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# PARWAN EMPLOYMENT PRECINCT

SCOPING STUDY

MOORABOOL SHIRE COUNCIL AND VICTORIAN PLANNING AUTHORITY | JULY 2022



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## **VERSION**

1

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## KEY TERMS AND DEFINITIONS

Term	Definition
<b>Agribusiness</b>	That part of the economy which works across the whole supply chain relating to agricultural products, including the production of inputs (i.e., farming), followed by the processing and wholesaling of goods.
<b>Circular Economy</b>	A circular economy continually seeks to reduce the environmental impacts of production and consumption, while enabling economic growth through more productive use of natural resources. It allows us to avoid waste with good design and effective recovery of materials that can be reused. The value people obtain from the resources used to create goods and services increases. <sup>1</sup>
<b>Future Economy</b>	This term refers to businesses and land uses which are suited to locate in the southern precinct of the PEP based on their need for separation from sensitive land uses and the opportunity to contribute to an agglomeration of businesses involved in practices and processes associated with circular economy and industrial ecology principles.
<b>Industrial ecology</b>	Industrial ecology is the study of systemic relationships between society, the economy, and the natural environment. It focuses on the use of technology to reduce environmental impacts and reconcile human development with environmental stewardship while recognising the importance of socioeconomic factors in achieving these goals. Industrial ecology has contributed to various ideas about economic systems that aim to improve resource efficiency, i.e. minimising waste and maximising the services delivered by using resources. These ideas have culminated in the concept of the circular economy, which became widespread in the 2010s.
<b>PEP</b>	Parwan Employment Precinct
<b>Urban industrial</b>	Land uses which typically occupy industrial land and premises and provide goods and services to local and sub-regional populations. A distinction is made between these generally smaller businesses and larger strategic industrial businesses which serve export markets and typically seek proximity to major transport infrastructure and other characteristics offering a competitive advantage.
<b>VPA</b>	Victorian Planning Authority
<b>WFP</b>	Water Filtration Plant
<b>WTP</b>	Wastewater Treatment Plant

Sources: 1. Recycling Victoria: A New Economy (February 2020). 2. International Society for Industrial Ecology.

# EXECUTIVE SUMMARY

## OVERVIEW

Moorabool Shire Council (Council), in partnership with the Victorian Planning Authority (VPA), commissioned Urban Enterprise to undertake a Scoping Study for the Parwan Employment Precinct (Precinct or PEP)<sup>1</sup>.

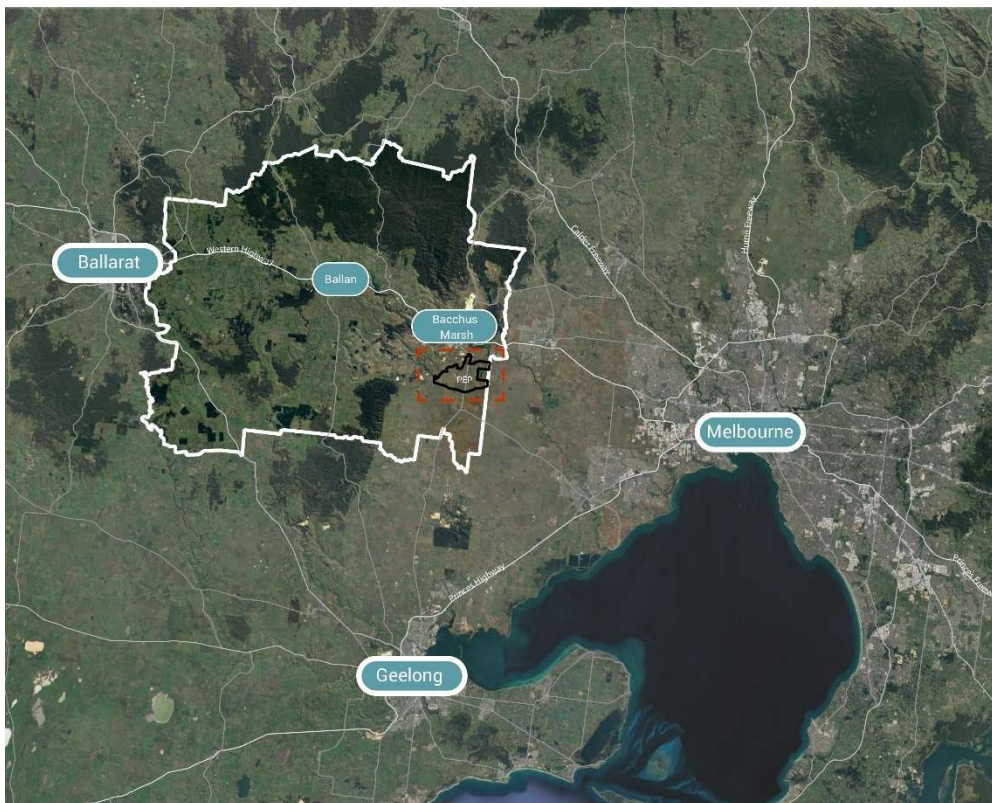
At the time this Scoping Study was commissioned, the vision for the Precinct was to attract a mix of private agribusiness investment and a complementary range of industrial uses, supported through infrastructure provision, to increase the value of the Shire's exports and stimulate job creation.

This report provides economic and property market research to inform the preparation of a refreshed land use vision and planning framework. The findings are based on research and stakeholder consultation which lead to a clearer articulation of the Precinct's competitive advantages, market trends and vision for future development.

## PARWAN EMPLOYMENT PRECINCT

The PEP (see Figure S1) is located in Parwan, Moorabool Shire, situated 5km south of Bacchus Marsh. The Precinct covers an area of approximately 2,500 hectares and is centrally positioned to several major urban centres including Melbourne (CBD is 45km to the east), Geelong 50km to the south and Ballarat 55km to the west.

**FIGURE S1 PARWAN EMPLOYMENT PRECINCT – REGIONAL CONTEXT**



Source: Urban Enterprise.

<sup>1</sup> Referred to in previous studies and announcements as either the Parwan Agribusiness Precinct or the Parwan Employment Precinct.

There are a variety of current land uses and businesses within the Precinct, primarily across the uses of intensive agriculture, aviation (Bacchus Marsh Aerodrome), rural living and light industrial. Spatially, the western section contains the Aerodrome and associated services, the central section accommodates agriculture and related uses and the eastern section has larger lot sizes used for agriculture and recreation purposes.

Land is primarily zoned and used for farming purposes, although the recent rezoning of the Industrial 1 Zone (to the south-east) is likely to serve as a catalyst for urban development in part of the Precinct.

Landownership is relatively concentrated in parts of the Precinct and several major landowners have progressed plans to develop land primarily for urban industrial and business purposes.

