self sufficient rural urban villages which are off the grid and create their own economy. If successful these agri-villages could create an eco tourism attraction for local, interstate and international tourists promoting excellence in green energy and self sufficiency.

5.5. Challenges, Risks and Other Considerations

Challenges

A common challenge in workforce development is that there is often a mismatch between the skills of prospective employees and the needs of employers. This is likely to be the main constraint to ensuring that Transform Peel generates locally-based employment. The current workforce in Peel region is not sufficiently well equipped to meet the needs of new industries and businesses associated with Transform Peel. Employment in these new industries and businesses will require not only the appropriate skills and qualifications, but also a willingness by job seekers to enter workforce opportunities.

Inclusion of under-represented groups in the workforce such as young people, women, Aboriginal and Torres Strait Islander people and people with disabilities can be a challenge for workforce

development. Considering inclusive workforce approaches for Transform Peel will be important to ensure alignment with State and regional workforce development and training strategies and to ensure maximum community benefit of Transform Peel. Each of these groups may require particular types of support through tailored entry and support pathways to education and training, or to business start-up. For example, lack of a driver's licence can be a constraint to accessing employment and training in regional areas.

Transform Peel initiatives are most likely to attract small to medium enterprises and this has some important implications for workforce development. Attracting venture capital and investment in business start-ups has been a major challenge for similar programs. It is important to ensure that new businesses have sufficient resources to invest in required workforce development. Smaller businesses and owner-operated businesses face challenges and often have low willingness in investing in development of their employees – which is particularly the case where the workforce is mainly made up of casual employees. Employers need to be convinced of the return on investment to be willing to invest in staff development. Incentives may be required for certain initiatives; however, increasingly many employers have altruistic motivations of wanting to 'give back' to a community, particularly for apprenticeships. As such, recognising the achievements of employers in this way may also be an important way of incentivising their investment in workforce development activities.

Risks

The cost and availability of water and energy will be critical to success of Transform Peel, so insufficient availability of water for businesses is an important risk. Innovation in these sectors will need to be embraced and practiced through all stages including planning, headworks and implementation.

External economic influences pose both risks and opportunities to the success of Transform Peel. For example, agriculture employers find skilled staff more easily during mining downturns. This demonstrates that the workforce and its mobility are affected by a complex range of external economic circumstances.

A lack of buy-in from community and stakeholders is an important risk to the success of Transform Peel. Transform Peel will need to prove itself to the people in the region, get some runs on the board and provide some jobs that are clearly as a result of the Transform Peel initiative and they will also have to be successful in attracting new businesses. Without these achievements community may not take ownership of the initiative and will lose faith and not support the efforts of the drivers of the projects. Managing the expectations of community, businesses, employers and employees so that they understand the many variables within Transform Peel will be extremely important. Maintaining ownership from stakeholders across the long program timeframe will be important. As many of the actions depend on strong and ongoing partnerships e.g. with government agencies, private sector and schools, this will have an important influence on the success of Transform Peel in terms of workforce development. Similarly, political support is important and changes in the political will could result in risks to achievement of outcomes. This is particularly important given the long time scale for Transform Peel.

Additional considerations include:

- Transform Peel's success will depend on how competitive it is in relation to other, similar areas on offer. The Peel Business Park will need to be able to offer a point of significant difference to the standard industrial area that characterises the rest of the Metropolitan region. Primarily, investors will be looking for cheaper utility services (particularly energy which makes up a large part of operating costs) and access to priority common use infrastructure.
- The Agriculture college places are in demand because of the success rate of employment on completion of the course. Some Colleges have taken on a large number of day students rather than residential to try to meet this demand (Denmark & Harvey). This option could be

considered for other suitably located agriculture colleges to increase the number of graduates to meet the proposed increase in demand for qualified graduates in the sector. Opportunities to expand existing colleges may need to be investigated rather than the option to build a new facility.

- Local procurement is important for businesses in terms of local employment generation, but also in generating awareness and positive perceptions of Transform Peel. For example, one survey respondent commented that “Everyone needs to support and use local businesses that employ local people. This includes City of Mandurah and the Commission.”
- The estimated 33,100 jobs is possibly ambitious within the 35 year timeframe and rely heavily upon the anchor tenants establishing themselves within a timely manner and on the envisaged scale, as well as relies on continued political support for Transform Peel.
- There may be additional opportunities that arise within the long timeframe of Transform Peel, such as technological advancements or political or economic changes that can be capitalised on to further workforce development. For example, there could be opportunity to engage via the use of virtual classrooms and teachers and bring skilled people from around the world with cutting edge knowledge on agriculture to the classroom. While virtual reality is currently expensive, it is becoming less expensive as technology improves.
- Terminology and presentation of jobs can be important. For example, stronger job titles that better reflect the role of today’s high tech farm workers may help to put value back in food production work. For instance a **Certificate in Covered Cropping - Technical Assistant** could be developed and once finished the graduate could work toward becoming a Covered Cropping technician. The use of this terminology would assist in building self esteem in individuals and changing the image of farming.

6. Conclusions

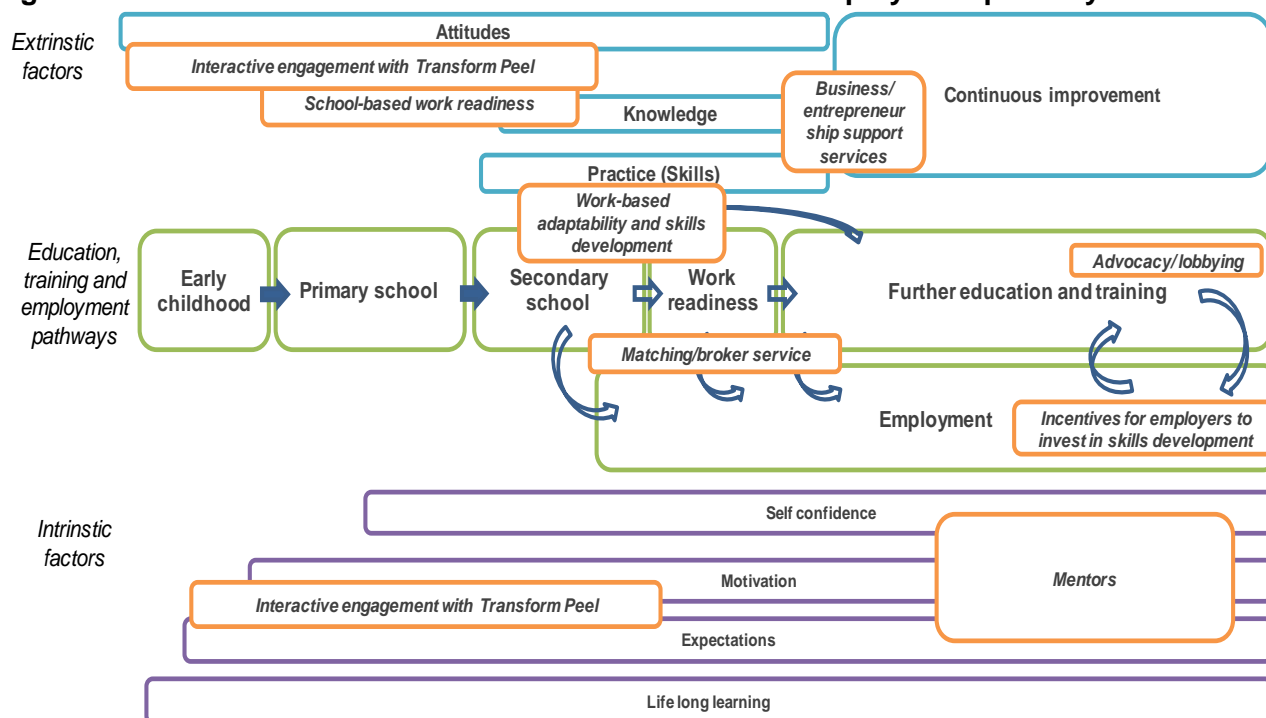
The importance of including workforce development in Transform Peel was confirmed by stakeholders and by wider evidence of changing workforce requirements for the industries that are most likely to engage with Transform Peel. However, stakeholders also highlighted that there is a need for increased intensity and focussed action to strengthen workforce development, without which the current regional workforce is not ready to capitalise on the opportunities that Transform Peel will present.

Being a long term program, Transform Peel could take shape into several different scenarios. The anchor tenants and supporting businesses that establish associated with each scenario will determine the workforce and skills that are required. Therefore, it is not possible at this early stage to specify the exact and certain workforce and skill development needs or how they should or could be addressed.