## PRECINCT ATTRIBUTES AND STRATEGIC CONTEXT

The Precinct has several strategic attributes and advantages that will drive property development and business demand:

- **Location and accessibility.** The PEP is strategically located in between key urban and regional centres, including Melbourne, Geelong, Ballarat and growth areas in Bacchus Marsh. This provides access to a significant population base, labour force and industry/economic base. In addition, the land is in close proximity to the urban growth area of Melton, which will influence the land use opportunities.
- **Transport.** The Precinct is proximate to major arterial roads and freeways, including the Western Freeway (which provides access to Melbourne and Ballarat), as well as the Geelong-Bacchus Marsh Road which provides access to Geelong and Bacchus Marsh and is also the main road travelling through the Precinct. These arterials facilitate freight and general traffic to the area. In addition, rail is also accessible via Bacchus Marsh station and potentially in the future at Parwan Station (to the north).
- **Aerodrome opportunities.** There are many potential opportunities for Bacchus Marsh Aerodrome (BMA) development, in the context of aviation growth as well as complementing future development of the Precinct. These include:
  - Aviation-related opportunities: air charters (servicing business activity), corporate jet operations, helicopter movements, air freight (movement of product produced within the PEP); and
  - Potential synergistic opportunities with the PEP: aviation education and training (as an extension to current operations), regional aerospace manufacturing and maintenance, solar farms (to reduce power costs).

The future development of the Precinct is largely dependent on the provision of appropriate infrastructure. A review of current infrastructure and services identified the following main constraints that require further investigation and investment:

- The electricity network is nearing capacity with upgrades likely needed in the short term;
- The topography is difficult for gravity sewers, with rising mains and pump stations expected; and
- Undulating terrain makes drainage modelling difficult.

Infrastructure network planning is currently being undertaken by Council, Powercor and Greater Western Water.

## DEVELOPMENT POTENTIAL

Consultation was undertaken with key stakeholder groups to understand the issues and opportunities that could inform development of the Precinct, including landowners, businesses, government, real estate agents and service authorities. The following key strategic considerations for future development of the Precinct were identified:

- There are currently several landowners and businesses with plans for significant investment and development in the Precinct. However, catalyst infrastructure is required in order to facilitate and accommodate this, including gas (City Gate currently under construction), electricity, water and enabling infrastructure.
- The strategic locational advantages of the precinct will drive demand for property and business, primarily the proximity to nearby regional centres, proximity to Melbourne, transport linkages and access to rail, air and port freight.

- There is strong market and developer interest in increasing the supply of employment land in Bacchus Marsh. Although there is also interest in agricultural land in the broader region, market demand is expected to be stronger and more reliable for a mix of urban employment land and properties which accommodate businesses which add value to existing agricultural uses in the area.
- Market sounding identified a major opportunity to develop a cluster of symbiotic industrial businesses which could contribute to 'circular economy' objectives, such as energy, waste and resource-focused businesses, leveraging the opportunities and infrastructure brought forward by the approved Protein Recovery Facility.
- The Precinct also has the potential to provide a value-add to existing agricultural and food manufacturing businesses, through processing, packaging and distribution.

## **ECONOMIC AND MARKET ANALYSIS**

An economic and market analysis was prepared to provide the evidence base for future land use recommendations. This included a review of key industry growth drivers, as well as regional demographic and economic indicators that will influence the development of the Precinct.

The analysis revealed the following key findings which are relevant to Precinct development:

- There are a range of macro-economic trends influencing the direction of agriculture and energy/resource consumption that could impact the development of the PEP, including global demand for food production, agricultural innovation and new energy technologies.
- Moorabool's economy is driven by agricultural activities, extractive industries, tourism and population & professional services. In particular, agriculture and extractive industries are key propulsive sectors with strong local supply chains and export value that could drive future economic growth. As such, the PEP could facilitate this growth and supporting these primary industries in terms of future land use opportunities. This could include support through production, providing value-add or contributing to the supply chain (by leveraging its strategic location and existing and future access to transport/freight infrastructure).
- Agricultural growth in rural areas close to Melbourne will be driven by nursery, horticulture and food production rather than 'traditional' broadacre farming. Any agricultural uses within the Precinct would need to be higher value intensive uses and businesses supporting agricultural businesses elsewhere, such as food processing, packing and distribution.
- The region will experience strong population and urban growth, especially around Bacchus Marsh, Melton and Wyndham, which will require increases in infrastructure and services and drive demand for urban employment land.

## **LAND DEMAND AND SUPPLY**

A review of land demand and supply conditions for relevant land uses resulted in the following findings:

- There are limited examples of successful agribusiness precincts in Victoria and several other employment precincts in the region have been identified as strategic locations for certain types of industrial and/ or agribusiness uses. It is therefore critical to differentiate the land use vision and role of the precinct based on the competitive advantages of the location.
- Melbourne's west contains a substantial quantum of employment land; however this land is rapidly being consumed and is the strongest demand location for industrial land in Melbourne.
- There is limited employment land available in Moorabool Shire, although larger stocks are available in Ballarat and Geelong. The western section of Melton does not contain any further proposed employment precincts that would be located close to Parwan, and there are no other major employment precincts planned in or around Bacchus Marsh.
- There is significant demand for employment land in Bacchus Marsh including commercial and industrial which is currently not being met. Demand modelling estimates a need for an urban industrial and commercial precinct of approximately 190 hectares to support long term population and business growth in Bacchus Marsh.

- Across metropolitan Melbourne, there are very few locations where businesses seeking large buffers to sensitive uses can be accommodated (such as in the Industrial 2 Zone) due to the widespread presence of residential land and interfaces.
- The experience of landowners and state government agencies in fielding interest from large businesses indicates that the scale of land demand for the precinct is likely to be considerably greater than simply accommodating local business demand and 'overflow' from metropolitan areas.
- Other business demand is anticipated to respond to the competitive advantages of the precinct, in particular businesses seeking to respond to increased aviation activity, capitalise on infrastructure improvements for agri-business purposes and co-locate with the Protein Recovery Facility as part of a specialised circular economy precinct.

## **PRECINCT VISION AND RECOMMENDATIONS**

The recommended land use vision for the Precinct is as follows:

**Parwan will be a unique enterprise precinct that is well serviced and has been progressively and deliberately developed over time to meet both local and global economic opportunities.**

**The precinct will attract businesses and investors across the industrial, commercial, agri-business and aviation sectors to capitalise on the locational advantages, strategic infrastructure investment and the place brand as a location of choice for investors in the circular economy.**

The following attributes of the Precinct should underpin the value proposition for businesses and investors:

- The precinct offers a unique opportunity for businesses to operate on large properties close to a growing labour force, produce source, consumption source and transport infrastructure yet separated from sensitive uses.
- The precinct has a catalyst development (Protein Recovery Facility) which is driving infrastructure investment and partnerships between stakeholders. Other land in the precinct can leverage and benefit from this investment over time.
- The precinct has a catalyst land use that will drive an identity and create a brand value which will appeal to investors and businesses involved in the circular economy.
- There is potential for businesses to develop a place brand that aligns with the Moorabool image and identity which draws heavily on the environmental values of the area.
- The precinct is located adjacent to major infrastructure assets which can be leveraged to provide efficient delivery of gas, sewerage and water.