Nevertheless, there were some clear, general characteristics of the workforce that are relevant regardless of the industry profile for different scenarios. The Transform Peel workforce is likely to comprise the full range of skill levels across a number of different industries, and generally need a broader base of skills than today’s workforce for more multi-skilled jobs.

There are also a number of key points in workforce development programming where there are opportunities to plan and action workforce development activities for Transform Peel. These are summarised in Figure 6 with their placement reflecting the aspects of employment and workforce development pathways that they will aim to address or influence. Each of these will be explained in more detail in Section 7, Recommendations.

Figure 6. Placement of recommendations on the model of employment pathways



Source: WSNA 2017.

Current Peel workforce is not yet ready for Transform Peel

Stakeholders engaged in this study affirmed the need for Transform Peel as a viable opportunity to bring employment to the Peel region. The demand for food-based products, particularly high quality, processed and innovatively packaged foods is confirmed by both global trends and both national and export demands. However, this study has clearly found that there are workforce gaps and weaknesses, particularly in work-ready skills for school leavers as well as technology-responsive skills for the existing and prospective workforce. A positive attitude towards work also is an important area for continuous improvement and multi-skilling of the workforce according to industry's continuously changing needs.

Negative perceptions towards agriculture are a barrier to workforce entry

Access to education and training are readily available in Peel, however readiness to engage with these and with employment among the workforce are the major constraints (particularly for new entrants). Based on current workforce characteristics and trends, the Agri-Food industries associated with the Food Zone are likely to experience challenge with the availability of appropriate skills as well as willingness of potential workers. A major challenge is the perceptions around agriculture that limit willingness of both the existing labour force and new workforce entrants to enter the agriculture sector. These perceptions include that farming and livestock workers make up the majority of the agriculture industry and that the industry is not profitable or sustainable for new graduates. Another common perception that there is limited job security and little opportunity for career development in the agricultural industry. In Transform Peel, however, agriculture-related jobs are likely to be diverse, highly technical and skilled due to increasing technology advancements.

The agriculture sector requires a new approach to skills development for Transform Peel success

At present, workers in Agriculture-related industries in Australia typically have a lower level of education and qualifications compared with other industries. To ensure that skilled workers are attracted to these jobs, agriculture needs to compete with other industries and reduce the negative perceptions of prospective employees around the agriculture sector and related jobs. However, there is currently a lack of promotion of agriculture-related education, training and employment options at

the school level in Australia. If this continues in Peel, there is likely to be a continued lack of interest in the sector, meaning innovation and development will stall and skills shortages will arise in agriculture and related industries that are generally not perceived as attractive by workforce entrants.

Positive promotion of jobs in agriculture and other Transform Peel related initiatives is needed; both for the existing workforce through adult learning opportunities and also at primary and high school levels. The important role of schools and particularly career advisors in fostering the attractiveness of particular pathways is widely acknowledged. Materials and messages to assist with these are available for agriculture, but are not widely utilised or promoted.³⁹ A particular focus on encouraging young women to work in agriculture would be of benefit, as the gender-representation of women contributes to skills shortages in agriculture.⁴⁰ This requires effective communication between the industry and community to counteract negative perceptions around career pathways and the industry itself.⁴¹

Investment in STEM provides workforce foundations; STEAMI is even better

Overall, the capacity of the current workforce to meet the skills needs of Transform Peel is likely to be limited by a lack of sufficient and appropriate skills in Science, Technology, Engineering and Mathematics (STEM); particularly around understanding, interpreting and communicating data. While local employers did not specifically identify a need for STEM, they did indicate that workers that have more than basic literacy and numeracy skills were valued and that it is a challenge to attract regional workers with good foundational skills and with the ability to proactive in the work environment. These weaknesses are applicable Australia-wide and have been attributed to poor STEM education. The STEM to STEAM movement (which also includes Arts) has been growing over the past several years and is surging forward as a positive mode of action to meet the needs of a 21st century economy. The emerging economy requires more than STEM, it requires application, creation and ingenuity. STEAM is a way to take the benefits of STEM and complete the package by integrating these principles in and through the Arts, allowing students to connect their learning in these critical areas.

Regional industries are already identifying the need for employees to be ICT aware and competent, and particularly able to quickly master new technologies or versions of programs. The likely profile of industries that will be attracted to Transform Peel will see a rise in the demand for ICT knowledge and skills. The majority of the current workforce has some level of ICT capability but this varies significantly depending on individual job experience. Unless an individual takes it upon themselves to remain current, ongoing up-skilling will be required for this generation of workers as new programs, devices and apps emerge. The recent generation of school leavers generally have a good ICT orientation; however this changes so rapidly that it will be important for them to keep abreast of emerging and new technologies to remain current. Training bodies will need to offer specific, short term intense training on these new tools that only demand an hour or two of the employees time as they will not want to sign up for term or semester courses for every new skill they require in a diversifying workplace. So there is potential for STEAM to become STEAM_I to incorporate the importance of ICT as a critical requirement for tomorrow's job seekers.

Alignment of training, education offerings to industry and business needs

Training, education and workforce development activities are not always well aligned with industry and business needs. This is particularly the case for small businesses in the region who find it more difficult to influence offerings. It is also recognised that publicly supported offerings may be constrained by higher level policy or regulatory agendas that are broader than the specific needs of local companies. However, there are some examples of where education offering and industry needs are working very well, for example: Muresk Institute acts as a broker between industry and RTOs, schools, universities and trainees individual employment seekers. The Institute has also played a role in identifying and meeting gaps in particular training and partners with businesses to design and deliver training, which allows them a direct link to future employees.

Job Matching Services

Matching of employee job requirements and job seeker skills has been identified as a major gap in the Peel region. Local businesses explain that they are willing to employ regional staff but cannot find or attract the staff that they require. Job matching services need to improve to ensure that the employer is provided with a suitably qualified staff member, trainee or apprentice. Employment service agencies do attempt to make connections with local businesses but are often limited with by funding and trying to find placements for their long term unemployed, who may not meet the employers' requirements.

However, there are opportunities for utilising third party organisations to source the right people for traineeship roles, ensure work readiness through up-front training and retention of trainees through improves support mechanisms. NUDGE supports contractors and businesses in the construction, resources, infrastructure and agriculture sectors to address and assist with their local community engagement, training and workforce needs. NUDGE currently has a retention rate of 85% for traineeships and apprenticeships, which is much higher than the state average, because of the support they offer the employer and employee through a fee for service arrangement.

Promotion and marketing

The success of Transform Peel in employment generation and workforce development will depend on a high level of buy-in and commitment among stakeholders and the community. Thus, a combined sector long term promotion and marketing campaign is required promoting positive food production opportunities for the workforce, particularly targeting the existing workforce through current work search avenues. The promotion of agriculture as a kick start to a more versatile diverse career is required with a focus on the general shortage in agriculture workers nationally and globally and that once basic skills have been established, there is a wide range of opportunities in the agriculture sector and associated industries

In addition, parents, teachers, students and the broader community require targeted approaches. Agriculture and horticulture needs to be embedded into the school curriculum with early positive promotion of agriculture, food production and water required in primary schools, middle school and high schools. In upper school, VET coordinators and careers advisors need to be informed on the range of jobs and career opportunities there are in these industries in order to provide relevant advice and pathways to students. The number of career pathways offered through agriculture is diverse including jobs for university graduates such as biochemistry, agriculture engineering, in field agronomy, industrial relations and policy advice.

The appropriate branding for Transform Peel will be critical, it will need to portray elements such as selling locally, fresh food, locally produced, creating jobs, and particularly creating a new generation of jobs. Strong community ownership will need to be fostered to get the community on board to lead and own the initiative in partnership with the government. Local businesses need to be encouraged to embrace the culture of mentoring and employing the local unemployed as a means to widen the pool of skilled staff for their own businesses. Promotion and facilitation of a stronger relationship between regional employers and training organisations will help to increase the skills base, decrease unemployment and assist in alleviating the associated challenges those situations bring. Avenues for promotion will need to include all media streams including social media, TV, radio and print media as well as science fairs, visiting specialists to schools, live demonstrations, seminars etc.