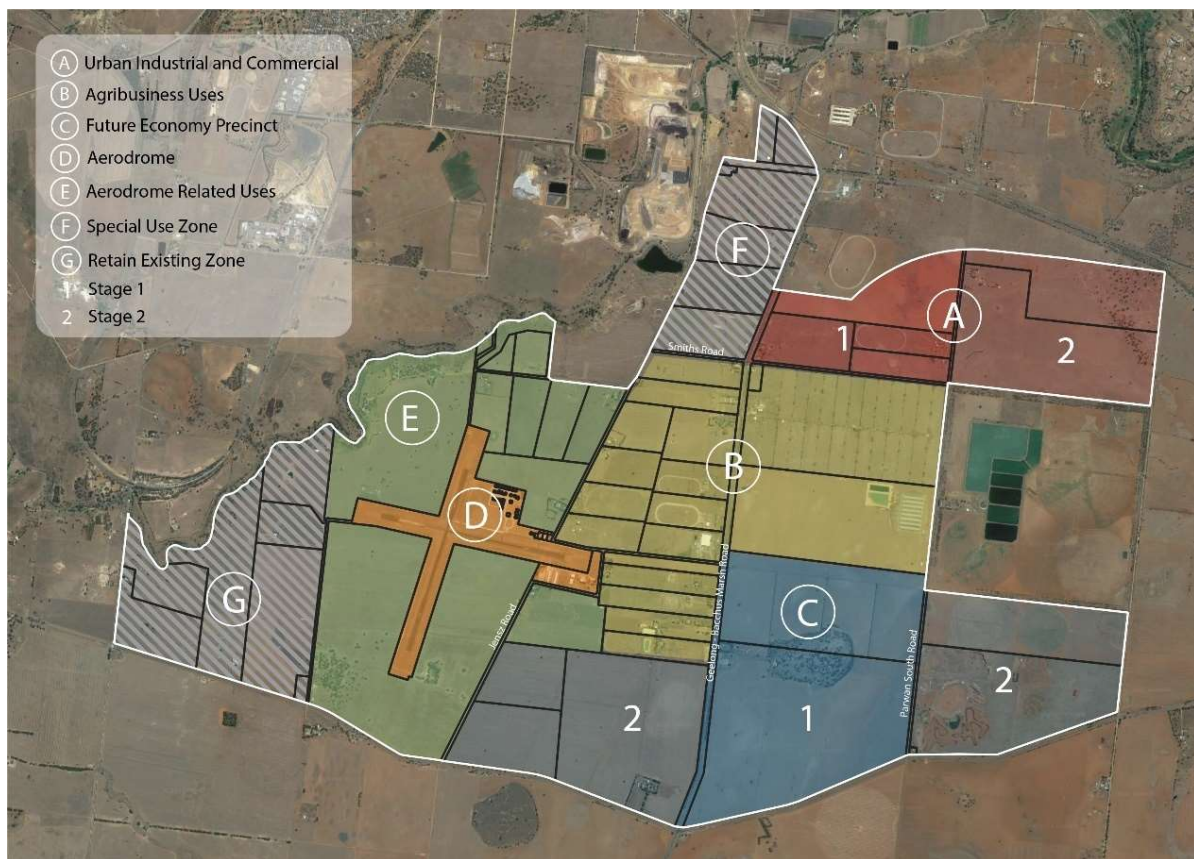
Four broad land use sub-precincts are recommended as summarised in Table S1 and shown in Figure S2.

**TABLE S1 LAND USE RECOMMENDATIONS SUMMARY**

Sub-precinct	Role / Catchment	GDA (ha)	Staging
A: Urban industrial and commercial	District	290 ha	First stage west of Parwan S. Rd (114ha)
B: Agribusiness uses	Regional	465 ha	Infrastructure led
C: Future economy	State	500 ha	First stage IN1Z (190ha) and adjacent land to north
D: Aerodrome	Regional	N/A	Based on Aerodrome Masterplan
E. Aerodrome related uses	Regional	135 ha	Commence with sites adjacent aerodrome
F: Special Use Zone	Subject to further investigation		
G: Farming west of aerodrome	Retain existing zone		

Source: Urban Enterprise. GDA is based on property area minus airport land and any apparent encumbrances including steep land, waterways and associated setbacks and areas of potential cultural sensitivity (based on Bacchus Marsh UDF).

**FIGURE S2 RECOMMENDED LAND USES AND SUB-PRECINCTS**



Source: Urban Enterprise. Note: land areas and boundaries are indicative only and subject to refinement / change based on more detailed planning.

## PLANNING CONSIDERATIONS

Most land within the Precinct is currently in the Farming Zone. The vision for the PEP is for a more intensive employment and production-focussed precinct, requiring substantial infrastructure provision and planning controls which align with the vision. Although the Farming Zone permits a range of agricultural and related uses to occur within the precinct, the use and development of land for more urban industrial and related activities is not possible within the zone. Importantly, the Farming Zone has a minimum subdivision area of 100 hectares in this location.

The Farming Zone will not enable the realisation of the vision. This requires consideration of the most suitable alternative planning zones which align with the vision and will facilitate investment, development and business attraction.

The Industrial 1 Zone, Industrial 2 Zone and Commercial 2 Zone could potentially, if applied in conjunction, facilitate the land use vision for Precincts A, C and E, while the only rural zone potentially aligned with the PEP vision is the Rural Activity Zone which may be able to be adapted to achieve the land use vision of the Agribusiness sub-precinct.

Importantly, the PEP vision is for a relatively specialised and complex mix of land uses across the precinct which will require close consideration of the interfaces between precincts and the land uses that are to be encouraged within each precinct (including any siting and interface issues to avoid land use conflicts within the PEP). In this context, the direct application of a combination of the above zones may not lead to the best planning outcome, warranting consideration of special purpose zones and a precinct-wide approach to planning.

Closer examination of land use buffers, interfaces and necessary overlays should form part of detailed planning for the precinct as only general analysis is included in this Scoping Study. At a minimum, the following overlays should be applied:

- Airport Environs Overlay;
- Flood / inundation overlays; and
- Development Contributions Plan Overlay (or similar).

## INFRASTRUCTURE CONSIDERATIONS

Initial estimates show that there is a substantial scale and cost of catalyst and enabling infrastructure works required to facilitate development across the Precinct. Priority projects and major trunk mains have a combined estimated cost of \$93m. Although some of these works can be staged as development progresses, others (especially the gas City Gate<sup>2</sup>, new power sub-station, extension of water supply mains and sewer pump stations in each sub-precinct) require substantial upfront funding to enable development to commence.