7. Recommendations: Transform Peel workforce planning

This study identified and acknowledges that there are already many initiatives related to workforce development within the Peel region that are working well and these will need to be expanded and strengthened to meet the workforce needs of the future. The recommendations are designed to intensify and focus activities in relation to the specific needs of Transform Peel. For each recommendation there are some immediate and longer term actions that can be progressed and a preliminary Action Plan is provided in Annex 1. The recommendations will require proactive

engagement and partnership with regional stakeholders including industry, government and community. The recommendations and actions will be maintained, monitored and built on through the Peel Workforce Development Alliance with the Peel Development Commission continuing to take a lead role in facilitating the development of a skilled workforce capable of taking up the opportunities presented by the Transform Peel program as a key initiative of the Peel Regional Investment Blueprint.

1. Promote Transform Peel

A concerted effort is required to overcome negative perception of agriculture-based industries by promoting the food production aspects. Awareness of the Transform Peel project is low which presents an opportunity to prepare branding of Transform Peel in a way that has a clear connection to the vision for the project.

2. Encourage work adaptation and skills development towards Transform Peel emerging opportunities

The workforce now and into the future will need to be multi-skilled and continuously up-skilling and re-skilling; to be “key shaped not T-shaped people” (see Figure 3). More information will be required to promote multi, transferable skills. There is also a general across the board requirement for higher skill levels and the need for better understanding of STEAM and ICT. This will require generation of specific materials to promote development of foundational skills amongst the existing labour force in line with industry requirements. For this to occur a close communication channel between industry and training organisations will be required. There is also an opportunity to work with DTWD and VET agencies on appropriate micro-credentialing.

3. Transform School based work readiness and skills development for Transform Peel

For Transform Peel industries, a workforce is required that has positive attitudes and resilient foundation skills such as a willingness to learn, work ethic, integrity, resilience, initiative and critical thinking. Core competencies need to be significantly strengthened within the workforce in basic skills such as good customer service, creativity, understanding of basic WHS, ability to collect, analyse and communicate data and information, good organisation and project management skills, basic finance skills, basic technology skills, problem solving, cultural sensitivity, and working as part of a team.

For the current workforce, it is challenging to instil such skills once they have already been in the workforce. It is therefore important to take a proactive approach with school-based opportunities to build work-readiness. Schools have a strong influence on young peoples’ attitudes towards work in general, as well as towards particular industries such as agriculture or science with career advisors having equal influence on student’s interests and pathways, as such they are key stakeholders in achieving this change. It is not envisaged that Transform Peel would be able to capture and raise the aspirations of all young people towards the expected industries, but to inspire a segment of young people in the region to consider local employment and an agri-foods based career path.

Taking a proactive approach to influencing the education and training on offer will be important to ensuring enrolments and course completions relevant to industry needs. Good practice principles are available for school-based training pathways and already include the provision of comprehensive information to students and parents, effective collaborative partnerships between schools, VET providers and industry.⁴² Yet, specific information is likely to be required to engage with parents to support the choice of a student to work towards an agri-foods career.

4. Motivate business investment in local skills development

Industry and businesses are committed to developing skills and taking on employees that need development, however need some support and incentives to engage. It is important for the Peel community to capitalise on the training and employment opportunities that Transform Peel will provide by using the project activation and implementation as workforce development opportunities in themselves.

5. Stimulate Peel entrepreneurship

Given the current profile of the Peel region, any local start-ups to support Transform Peel are likely to be small to medium enterprises. The current level of business skills in the region is low. Working with the Chamber of Commerce, City of Mandurah and other business support organisations would promote the business opportunities available within Transform Peel and encourage local tendering and supply where possible. Provision of start-up incubation and support as part of a proposed research facility in the Peel could be complemented in the interim by virtual incubator support, similar to the current space at Make Place. This virtual facility could provide conducive surroundings, market connections and other support for new businesses to be successful in building a “critical mass of new businesses”.⁴³

6. Matching and mentoring for real work requirements

The barrier consistently raised across all stakeholders is the level of fragmentation in the education, training and employment support sectors and how this is exacerbated in the agri-food industry due to the negative perception and lack of knowledge about developments in the sectors. Similarly, businesses lack the time and resources to search for the ideal staff and invest in their skills development. Consequently, there was clear demand for a simple and timely matching and skill development service that could communicate employer requirements and provide better information on the skills of the prospective workforce. This is a critical recommendation because without the connections between employers and prospective employees, work towards the other recommendations may not achieve their full potential. However, it is important to note that this fragmentation is a systemic issue relating to Federal and State level systems. As such, while local solutions are important they will also need to be paired with advocacy to influence change at State and Federal levels to ensure local solutions can be successful and sustained over time.

7. Infrastructure requirements

The above recommendations can currently be progressed using existing networks and resources. There is an opportunity for optimisation of existing education and training facilities through a model of shared use and cooperation between industry and training providers. As the Peel Business Park progresses further, consideration should be given to the development of an on-site multi-functional centre that could be utilised by both industry and education or training providers. For example, a joint venture between industry, TAFE and government to develop a glasshouse training and pilot production facility to support and promote the emerging glasshouse industry could be pursued. A fee for service facility is suggested incorporating teleconference facilities, training rooms, laboratories, meeting rooms and a promotional centre for Transform Peel.

ANNEX 1. Preliminary Action Plan

The action plan below includes specific actions that were identified as a result of the research and stakeholder engagement in this study that can work towards seven identified recommendations. They are not exhaustive and should complement the existing actions being undertaken by both the Commission and the PWDA in relation to planning for Transform Peel and the other legacy projects. As outlined in the recommendations, these actions will require proactive engagement and partnership among regional stakeholders including industry, government and community. The Peel Workforce Development Alliance will take responsibility for maintaining, monitoring and adding to this action

plan. There are natural lead agencies within the PWDA for many of these actions, among which the PWDA may assign responsibilities for particular actions. The Peel Development Commission will continue to take a lead role in facilitating connections between partners.

Table 5. Preliminary Actions

Opportunity
1. Promoting Transform Peel – Interactive engagement
<i>Awareness raising/Branding</i>
Increase awareness of the Transform Peel brand and initiative, through broader community wide marketing and promotion.
Attend activities and events of regular agricultural industry groups to introduce and provide updates on the Transform Peel initiative.
Promote a variety of job futures at local festivals and events, particularly focussing on Transform Peel industries.
<i>Advocacy</i>
Transform Peel needs high level champions to passionately lead the initiative. PDC and PWDA should coordinate linkages between industry and local Members of Parliament to gain commitment for Transform Peel and the workforce development actions required for successful achievement of employment outcomes.
Advocacy and lobbying where required e.g. to influence training funding models that enable skill sets/micro-credentialing.
<i>Partnerships</i>
Continue early conversations with relevant agencies regarding food and agriculture export chains and investment opportunity to build links for export-related opportunity identification and development.
Continue to engage with Landcorp and relevant agencies to develop a clear local employment strategy for the headworks construction phase of the Peel Business Park.
2. Encouraging Work Adaptation and skills development
<i>Work Adaptation</i>
Promote the need for students to be multi skilled and adaptable to employers' changing requirements through promoting the T-shaped people model as a standard requirement to meet future employer demands.
<i>Work Skills Development (re-skilling; new skilling)</i>
STEAM is an integrated approach to learning which will require an intentional connection between standards, assessments and lesson design/ implementation. Continue to work with DTWD, local schools and the Department of Education to emphasise the importance of STEAM for the future workforce.
3. Transforming School Based work readiness and skills development for Transform Peel
Regularly attend education, training and employment networks and events to raise awareness of future jobs and technology relevant to the Transform Peel program.
Connect with the Peel Workforce Development Centre to ensure they are aware of careers and new technologies in agriculture likely to present future workforce opportunities for Peel residents.
Encourage Peel region high schools to engage with existing initiatives that promote careers in agriculture such as Muresk Institute's activities for high schools.
Engage with primary schools and encourage them to incorporate food and agriculture education into their curriculum from early years of primary school. Existing resources are available e.g. https://www.agric.wa.gov.au/climate-land-water/primary-education-resources

<p>Design a school-based promotion package for Transform Peel (tailored for primary school and high school) that can leverage from engagement with education packages around food and agriculture. E.g. field visits to farms or guest speakers (from food zone) when classes are learning about food production, tied with an opportunity to raise awareness of Transform Peel.</p>
<p>Facilitate discussions between the Department of Education, Agriculture Curriculum division and Peel schools to encourage offerings of agricultural curriculum in the Peel.</p>
<p>Local innovators in farming supported to enable opportunity for regular visits/tours by students to automated greenhouse businesses and other intensive farming businesses to showcase technology.</p>
<p>In the long term, advocate for a first year 'university college' to be created, and if this eventuates facilitate opportunities for work integrated learning and internships for students with Transform Peel businesses.</p>
<p>4. Motivating business investment in skills development</p>
<p>Encourage local businesses to take on employees to assist in local unemployment issues. Hire local policy. Real world training in today's jobs.</p>
<p>A specific opportunity is to ensure successful contractors make provision within the proposals/tenders to employ a fixed number of job entry level traineeships and apprenticeships across several fields in the business park at the headworks stage (i.e. electrical, plumbing, civil works etc). The costs to contractors could be offset through training funds and government incentives.</p>
<p>Undertake a regular survey of businesses in the Peel region to assess their workforce requirements and compare data over time to adjust workforce development strategies and determine their outcomes.</p>
<p>5. Stimulating Entrepreneurship</p>
<p>Investigate local interest in development of a database or network of business mentors/consultants that are willing to give their time to help businesses address road blocks and participate in informal round tables for problems solving in local businesses.</p>
<p>Liaise with Department of Premier & Cabinet's Office of Science to explore opportunities for collaboration in the 'Science and Agribusiness Connect' initiative such as research exchanges.</p>
<p>6. Matching and mentoring</p>
<p>Consider and plan for a broker service between tenants, training/education sector and job-seekers: MOUs and ongoing engagement with anchor tenants to support them to employ locally and build workforce capability.</p>
<p>Consider mechanisms to fund a development officer and workforce development centre in the Peel Business Park during the business initiation phase to partner with businesses to employ suitable local people and continue to build local workforce capability.</p>
<p>Investigate ways to improve job matching services, particularly for those exiting education, training or further education.</p>
<p>Work collaboratively on solutions to engage Aboriginal people in the opportunities presented by Transform Peel. (i.e. lack of drivers license, mentoring, placing Aboriginal people in jobs together).</p>
<p>7. Infrastructure requirements</p>
<p>Work to meet common use training needs as they arise, for example work with industry, TAFE and government to develop a training centre for the emerging glasshouse industry in WA.</p>

Peel Development Commission
**Transform Peel Workforce & Skills Needs
Analysis**

REPORT

APPENDICES

Appendix 1. Statement of Requirements

To inform future training and research strategic focus and infrastructure in the Peel, the Commission is seeking a suitably qualified and experienced Respondent to:

- i. undertake a workforce and skills needs analysis of the industries expected to be developed in Peel as a result of the Transform Peel program;
- ii. identify the workforce development needs of the Peel in relation to the anticipated outcomes of the Transform Peel program; and
- iii. identify the strategic focus and likely long term training and research infrastructure requirements to fulfil the workforce development needs identified.

SPECIFICATION

The Contractor is required to undertake a workforce and skills needs analysis of industries expected to be associated with the Transform Peel program, identify the workforce development needs, and the strategic focus and likely long term training and research infrastructure required to fulfil these needs. In order to achieve these objectives the Contractor will be required to:

- a. Develop a detailed project plan for presentation to the Advisory Committee based on the proposed methodology and approach outlined in the response to the RFQ.
- b. Undertake a desktop review of overarching regional and industry strategies such as Peel Regional Investment Blueprint, Transform Peel Program, Peel Workforce Development Plan, future of work research, and relevant Industry Skills Councils and State Industry Training Council reports and research.
- c. Prepare a summary of desktop research undertaken, industry focus areas identified and initial workforce and skills needs identified.
- d. Develop a stakeholder consultation strategy and undertake consultation with a range of local, state and national industry, training sector, and community and government stakeholders.
- e. Engage with the education and training sector to determine long term solutions to skills needs identified.
- f. Provide a summary of stakeholder engagement activities and initial findings to the Advisory Committee.
- g. Provide a comprehensive report which outlines the approach undertaken, the industries identified, the consultations undertaken, the workforce and skills needs identified and the suggested strategic solutions and likely long term training and research infrastructure requirements. The report is to include an overall economic narrative outlining the importance of workforce development to the Peel economy and identify clear linkages to other Peel Development Commission Legacy Projects.
- h. Present workforce and skills needs analysis outcomes to the Peel Workforce Development Alliance and Peel Development Commission Board.

All activities are to be undertaken under the guidance of a Peel Development Commission assigned Project Manager and an Advisory Committee which will be a sub group of the Peel Workforce Development Alliance. The Commission's Project Manager is to be involved in all consultations undertaken where practicable.

All products are to be reviewed by the Project Manager and amendments implemented as required prior to circulation to the Advisory Committee.

All documents will be required to be provided in an editable format and become the property of the Peel Development Commission.

Appendix 3. Sub group Terms of Reference

Terms of Reference for Peel Workforce Development Alliance Sub-Group Transform Peel Workforce & Skills Analysis Initiative

Background

By 2050, the Peel is expected to be one of the most populated regions outside of Perth with a projected population of 444,000. To support a population of this size, the Peel needs to build an economy that incorporates many industries, adopts an innovative approach to business, and has a highly skilled and high performing workforce.

The Peel Regional Investment Blueprint describes Peel's vision and provides a roadmap for its achievement. It focuses on a number of transformational strategies and initiatives including:

- industry development and enhancement of our agriculture and food sectors through innovation, investment and research;
- enhancement and expansion of our regional city, towns and communities;
- industry partnerships between our schools, training organisations and universities to create rewarding careers that lead to jobs;
- establishment of a major business and industrial park to attract mid-tier to large companies to the region, and;
- creation of key infrastructure including non-climate dependent sources of water supply and innovative projects around energy and waste management.

Peel Development Commission (Commission) in consultation and collaboration with its stakeholders has identified a number of projects aligned to the draft Blueprint that will transform the region and ensure it is recognised both nationally and internationally as a progressive, prosperous and dynamic region by 2050. Two such projects which underpin this activity are:

- (a) Transform Peel – comprises a 28,000 ha Peel Food Zone, a 1,000 ha Peel Business Park and the Peel Integrated Water Initiative which will diversify the Peel economy, creating jobs, improving competitiveness, fiscal sustainable and deliver innovation.
- (b) Peel Hospitality, Tourism and Personal Services Training Centre – establishment of a state of the art training centre in Mandurah to build human capability and capacity ensuring an ongoing supply of skilled workers in the Peel region for restaurants, cafes, bars, personal services and tourist destinations.

To inform future training and research strategic focus and infrastructure in the Peel, the Commission has undergone a formal request for quote process to engage a suitably qualified and experienced respondent to:

- (a) undertake a workforce and skills needs analysis of the industries expected to be developed in Peel as a result of the Transform Peel program;
- (b) identify the workforce development needs of the Peel in relation to the anticipated outcomes of the Transform Peel program; and
- (c) identify the strategic focus and likely long term training and research infrastructure requirements to fulfil the workforce development needs identified.

Project Scope

To achieve the objectives outlined above the successful respondents will be required to:

- (a) Undertake a desktop review of overarching regional and industry strategies such as Peel Regional Investment Blueprint, Transform Peel Program, Peel Workforce Development Plan, future of work research, and relevant Industry Skills Councils and State Industry Training Council reports and research.
- (b) Develop a stakeholder consultation strategy and undertake consultation with a range of local, state and national industry, training sector, and community and government stakeholders.

- (c) Engage with the education and training sector to determine long term solutions to skills needs identified.
- (d) Provide a comprehensive report which outlines the approach undertaken, the industries identified, the consultations undertaken, the workforce and skills needs identified and the suggested strategic solutions and likely long term training and research infrastructure requirements.
- (e) Present workforce and skills needs analysis outcomes to the Peel Workforce Development Alliance and Peel Development Commission Board.

It is envisaged the project will be undertaken over the period 9 November 2016 to 7 May 2017.

Purpose of the Peel Workforce Development Alliance Sub-group

The sub-group is established to ensure that quality evidence and reports are developed to inform future training in the Peel.

Scope of the Peel Workforce Development Alliance Sub-group

The sub-group will provide timely advice, direction and information to the contract manager and successful Respondent. Specifically the sub-group will undertake the following:

- participate in meetings for the duration of the project;
- identify stakeholders that the external contractor and project manager should engage with;
- identify strategies for progressing consultations with key stakeholders;
- provide strategic oversight of the Project Manager and the successful respondent; and
- communicate the progress of the project to agencies and community groups they represent in an open, transparent and timely manner.

Governance

The sub-group operates within the parameters of the Western Australia public sector legislative framework and members observe and comply with the *Western Australian Public Sector Code of Ethics* which is underpinned by the principles of:

- personal integrity;
- relationship with others; and
- accountability.