In these circumstances, a critical consideration is infrastructure funding and cost apportionment. Before overall infrastructure requirements can be finalised, quantified and costed in detail, an Integrated Infrastructure Strategy should be prepared covering all infrastructure types. This requires input from all relevant infrastructure authorities and can build on the current *PEP Power, Water and Sewer Network Planning* project<sup>3</sup>. An important aspect of finalising the Strategy will be arranging multi-lateral funding agreements between landowners, Council, infrastructure authorities and State government.

A list of recommended next steps, including both planning and infrastructure actions, is provided in Section 8 of this report.

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<sup>2</sup> The gas City Gate is currently under construction and expected to be completed in mid-2022.

<sup>3</sup> A joint project between Regional Development Victoria, Moorabool Shire Council, Powercor and Greater Western Water expected to conclude in late 2022.

# 1. INTRODUCTION

## 1.1. ENGAGEMENT

Moorabool Shire Council (Council), in partnership with the Victorian Planning Authority (VPA), commissioned Urban Enterprise to undertake a Scoping Study for the Parwan Employment Precinct (Precinct or PEP<sup>4</sup>).

At the time this Scoping Study was commissioned, the vision for the Precinct was to attract a mix of private agribusiness investment and a complementary range of industrial uses, supported through infrastructure provision, to increase the value of the Shire's exports and stimulate job creation. 'Agribusiness' means that part of the economy which works across the whole supply chain relating to agricultural products, including the production of inputs (i.e. farming), followed by the processing and wholesaling of goods.

This report provides economic and property market research and a refreshed land use vision and planning framework. The findings are based on research and stakeholder consultation which lead to a clearer articulation of the Precinct's competitive advantages, market trends and vision for future development.

## 1.2. PROJECT DRIVERS

The opportunities and outcomes envisaged for the Precinct through previous analysis are as follows:

- Providing for employment opportunities to support the population of Bacchus Marsh;
- To support the growth and development of existing agribusinesses in the precinct;
- To build on the existing brand of Bacchus Marsh and Moorabool Shire as an agricultural region offering unparalleled access to Melbourne and key transport hubs; and
- Synergy with the Bacchus Marsh Irrigation District and the future Western Irrigation Network, which would enable Moorabool Shire to cement its position and deliver increased economic prosperity, as aligned with the region's regional and rural identity.

## 1.3. SCOPE OF WORK

Urban Enterprise (planning and economics), in conjunction with CardnoTGM (civil engineering) and Syd Herron (aviation and airport consultant), has prepared this report through the following scope of work:

- A peer review of existing studies and identify information gaps which will need to be addressed recommended steps to resolve key issues identified;
- Targeted consultation with key stakeholders to discuss the key issues and opportunities for the precinct;
- Review the Precinct's existing situation including current utilisation, aerodrome implications, key attributes, strategic advantages and disadvantages;
- Undertake an economic assessment of current market conditions and land demand/supply trends which will impact the development of the PEP and influence future investment;
- An analysis of relevant case studies and competing precincts to identify advantages and disadvantages;
- A SWOT analysis for the Precinct, which helps define the value proposition and strategic vision;
- An overview of the issues and opportunities for the Precinct; and
- A land use vision and planning framework.

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<sup>4</sup> Referred to in previous studies and announcements as either the Parwan Agribusiness Precinct or the Parwan Employment Precinct.

## 2. PARWAN EMPLOYMENT PRECINCT

### 2.1. OVERVIEW

This section summarises the key spatial, planning and infrastructure elements that will shape the opportunities in the Precinct.

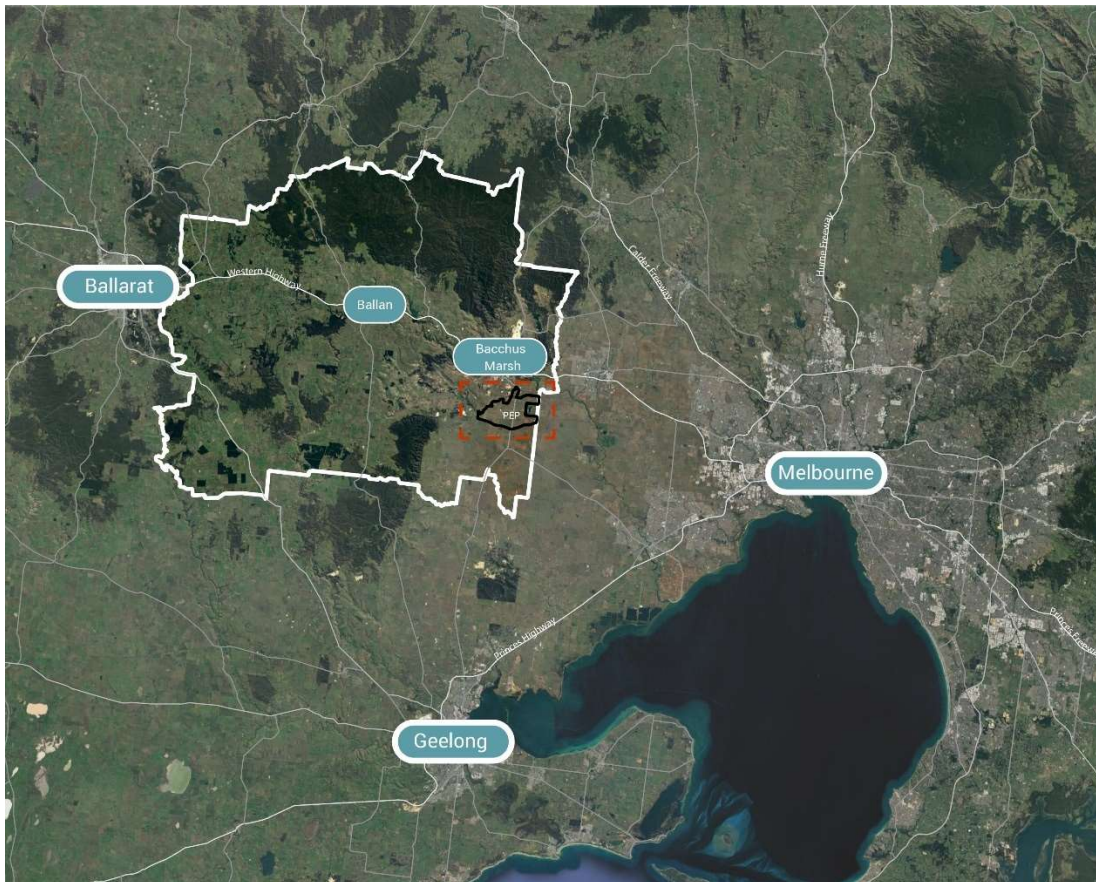
A situation analysis has been undertaken to provide direction for the future economic role of the precinct in the context of the local and regional environment. Key considerations for future development opportunities are based on the ongoing economic and employment role and land uses in the surrounding industrial and agriculture precincts.

### 2.2. THE PRECINCT

The PEP is located in Parwan, Moorabool Shire, situated 5km south of Bacchus Marsh. The Precinct covers an area of approximately 2,500 hectares and is centrally positioned to several major urban centres including Melbourne (CBD is 45km to the east), Geelong 50km to the south and Ballarat 55km to the west.