The CEO of the Peel Development Commission is the Executive Sponsor for this project.

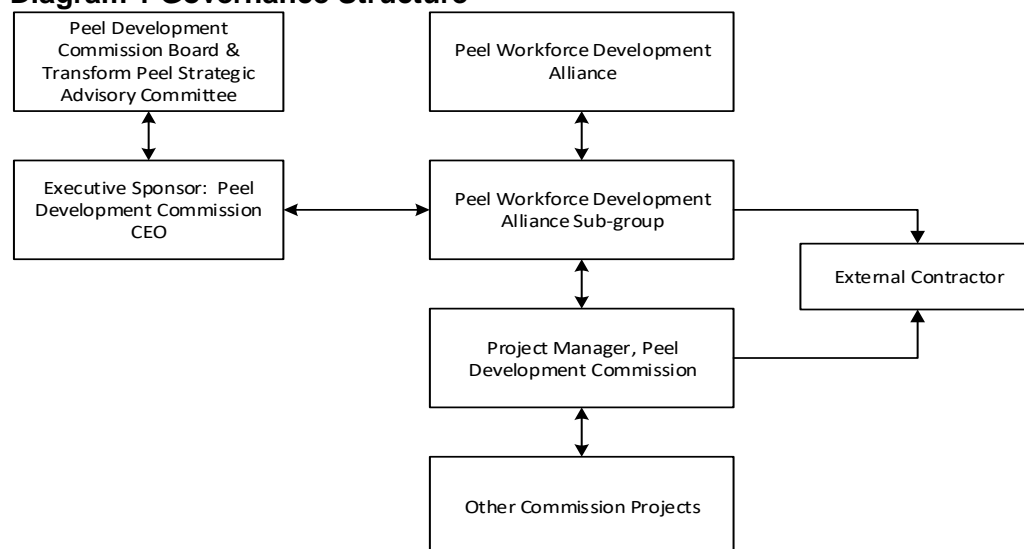
Membership of the sub-group is listed in Table 1 and the Governance structure is shown in Diagram 1.

Table 1 – Sub-group membership

Name	Agency	Job Title
David Arkwright	Peel Development Commission	Transform Peel Project Officer
Darshi Ganeson-Oats	South Metropolitan TAFE	Director Strategic Partnerships
John O'Neill	Shire of Serpentine-Jarrahdale	Economic Development Advisor
John Pike	Murdoch University	Executive Officer Policy, Planning and Government
Giulia Ranelli	Department of Training and Workforce Development	Principal Consultant Workforce and VET Planning
Kristie Tonkin	Peel Development Commission	Principal Consultant Industry, Skills and Regional Capability (Chairperson)
TBD		Executive Officer

Note: Other parties may participate by invitation, as required.

Diagram 1 Governance Structure



Project Manager and Successful Respondent

To assist with the delivery of agreed outcomes, Peel Development Commission has appointed a dedicated Project Manager for the project. The successful Respondent will work closely with the Project Manager to deliver the outcomes required. The sub-group will have the responsibility for strategic oversight of the Project Manager and the successful respondent.

Term of appointment to the Sub-group

Members are appointed for the duration of the initiative, ending on 7 May 2017, or any agreed extension thereto.

Number of meetings

The sub-group will review products and progress on the following dates:

Action	Date
Initial meeting with successful respondent	22 November 2016
Research summary review	9 December 2016
Stakeholder engagement strategy review	16 December 2016
Stakeholder engagement findings	10 March 2017
Workforce & Skills Needs Analysis Report review	31 March 2017

Meeting venue and time

To be determined by Project Advisory Committee members. Some product review meetings may occur via telephone discussion or provision of comments electronically as determined suitable by the sub-group.

Meeting agenda and action sheet

1. The meeting agenda will be prepared by the Executive Officer following a call for agenda items and will be forwarded to the sub-group members together with supporting papers not less than three days before each meeting.
2. Typically the agenda will, in addition to specific items for consideration, include:
 - o minutes of the previous meeting for confirmation;
 - o any outstanding issues from the previous meeting;
 - o a report from the Project Manager; and
 - o external contractor report.
3. An action sheet will be kept and monitored at each meeting.

Quorum

The quorum for a meeting is no less than half the total number of appointed members.

Attendance

Members should attend all meetings and where attendance is not possible, it is appropriate to offer an apology. Proxy membership is encouraged but must be approved by the Executive Officer prior to the meeting. Approval can be requested and granted by email.

Minutes of meetings

Minutes of each meeting are taken by the Executive Officer, forwarded to sub-group members no more than five days after the meeting and tabled at the next meeting for confirmation.

Conflict of interest and pecuniary interest

All members must declare, in writing, all perceived, potential and actual interests that they have in matters being considered by the sub-group. If the member is present at the meeting, the member must immediately disclose the nature of the conflict of interest before the matter is considered or discussed.

Confidentiality and professional behaviour

Sub-group members are obliged to:

1. never disclose any information about the legacy projects that is not already in the public domain without the proper authority to do so;
2. respect confidentiality on project matters;
3. maintain the privacy of sub-group members and never release information to third parties unless permission has been given; and
4. only provide public comment on project issues when called upon and authorised to do so.

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Appendix 5. List of Stakeholders Consulted

Salutation	FName	Surname	Title	Organisation
Mr	Russell	Barnett		Australian Venture Consultants. Senate Member at Murdoch University - consultants
Mr	Tim	Burrows	CEO	Agribusiness Australia
	Cindy	Taylor	Support officer	AMA Apprenticeship & Traineeship Services
Ms	Roban-Lynne	Clarke	Industry Liaison	AusIndustry
Ms	Louisa	Lidington	Administration Manager	Australian Apprenticeship Support Network
Ms	Lena	Constantine	Manager	Australian Apprenticeship Support Network
Mr	Peter	Kramer		Australian Department of Employment
Ms	Rosanna	Beard	WA HR Manager	Baiada
Mr	Sam	Calameri	Owner	Baldivis Market Garden - Glasshouse project
Mr	Joseph	Oliver	Managing Director	Biogass Renewables
Mr	Peter	Bowler	Business Advisor	Business Foundations - Make Place
Mr	Michael	Bellman	Supply Manager WA	Capilano Honey Limited
Mr	Adam	Denniss	Manager Economic Development & Projects	City of Mandurah
Ms	Natasa	Perovec	Economic Development Team	City of Mandurah
Mr	Stephan	van Rensburg	Economic Development Team	City of Mandurah
Mr	Tim	Bateman	Economic Development Team	City of Mandurah
Mr	Russell	Trowbridge	Business/Career Advisor	Coodanup College
Mr	Jorge	Chorrez	Senior Farm Manager	Craig Mostyn Farms
Dr	Janet	Bornman	Director International Institute for Agri-Food Security	Curtin University
Mr	Andy	Gulliver	Director	C-Wise
Mr	Craig	Salt	Consultant	C-Wise
Mr	Dave	Cullen	Director	C-Wise
Dr	Sally	Lloyd		CY O'Connor Institute
Prof	Roger	Dawkins	Chairman/ Research Director	CY O'Connor Institute
Ms	Heather	Percy	State Land Use Planning Coordinator - People Leader Land and Water Assessment	Department of Agriculture and Food WA

Salutation	FName	Surname	Title	Organisation
Ms	Sue	Cuneo	Regional Executive Director - South Metropolitan Peel Area	Department of Education
Ms	Faye	Jones		Department of Education - Peel VET Coordinators Group
Ms	Melissa		Byford Secondary College	Department of Education - Peel VET Coordinators Group
Ms	Leanne	Zawierucha	Byford Secondary College	Department of Education - Peel VET Coordinators Group
Mr	Stephen	Waylen	John tonkin college	Department of Education - Peel VET Coordinators Group
Mr	Sean	Wrigley	Halls Head Community College	Department of Education - Peel VET Coordinators Group
Ms	Pamela	Micklewright	Coodanup Community College	Department of Education - Peel VET Coordinators Group
Ms	Lelaine	Boardman	Pinjarra SHS	Department of Education - Peel VET Coordinators Group
Ms	Natasha	Hawkins	John Tonkin Education Support Centre	Department of Education - Peel VET Coordinators Group
Ms	Melissa	Kettle	Byford Secondary College	Department of Education - Peel VET Coordinators Group
Ms	Heidi	Seymour	Foundation Christian College	Department of Education - Peel VET Coordinators Group
Ms	Louisa	Morrison	Principal Consultant	Department of Education, Pathways & Transition, Statewide Services
Mr	Vergheese	Jacob		Department of State Development
Mr	Gary	Fitzgerald	Director, State Workforce Planning	Department of Training and Workforce Development
Mr	Gordon	Duffy	Director, Workforce Development	Department of Training and Workforce Development
Ms	Giulia	Ranelli	Principal Consultant Workforce and VET Planning	Department of Training and Workforce Development
Ms	Carolyn	Davis	Aboriginal Workforce Development Centre	Department of Training and Workforce Development
Mr	Geoffrey	Holden	Director Procurement Strategy	Department of Training and Workforce Development
Mr	Michael	Eckerman	State Workforce Planning	Department of Training and Workforce Development
Mr	Peter	Nelligan	Senior Projects Officer	Department of Training and Workforce Development

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Salutation	FName	Surname	Title	Organisation
Mr	Kevin	Coombes	Director Training Resource Allocation	Department of Training and Workforce Development
Ms	Helen	Smart	Director Training Infrastructure Management	Department of Training and Workforce Development
Mr	Ashley	Garlett	Peel AWDC Coordinator	SMYL Community Services
Mr	Andy	Ellett	Regional Manager Kwinana Peel	Department of Water
Mr	Ryan	Milne	MSc, RABQSA, AWA, AIRAH Director Ecosafe International	Ecosafe International
Ms	Faye	Jones	Education, Training & Industry liaison Officer	Department of Education
Mr	David	Howey		Elanco
			Group meeting	Employment Support Services Network
Ms	Kay	Gerard	CEO	Food, Fibre & Timber Industries Training Council (Wa) Inc
Mr	Paul	Etheredge	Project Manager	Food, Fibre & Timber Industries Training Council (WA) Inc
Ms	Rosemaree	Bloomfield	Employment Consultant	Forrest Personnel
Mr	Torben	Soerensen	Managing Director	GD Pork
Mr	Sean	Wrigley	Business/Career Advisor	Halls Head Community College
Mr	Geoff	Calder	General Manager	Harvey Water
Mr	Rob	Giura		Keysbrook Dairy - Mucca Dairy Company
Mr	Mark	Pasalich	Project Director	Landcorp
Mr	Rhys	Williams	CEO	The Makers
Mr	Lindsay	Baker		Landowner
Mr	David	Byatt	Director	Moshi Moshi Marketing
Mr	John	Pike	Executive Officer Policy, Planning and Government	Murdoch University
Ms	Wendell	Ela	Professor of Desalination and Water Treatment	Murdoch University
Mr	Richard	Harper	Chair Sustainable Water Management & Leader Agriculture Sciences	Murdoch University
Mr	Shashi	Sharma	Chair Biosecurity & Food Security	Murdoch University
Professor	Andrew	Taggart	Pro Vice Chancellor	Murdoch University
Dr	Graham	Mann	Senior Lecturer, School of Engineering	Murdoch University

Salutation	FName	Surname	Title	Organisation
			and Information Technology	
Mr	Steven	Dickson	Senior Executive Professional Services, Property, Development and Commercial Services Office Director	Murdoch University
Dr	Stephen	Milroy	Research Manager School of Veterinary and Life Sciences,	Murdoch University
Ms	Lynette	Vernon	Director MAP4U Project Academy	Murdoch University
Mr	Sharon	Humphris	Chief Operating Officer National Centre of Excellence In Desalination	Murdoch University
Dr	Christopher	Vas	Singapore Centre for Research in Innovation, Productivity and Technology (SCRIPT)	Murdoch University
Ms	Prue	Jenkins	CEO	Muresk Institute
Ms	Kerrie-Anne	Kearing		Murray Districts Aboriginal Association.
Mr	Mark	Salmon		Murray Districts Aboriginal Association.
Mr	Phil	Loveder	Stakeholder Engagement Manager	National Centre for Vocational Education Research
Ms	Ami	Kitchingman	Manager Partnerships	Nudge
Ms	Johanna	Dowsett	Principal Policy Officer	Office of Science
Ms	Paula	Johnstone	Manager Mandurah	Peel Chamber of Commerce and Industry
Mr	Andrew	McKerrell	Project Officer	Peel Chamber of Commerce and Industry
Ms	Janine	Hatch	Project Officer	Peel Development Commission
Mr	David	Arkwright	Transform Peel Project Officer	Peel Development Commission
Ms	Kristie	Tonkin	Principal Consultant Industry, Skills and Regional Capability	Peel Development Commission
Ms	Jane	O'Malley	CEO	Peel Harvey Catchment Council
Mr	Darryl	Spargo	Rural Operations Coordinator	Pinjarra Senior High School
Mr	Vern	Pitter	Owner	Pitter Dairy Farm
Prof	Lyn	Beazley	Science Ambassador	
Mr	John	Lambrecht	Executive Officer Mandurah	Regional Development Australia
Mr	David	Currey	CEO Jandakot Airport	Royal Aero Club

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Salutation	FName	Surname	Title	Organisation
Mr	Doug	Brooks		Royal Aero Club
Ms	Belinda	Allitt	General Manager Communications	Rural Industries Research & Development Corporation
Mr	Brett	Flugge	Executive Manager Strategic & Economic Development	Shire of Murray
Mr	John	O'Neill	Economic Development Advisor	Shire of Serpentine- Jarrahdale
Mr	Ian	Curley	CEO	Shire of Waroona
Mr	Colin	Bell		Skills Strategies International Pty Ltd
Ms	Sandra	Robinson	Director	Skills Strategies International Pty Ltd
Ms	Tracey	Hawker	Communications & Engagement	SMYL Community Service
Ms	Darshi	Ganeson- Oats	Director Strategic Partnerships	South Metropolitan TAFE
Ms	Kelly	Townsend	General Manager Training	South Metropolitan TAFE
Mr	Blair	Marsh	General Manager Training	South Metropolitan TAFE
Mr	Jonathon	Maile	Executive Director, Engineering/Oil and Gas	South Metropolitan TAFE
Ms	Julia	Burns	General Manager Training	South Metropolitan TAFE
Ms	Brenda	Micale	Executive Director, Hospitality and Business	South Metropolitan TAFE
Ms	Lyn	Southam	Executive Director, Community Services and Health	South Metropolitan TAFE
Ms	Pascaline	Owers	Program Manager Sustainable Industries	South Metropolitan TAFE
Ms	Suzy	Kitson	Business Development Consultant	South Metropolitan TAFE
Ms	Melinda	Blagaich	Business Development Consultant	South Metropolitan TAFE
Ms	Kim	Wood	Manager International	South Metropolitan TAFE
Ms	Lisa	Pitters	Manager Education Pathways	South Metropolitan TAFE
Prof	Adrian	Egan	Chair	South West Science Council
Ms	Kathy	Hoare	Director, Office of the State Training board	State Training Board
Ms	Linda	Cunningham	Program Director	Transform Peel - PDC
Mr	John	Shannon	Executive Officer	Vegetables WA
Mr	Bernie	Beatty	Director of Agriculture Education	Department of Education
Ms	Alysia	Kepert	Curriculum Consultant, Agricultural Education	Department of Education
Mr	Nick	Turner	Section Manager, Integrated Water cycle Planning	Water Corporation

Salutation	FName	Surname	Title	Organisation
Mr	Stephen	Brown	CEO	Western Australian Farmers Federation
Mr	Grady	Powell	Executive Officer	Western Australian Farmers Federation
Mr	Kim	Haywood	Executive Officer - Policy	Western Australian Farmers Federation
Mr	Ben	Cole	Managing Director	Wide Open Agriculture

Invited to participate by Survey

Austin Cove Baptist
Bridging the Gap
Byford Secondary College
Capagreco Farms
Clontarf Aboriginal College
CommuniCare Employment Services
Craig Mostyn Group
Department of Education
EdConnect
Fairbridge Village
Food, Fibre & Timber Industries Training Council (WA) Inc
Foundation Christian College
Frederick Irwin Anglican School
Galati Group (grocers)
GD Pork
Greenacres Turf Farm
HUNSA
John Tonkin College
M&L Furfaro and Sons
MacNuts Macadamia Farm
Mandurah Baptist College
Mandurah Catholic College
MAPTO
Meat and Livestock Australia
Mundella Foods Pty Ltd
Murray Engineering
MZI Resources
Peel Youth Services
Kirana Training
Runamuk Dairy
Serpentine-Jarrahdale Grammar School
Supafresh
T & R Pastoral
Waroona District High School
Wide Open Agriculture

Appendix 6. Guiding Questions for Stakeholders

General Guiding Questions (All stakeholders)

Current status and trends

1. What is your specific interest or role in Transform Peel/workforce development in the Peel region?
2. What are the main workforce trends and challenges you are aware of in the Peel region (e.g. skills shortages, changes in skills or qualifications required by employers, changes in interests and skills of new workforce entrants)?
3. What are the main trends and challenges you are aware of in education and training in the Peel region (e.g. suitability and quality of available options, appropriateness for employers' requirements)?