The location of the Precinct and broader context is illustrated in Figure F1.

#### F1. PARWAN EMPLOYMENT PRECINCT – REGIONAL CONTEXT

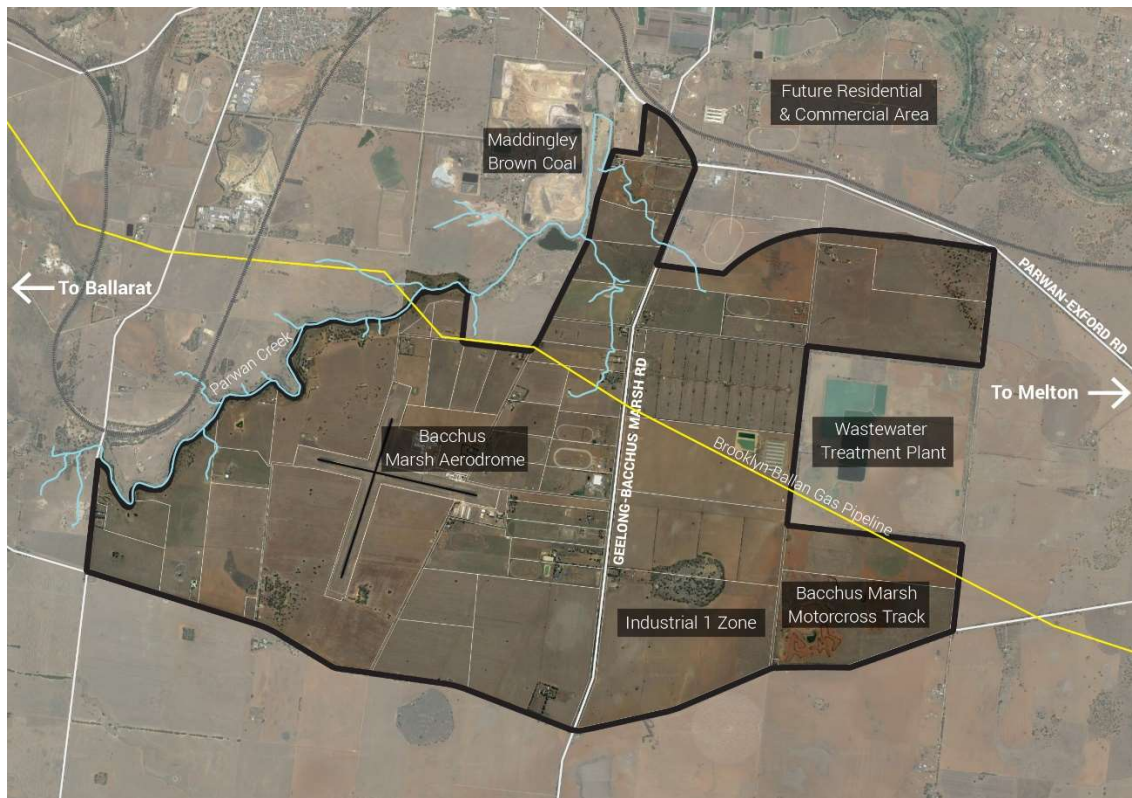


Source: Urban Enterprise.

The Precinct incorporates over 80 properties and is currently primarily used for agriculture, aviation and recreation purposes. Key businesses and facilities include the Bacchus Marsh Aerodrome (Aerodrome or BMA), Bacchus Marsh Motocross Track and Parwan Valley Mushrooms.

Figure F2 shows properties and major land uses within and adjacent to the PEP.

## F2. PARWAN EMPLOYMENT PRECINCT



Source: Urban Enterprise.

### 2.2.1. EXISTING LAND USES

As shown in Table T1, land use within the PEP includes a combination of intensive agriculture, grazing, equine, aviation, recreation and some low intensity industrial uses. Spatially, the following uses are noted:

- The western section of the Precinct contains the Aerodrome and associated aviation services;
- The central section of the precinct along Geelong-Bacchus Marsh Road accommodates intensive agriculture, grazing, rural living and equine uses, generally on smaller lot sizes;
- The eastern section of the precinct has generally larger lot sizes primarily used for grazing, intensive agriculture and recreation purposes.

Surrounding land uses of note include the Bacchus Marsh Wastewater Treatment Plant immediately to the east of the Precinct, and the Maddingley Brown Coal mine to the north-west of the precinct.

### T1. EXISTING LAND USE SUMMARY

Agriculture	Aviation-related uses	Light Industrial	Other
Mushroom farming	Aerodrome	Transport	Bacchus Marsh Motocross Track
Broiler farm	Pilot Training		Equine / Horse Keeping
Grazing	Gliding Club		

Source: Urban Enterprise.

## 2.2.2. LAND AREA

The Precinct has a gross land area of approximately 2,534 hectares.

Some sections of the precinct are occupied by uses that are unlikely to be redeveloped for employment purposes, such as the Bacchus Marsh Aerodrome and the Bacchus Marsh Motocross Track (which has a heavily modified landform). Land in the northern section of the precinct is in the Special Use Zone with future zoning options under consideration as part of the Maddingley Planning Study.

When these areas are deducted from the area calculations, the remaining gross land area is approximately 2,176ha.

### T2. PARWAN EMPLOYMENT PRECINCT – GROSS LAND AREAS

Land Use	Approximate Land Area
<b>Total PEP</b>	<b>2,534 ha</b>
<i>Bacchus Marsh Aerodrome</i>	<i>90 ha</i>
<i>Northern Precinct (SUZ1)</i>	<i>152 ha</i>
<i>Bacchus Marsh Motocross Track (CDZ)</i>	<i>116 ha</i>
<b>Existing Uses and Special Use Zones</b>	<b>358 ha</b>
<b>Indicative Gross Land Area available for alternative purposes / development</b>	<b>2,176 ha</b>

Source: Urban Enterprise. Gross land area includes all properties, roads and natural features within the precinct boundary.