Future workforce opportunities in Transform Peel

4. What will be the main types of jobs that you believe will arise from new industries/businesses associated with Transform Peel?
5. How well equipped (skills, qualifications, willingness) is the current workforce to meet those needs?
6. What training and education options/pathways may need to change to meet the workforce needs of Transform Peel?
7. What might be the constraints or barriers to the local workforce seeking/gaining employment in the industries associated with Transform Peel initiatives? What are the possible solutions to these constraints or barriers?
8. How can Transform Peel businesses be encouraged to provide training and skills development to their employees?
9. How can Transform Peel businesses be encouraged to have inclusive employment practices (in terms of gender, race, disability, socioeconomic status)?
10. How likely do you believe that Transform Peel initiatives are to be successful in generating intended employment generation and workforce development outcomes?

Specific Questions for Sectors

Agriculture, Forestry and Fishing

1. Does your business/agency currently operate in the Peel region? What are the current constraints or barriers to operating in Peel?
2. Do you believe that the workforce available in the Peel region are appropriately skilled and interested to work in agriculture and related industries through Transform Peel?
3. What can be done to address any constraints and barriers to ensuring the workforce in Peel is ready to secure employment in agriculture and related industries through Transform Peel?

4. What workforce development activities do you believe are most suitable to the type of agriculture businesses likely to establish in Transform Peel? (e.g. skill sets or micro-credentialing vs. formalised training packages or tertiary level courses).

Professional, Scientific and Technical Services/Other Services

1. What are the current constraints or barriers to operating professional, scientific and technical services businesses/agencies in the Peel region?
2. What can be done to address these constraints and barriers?
3. Do you believe it is important to have higher level professional, scientific or technical services jobs sourced from within the region, or do you believe it is appropriate to import these skills to the region?

Education and Training Providers

1. What are the main thrusts behind your organisation's strategic direction?
2. How does your organisation determine education and training offerings?
3. How does your organisation engage with the private sector in designing education and training offerings? How effective do you believe this engagement is?
4. What trends/changes are you aware of in the education and training demands and interests of students/prospective students?
5. What trends/changes are you aware of in the skills and qualifications demanded by prospective employers?

Support services (employment/business support services)

1. How do you liaise and build relationships with the private sector through your work? How effective do you believe that is?
2. What skills do employers tell you are lacking in the current workforce?
3. Have you noticed any changes or trends in the types of skills and qualifications that employers are looking for?
4. Have you noticed any changes or trends in the skills and qualifications that employment seekers you service have/lack?

Appendix 7. Business Survey Questions

Survey Process

The below survey is part of the Transform Peel Workforce and Skills Needs Analysis methodology. The purpose of the survey is to (i) gain the input of local business in the Peel region to the consideration of future workforce requirements associated with Transform Peel and (ii) ask local business and industry to assist in identifying the main constraints and gaps between business/industry's needs and (iii) assess the availability of relevant skills in the local workforce.

The survey will be delivered online via SurveyMonkey. It will be distributed to business owners/managers in the Peel region in industries relevant to Transform Peel (e.g. agriculture, light industry, support services etc). It will be sent as a link via email through available databases where permissible (e.g. sought from the Peel Development Commission, Chambers of Commerce and Industry, Small Business Development corporation the City of Mandurah and Shire of Murray and Serpentine Jarrahdale, Rotary, Lions etc).

This information, along with the information collected from the broader stakeholder engagement, this data will inform the scenarios for the industry mix in Transform Peel, the identification of workforce development needs and recommendations on education, training and research to meet these needs. It will particularly inform what actions will need to be taken to ensure that the recommendations made are appropriate for the needs of local businesses. The survey may also be further developed during implementation of Transform Peel to provide input to monitoring and evaluating the success of the program's workforce development initiatives, and facilitate adaptive management and responsiveness to changes in business' needs.

INTRODUCTION ON FIRST PAGE OF SURVEY MONKEY

Dear Peel region Business Operator

You may have already heard about the important 'Transform Peel' initiative and the significant role it is planned to have in the future of industry and employment generation in the Peel region. Transform Peel is a 35 year program to activate under-realised economic potential in the Peel and has a focus on developing business opportunities, particularly in the food, technology and light industry sectors. The Transform Peel investment is expected to generate over 30,000 additional jobs in the Peel by 2050 (strategic and operational). For further information on the program please see:

<http://www.peel.wa.gov.au/transform-peel/>

The Peel Development Commission has contracted locally-based business, SDF Global Pty Ltd to undertake a workforce assessment to identify likely skills profiles, staffing proportions, job pathways, education and training requirements likely to result from Transform Peel to ensure that prospective employers will have a ready supply of suitable human resources into the future.

Your input

As a business operator in the region you are identified as a key stakeholder in this project and we kindly ask you to please spend **two or three minutes only** assisting us with your knowledge of the local workforce and skills base.

Please click on the survey link below to help us find out what the main constraints and gaps are between your business/industry's needs and the availability of skills in the local workforce both now and for the future.

ALL INPUT IS CONFIDENTIAL.

Your input is greatly appreciated and will be used to inform appropriate recommendations to help address these needs for businesses in the Peel region.

SURVEY QUESTIONS

Your business

In what industry sector/s does your business operate?

(Accommodation and Food Services; Financial Insurance Services; Retail Trade; Rental Hiring and Real Estate; Construction; Mining; Manufacturing; Transport, Postal and Warehousing; Wholesale Trade; Agriculture, Forestry and Fishing; Electricity, Gas, Water and Waste Services; Professional, Scientific and Technical Services; Public Administration and Safety; Education and Training; Information, Media and Telecommunication; Healthcare and Social Assistance; Arts and Recreation Services; Administration and Support Services; Other (please specify)

How many employees does your business have?

(1, 2-5, 6-10, 11-20, 21-50, 51+)

What Local Government Area/s does your business currently operate in (head office/main operations)? (may select more than one)

(Mandurah, Murray, Waroona, SJ, Boddington, Other LGA outside Peel region)

How many years has your business been operating in the Peel region?

(Less than under 1 year, 1-2 years, 3-5 years, 6-10 years, more than 10 years)

Tell us about hiring new employees in your business

1. Please rate to what extent you agree with the following statements

(strongly agree, agree, disagree, strongly disagree, not applicable)

- a. I find it **easy** to find appropriately skilled people to fill positions in my business
- b. I find it easy to find appropriately skilled people **who live locally** to fill positions in my business

2. What are the most important challenges your business faces in recruitment/hiring of appropriately skilled and qualified staff? (may select more than one)

- a. Availability of suitably skilled applicants
- b. Time taken for recruitment
- c. Cost of recruitment
- d. Time taken to train new staff
- e. Reliability/ Attitude/work culture of new staff
- f. Transport/accessibility
- g. Wages/salaries/on costs
- h. Other:.....

Tell us about the skills and qualifications your business generally needs

3. Have there been any major changes in the skills and qualifications that you generally need in your employees: (Y/N, if yes, please specify)

- a. In the last ten years,
 - i. if yes, please specify
- b. In the last five years
 - i. if yes, please specify
- c. Expected within the next five years
 - i. if yes, please specify

4. What are the top skills that you need your employees to have?

(scale: very important, important, not important, not applicable)

- a. Basic mathematics
- b. Computer competency
- c. Media/communications
- d. Operating machinery/equipment
- e. Designing and conducting research
- f. Engineering-based skills
- g. Science-based skills
- h. Social science based skills
- i. Marketing/sales
- j. Financial ability
- k. Ability to work effectively in a team
- l. Occupational health and safety
- m. Customer service
- n. Manual labour
- o. Creativity
- p. Other:

Tell us about how you develop the skills of your staff

5. How important do you believe that it is for your business to invest in staff development (through either on-the-job or externally provided education or training)? (scale: very important, important, not important, not applicable)

6. Does your business currently employ:

- a. Men
- b. Women
- c. Apprentices,
- d. School-based trainees,
- e. Trainees,
- f. Interns,
- g. Young people (aged under 25),
- h. Aboriginal and Torres Strait Islander people,
- i. People with disabilities,
- j. People over the age of 50,

7. Please rate to what extent you agree with the following statements (*strongly agree, agree, disagree, strongly disagree, not applicable*)

- a. I can provide my employees with the on-the-job training that they need
- b. I can support my employees in external education or training
- c. I need my employees to be more multi-skilled than previously
- d. External education or training options are available that suit the needs of my business

8. What are the most important constraints and challenges your business faces in developing the skills of your staff? (you may select more than one)

- a. Time constraints
- b. Cost involved
- c. Willingness of staff to undertake training
- d. Ability of workers to undertake training
- e. Availability of suitable training
- f. Staff retention
- g. Other:.....

9. Do you have any additional comments relating to workforce and skills needs/development in the Peel region?

Appendix 8. Employers' perceptions of school leaver competencies

Source: Trowbridge, R 2016. Employers' perceptions of school-leaver competencies. Masters of Education by Course Work and Thesis.

The tables below were informed by a survey of employers' perceptions of school-leaver competencies to try to understand what competencies employers valued most. 114 responses were received from Mandurah based businesses/employers and respondents indicated that they wanted employees who were enthusiastic about learning, were punctual, well prepared and adaptable, could plan ahead, cope with pressure, use their initiative and had a positive attitude.

Competencies more likely to influence employer's decision making.

Item	Location (logits)	Raw score mean
Enthusiastic about learning	-2.70	2.55
Is punctual	-2.62	2.70
Well prepared	-2.52	2.38
Adaptable	-2.49	2.34
Can plan ahead	-2.47	2.46
Can cope with pressure	-2.46	2.46
Can use their initiative	-2.45	2.54
Has a positive attitude	-2.24	2.61
Verbal and written communications	-2.14	2.20
Understanding of job requirements	-2.05	2.22
Works well within a team	-1.70	2.59
Follows directions	-1.04	2.70
Respects authority	-0.98	2.55
Conscientious	-0.70	2.63
Manages their time	-0.56	2.40
Clean and tidy	-0.54	2.50
Would fit into our workplace culture	-0.53	2.42
Emotionally stable	-0.32	2.32
Problem solving skills	-0.31	2.23
Self management skills	-0.27	2.21
Learns quickly	-0.26	2.37
Organisational skills	-0.26	2.23
Common sense	-0.19	2.44
Customer service skills	-0.10	2.24
Agreeable	-0.03	2.22

Competencies less likely to influence employers' decision making.

Item	Location (logits)	Raw score mean
Ethical awareness	0.04	2.05
Skills relating to on the job tasks	0.17	1.98
Open to new experiences	0.22	2.13
Enterprising	0.44	1.96
Numeracy skills	0.46	1.94
Reading and writing skills	0.64	1.81
Non academic credentials	0.74	1.78
Overly socialises during work time	0.77	1.84
School disciplinary issues	0.83	1.68
Good all-round academically	0.94	1.61
Understanding the concept of profit	1.12	1.53
Extraversion	1.15	1.54
School attendance record	1.18	1.52
Experience in the labour force	1.27	1.35
Vocational Educational Training	1.33	1.38
Taken specific subjects at school	1.35	1.33
Participation in community	1.36	1.37
Grades at school	1.59	1.38
Withdrew from school early	1.82	1.05
Has children	1.92	0.69
Professional networks	1.97	1.10
Gender	2.44	0.75
Which school attended	2.70	0.81
Marital status	2.72	0.75
Parents' socio-economic status	2.77	0.72

Appendix 9. Preliminary List of Potential Jobs/skills required in Transform Peel

Peel Business Park Nambeelup	
<p>Construction Phase (2018 to 2025)</p> <p>Planners Engineers Environmental Scientists Surveyors Civil works contractors – bulk earthworks, fencing, retaining walls, concreters, plant operators, electricians, plumbers, gas fitters, builders.</p> <p>Operational Phase – 2019 onwards”</p> <ul style="list-style-type: none"> • Distribution and logistics specialists • Solar technicians • Panel beaters • Mechanics • Engineers <p>Food processing</p> <ul style="list-style-type: none"> • Agricultural processing/packing management • Food hygienists • Refrigeration and cooling specialists <p>Training operators:</p> <ul style="list-style-type: none"> ○ Vet trainers ○ Student services and administration ○ Cleaners ○ Teaching assistants ○ Finance, HR 	<p>Noodle producing:</p> <ul style="list-style-type: none"> • Conveyer belt/processing lines controller • Water tank supervisors • Noodle rolling/cutting supervisors • Ingredient mixers/supervisors • Packaging and handling staff • Site managers • Quality control supervisors • Cleaners • Ingredient weighers <p>Dairy processing:</p> <ul style="list-style-type: none"> • Process engineer • Sanitation technicians • Agricultural compliance specialists • Pasteuriser/homogenisation specialist • Bar scientist (milk chemist)/agri-scientist • Operations technicians • Milk handlers/samplers/graders • Tanker drivers • Material/ingredients supervisor (uht milk vs flavoured milk) • Sterilisation specialists/technicians • Lab technicians • Pest control
General	
<ul style="list-style-type: none"> • Business management • Marketing and sales • IT design/support • Lab skills • Cleaners • Administration • Freight traffic manager • Risk analysts • Security guards • Construction workers • Project managers 	<ul style="list-style-type: none"> • Energy: <ul style="list-style-type: none"> ○ Energy specialists/technicians ○ Chemical engineers • Environmental: <ul style="list-style-type: none"> ○ Health and safety environmental officers ○ Waste chemical and pollution control ○ Urban/regional planners ○ Civil contractors ○ Landscapers ○ Environmental economists • Support industries: <ul style="list-style-type: none"> ○ Fuel ○ Automotive ○ Mechanic

Peel Food Zone	
<p>General agriculture:</p> <ul style="list-style-type: none"> • Agricultural scientists • Agricultural technicians and consultants • Environment, parks and landcare managers/officers • Farm managers • Agricultural and horticultural mobile plant operators • Conservation officers/ bush regenerators • Irrigation supervisors and installers • Sales and marketing managers • Quality systems/safety managers • Maintenance technicians • Quality inspectors • Data management officers/specialists • Harvesters/farm labour • Crop hygienists • Procurement/finance officers/managers • Human resources officers/managers • Agricultural labourers • Records/quality control officers/managers • Machine operators • Machine operators/supervisors • Agronomics Specialist • Agricultural economist • Bio-security specialist • Process engineering control technicians • Glasshouse controllers <p>Horticulture production:</p> <ul style="list-style-type: none"> • Garden and nursery workers • Geneticists • Hydroponic specialists <ul style="list-style-type: none"> ▪ Hydroponics grower ▪ Hydroponic equipment salesperson ▪ Hydroponic instructor <p>Animal Feed Production:</p> <ul style="list-style-type: none"> • Silo managers/officers • Tractor/truck/forklift drivers • Spray technicians • Weigher/material controller/handler • Packaging handlers 	<p>Livestock production:</p> <ul style="list-style-type: none"> • Animal geneticists • Animal husbandry • Veterinarians/vet nurses • Livestock insurer • Livestock procurement • Drone technician • Drone driver <p>Mushroom production:</p> <ul style="list-style-type: none"> • Straw/compost control and handlers/supervisors • Package and handling of compost material • Air quality control technicians • Mushroom spawn specialists/provider <p>Chicken farm:</p> <ul style="list-style-type: none"> • Animal nutritionist • Hatchery assistant/managers • Brood stocks management • Egg collector/s • Assessor and moderators • Chicken catcher/loader • Poultry scientists • Livestock husbandry and care • Breeding specialists • Manure/fertiliser collector team (for re-use in mushroom farming?) • Hatchery embrex operator (give vaccination at embryo stage) • Distribution driver (forklift/heavy machinery license) • Diesel mechanic • Feed production team • Unloading of raw materials • Cleaners • Certified rural tradesperson • Leading hand
Peel Integrated Water Initiative	
<ul style="list-style-type: none"> • Hydrologists and hydro-geologists • Environmental engineers • Water quality testing and analysis field technicians • Water quality lab technicians • Water/Wastewater Treatment Plant Operators 	<ul style="list-style-type: none"> • Services Development Engineer • Climate/environmental scientists • Soil Scientists • Agronomists • Hazardous waste inspector • Sustainability analysts • Irrigation systems designers, installers and service/operations technicians

End Notes

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