## 2.2.3. PLANNING CONTROLS

As shown in Table T3, several planning zones currently apply to the Precinct, including Farming Zone, Special Use Zone, Industrial 1 Zone and Comprehensive Development Zone. Each major zone is summarised below:

### T3. PLANNING CONTROLS SUMMARY

Zone	Approximate Gross Land Areas	
	Ha	% of total
Farming Zone	2,075	82%
Industrial 1 Zone	191	8%
Special Use Zone	152	6%
Comprehensive Development Zone	116	4%
<b>Total</b>	<b>2,534</b>	<b>100%</b>

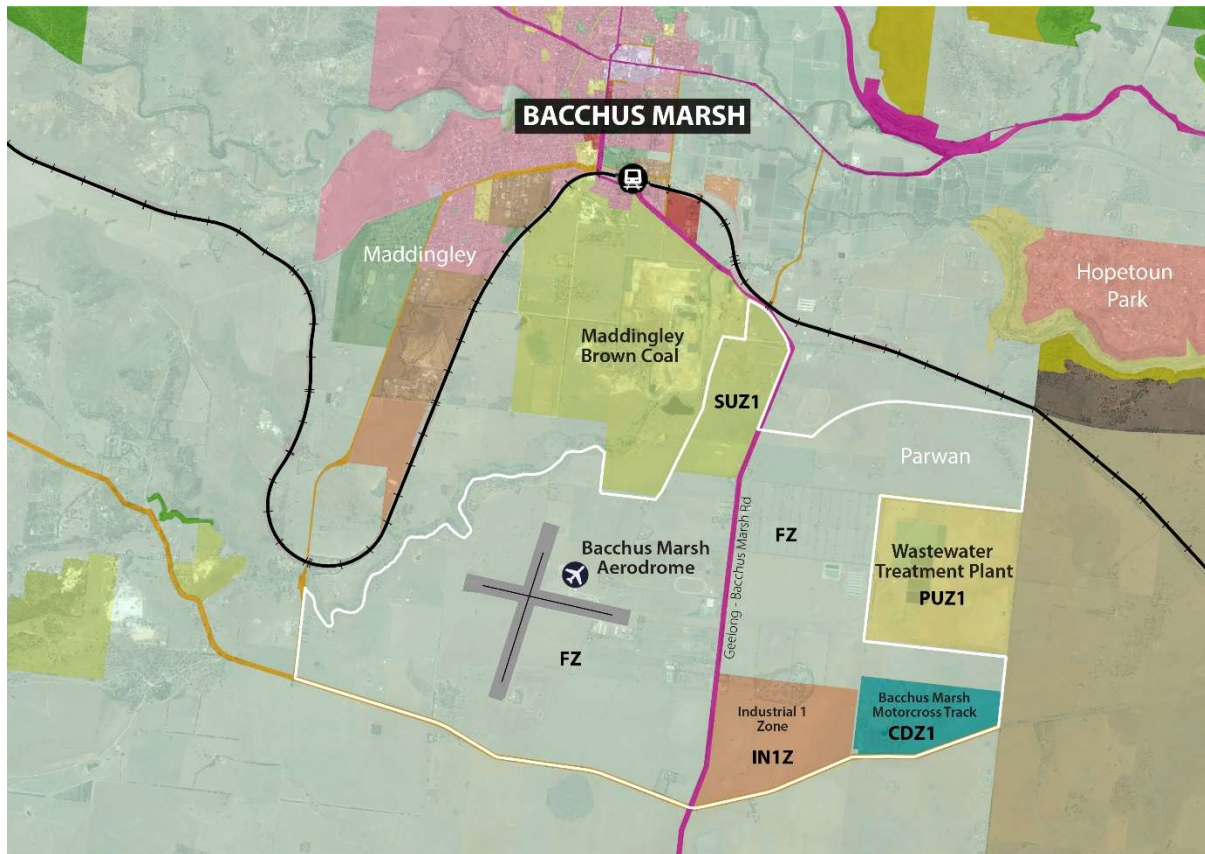
Source: Urban Enterprise.

The following observations regarding existing planning controls and land uses are made:

- Existing land uses operating in the **Farming Zone** include a mushroom farm, the Aerodrome, rural lifestyle properties and equine properties.
- The **Industrial 1 Zone** was applied to a single property referred to in the Moorabool Planning Scheme as the 'Moorabool Agribusiness Area'. In 2019, a Development Plan was approved for the site for a large-scale industrial precinct, with a permit issued for a Protein Recovery Facility (rendering plant) as the development's first stage.
- The **Special Use Zone** applies to 152 hectares of land in the northern section of the PEP. The purpose of SUZ1 is to provide for the use and development of land for coal mining. SUZ1 applies to this land as well as the adjacent Maddingley Brown Coal mine.<sup>5</sup>
- The **Comprehensive Development Zone** applies to a single property currently used for the Bacchus Marsh Motocross Track.

<sup>5</sup> The Maddingley Planning Study (p.15 point 3) recommends removing the SUZ from this area, however the Study is yet to be implemented.

### F3. PARWAN EMPLOYMENT PRECINCT – PLANNING ZONES



Source: Urban Enterprise.

#### 2.2.4. LAND USE BUFFERS

Land in the precinct is subject to a range of land use buffers required to mitigate the potential impact of business operations both within and adjacent to the Precinct.

Figure F4 shows the various buffers which affect the precinct as identified in the Bacchus Marsh Urban Growth Framework. The four main buffers that will impact future Precinct development are:

- Maddingly Brown Coal mine, which has a buffer distance of 1km from the mining license area and 2km from composting operations on the site – these buffer areas affect land in the north-western section of the Precinct;
- Mushroom farm – buffer distance of 400m in the centre of the Precinct;
- Wastewater Treatment Plant (WTP) – buffer of 1,400m which affects land in the north-eastern section; and
- The approved rendering plant and proposed abattoir planned for the Industrial 1 Zone, which would introduce a new buffer with a distance of 1,000m affecting land in the south-eastern section of the Precinct.

A broiler farm within the PEP near the WTP has a buffer area which affects land in the PEP, while a second broiler farm is currently located within the Parwan Station Precinct with a buffer which extends into the northern part of the PEP. The broiler farm buffers are not shown in Figure 4 but are identified in the buffers map in Appendix F.

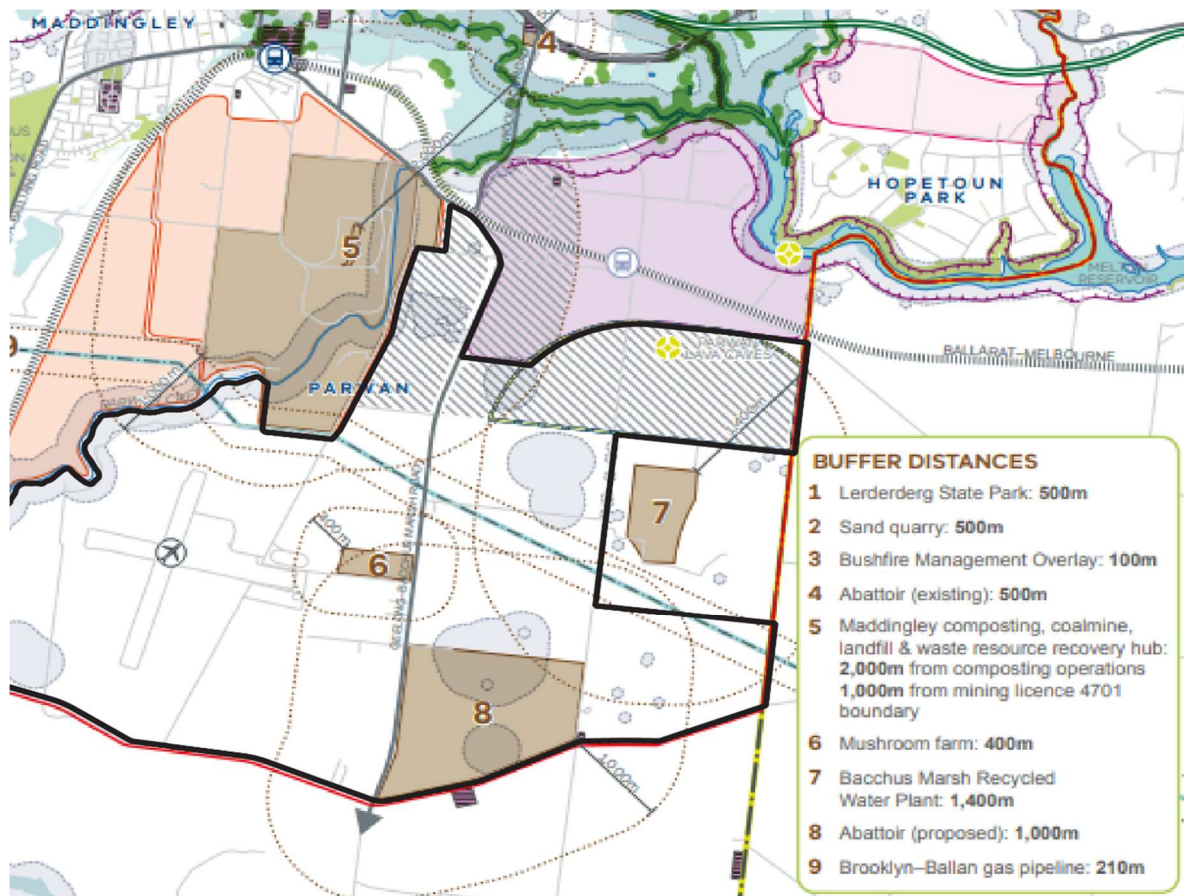
The above buffers generally restrict the use of land within the Precinct for sensitive land uses.

In addition, the designation of the proposed Parwan Station residential growth area to the north of the PEP means that reverse amenity buffers also apply to land in the northern sections of the Precinct (shown hatched in Figure F4). This means that land uses with off-site amenity impacts are restricted within these areas.

An Airport Environs Overlay (AEO) applies to land within and adjacent to the Bacchus Marsh Aerodrome – this overlay enables certain sensitive uses in the vicinity of the airport to be prohibited.

Despite the number and complexity of land use buffers within the Precinct, few buffer areas are well defined in the Planning Scheme – this is a key opportunity for future planning controls to formalise and define and is discussed further in Section 8 (Planning Framework).

#### F4. PARWAN EMPLOYMENT PRECINCT – PLANNING BUFFERS



Source: Bacchus Marsh Urban Growth Framework, VPA, 2018.

#### 2.2.5. PROPERTY PROFILE

Figure F5 shows property sizes across the precinct, with larger lots (many exceeding 50ha) generally in the western and eastern sections of the precinct and medium lots (commonly in the order of 15ha) in the central section.

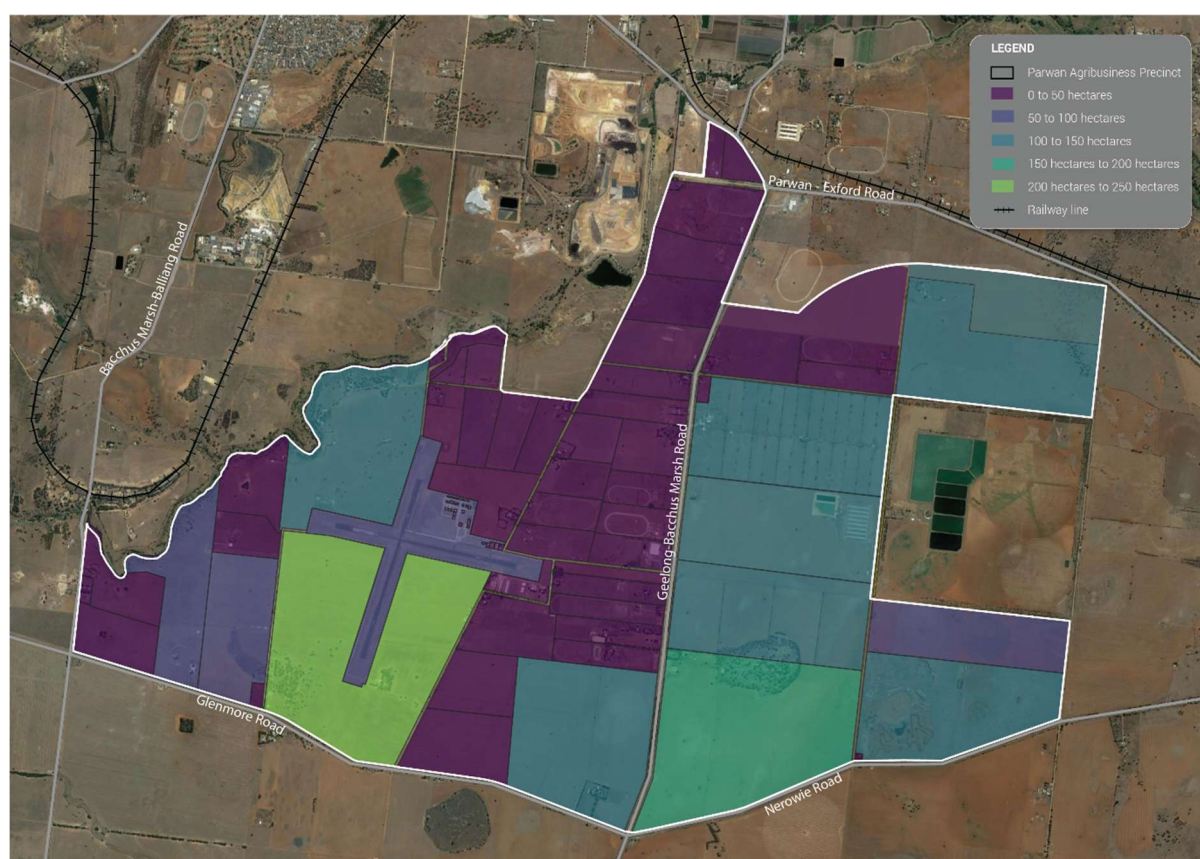
In terms of land ownership, most land is in private ownership, with the exception of the Aerodrome site which is owned by Council. Consultation undertaken for the project identified that several major properties are owned by organisations for the purpose of future development.

Although there are 80 separate properties in the precinct, several major landowners own multiple properties, either directly or through family groups. This includes:

- A family group which controls a large proportion of the land in the north-eastern section of the Precinct;
- A family group who has partnered with a development business and control all land in the Industrial 1 Zone and several adjacent lots, along with substantial land holdings to the immediate south of the Precinct; and
- A development company which owns a large land holding near the aerodrome.

These landowners control a significant proportion of the Precinct and have each progressed initial plans to develop the land, primarily for urban industrial and business purposes.

## F5. PARWAN EMPLOYMENT PRECINCT – LOT SIZE PROFILE



Source: Urban Enterprise.

### 2.3. AERODROME USES AND OPERATION

The Aerodrome is located on land owned by Council and is operated by Bacchus Marsh Aerodrome Management (BMAM). BMAM comprises representatives of Council, aerodrome hangar owners, aerodrome users' group, gliding clubs (the Geelong Gliding Club, Melbourne Gliding Club and the Beaufort Gliding Club), and the Tarago Valley School of Aviation (a power flying school).

The Aerodrome is a General Aviation (GA) facility, and it is not currently used by any Regular Public Transport (RPT) services. It includes two runways – one oriented north-south (1,554 metres) – and the other oriented east-west (1,524 metres), both of which are uncertified.

The primary use of the aerodrome is for pilot training, recreational/sporting aviation (e.g., gliding) and private flying activities. Firefighting aircraft are also based at the aerodrome on a seasonal contract, providing the only fixed-base aerial fire-fighting capability in the immediate western districts of Victoria. In addition, the Aerodrome includes the Australian Gliding Museum.

TVSA Pilot Training, Interplane Maintenance, Melbourne Flight Academy, Flytech Solutions, and gliding clubs all use the Aerodrome as the base for their operations. There are over 500 members across the three gliding clubs and museum at the aerodrome.

There are also a number of private aircraft owners who store their aircraft in hangars at the aerodrome and use the facilities and infrastructure on a regular basis. Aircraft owners either own their own hangar, or rent space in a hangar, or park their aircraft outside. This increases the stakeholder numbers to in excess of 600, and ongoing applications from prospective new tenants to base their operations at the facility means that this number is expected to increase in the future.

A list of the major Aerodrome tenants and users and related business/activity is provided in Table 4.

#### T4. BACCHUS MARSH AERODROME MAJOR TENANTS AND USERS

Major Tenant	Business and/or Activity
TVSA	Pilot training
Leading edge aviation	Pilot training
Leading edge aviation maintenance	Aircraft maintenance
Geelong Gliding Club	Gliding
Melbourne Gliding Club	Gliding
Beaufort Gliding Club	Gliding

Source: Syd Herron, 2021.

#### LEASE ARRANGEMENTS

In December 1993, Council entered into a peppercorn lease with BMAM for the Bacchus Marsh Aerodrome. The aerodrome is managed by a volunteer-based committee and is operated on a 'no cost to council' arrangement with the lessee. The management responsibility for the aerodrome lies in the first instance with the BMAM Committee. As the landowner and BMAM Committee member, Council also has a liability responsibility.

Under the terms the long-term lease (which was renewed on 21st December 2018 to 2043), BMAM has the following contractual obligations to Council in relation to access and operation of the aerodrome:

- Plan the development of the aerodrome;
- Operate and maintain the aerodrome; and
- Together with Council, develop the aerodrome.

#### MASTERPLAN

A Draft Bacchus Marsh Aerodrome Masterplan was issued in May 2022 and will be considered for adoption by Council in mid 2022. The relevant findings of the report are considered in Section 5.4 of this report.

#### 2.4. KEY FINDINGS

- **The Precinct covers an extensive area of land of more than 2,500 hectares, greater than the entire urban area of Bacchus Marsh.**
- **There are a variety of current land uses and businesses within the Precinct, primarily across the uses of agriculture, aviation, recreation and light industrial.**
- **Land is primarily zoned and used for farming purposes, although the recent rezoning of the Industrial 1 Zone permits 'urban' development in the southern part of the Precinct.**
- **There are a concentrated number of private landowners that control a significant proportion of Precinct land, which will influence the future direction of the PEP.**
- **The existence of the Aerodrome, close to the centre of the Precinct, presents many issues and opportunities for development.**

## 3. LITERATURE REVIEW

### 3.1. OVERVIEW

Council and the VPA has commissioned the following reports to inform the development of the PEP concept:

- Agribusiness Analysis of the Proposed Parwan Employment Precinct, CBRE (March 2015);
- Parwan Employment Precinct Business Case, SED (March 2018);
- Parwan Employment Precinct Planning Study, SED (April 2018);
- High Level Servicing and Infrastructure Assessment Report of Parwan Station PSP And Parwan Employment Precinct, Reed Consulting (April 2020)

This section provides a review of these studies and commentary on key issues.

### 3.2. AGRIBUSINESS ANALYSIS

The Agribusiness Analysis of the Proposed Parwan Employment Precinct, CBRE (March 2015) provides an analysis and evaluation of the current and prospective employment activities within the Precinct, with a specific focus on increasing long term sustainable employment through agribusiness focused activities.

The report provides specific recommendations for the key agribusiness sectors that are most compatible with the precinct, including:

- Hydroponics;
- Mushroom production;
- Bulk distribution; and
- Red/white meat processing.

In order to attract businesses within these sectors, the report also highlights the infrastructure requirements for the precinct and recommends the key initiatives for direct services that should be undertaken by Council, including: improved road linkages (i.e., freeway access), provision of natural gas and water infrastructure, NBN connection, town planning provisions and rate subsidies. This includes allocation of funding responsibility to deliver these initiatives.

The focus of the report is relatively narrow, in that the potential uses examined relate primarily to uses which would expand on or complement the existing land uses in the Precinct, as opposed to considering the broader strategic context and the range of land uses that could be attracted.

#### **Parwan Employment Precinct Business Case**

The Parwan Employment Precinct Business Case (SED, March 2018) develops the economic argument for the development of the Precinct. The approach was to reconcile the development of the precinct in the context of the following three development scenarios:

- Base Case – development that is not dependent on infrastructure investment;
- Scenario 2 (medium) – development based on 'known' business expansion plans and associated investment to facilitate this expansion; and
- Scenario 3 (high) – the optimum development scenario that provides a high-level of infrastructure investment to competitively position the precinct and attract new businesses (in addition to 'known' business interest).

The development scenarios were informed by existing planning provisions and land uses, identification of expansion plans by existing businesses, proximity to services and buffer requirements. The Business Case then outlines the infrastructure and development requirements for each scenario.

Importantly, Scenarios 2 and 3 consider the extent to which the precinct could accommodate new economic activity, categorised as 'known' and 'unknown' activity. Scenario 2 responds to 'known' activity, which is identified through expansion plans of existing businesses, as well as recent interest from current businesses seeking to relocate. Scenario 3 is based on a qualitative competitiveness assessment that considers the precinct's existing attributes and identifies additional infrastructure requirements (e.g., utilities, transport) that could improve the Precinct's competitive position and attract additional business investment.

The report recommends Scenario 3 (the high infrastructure scenario) – based on a cost-benefit assessment – to maximise the Precinct's competitive advantages and support greater levels of business investment/attraction. The recommended scenario is estimated to generate the highest level of investment, economic value-add and employment outcomes (1,560 FTE).

### **Parwan Employment Precinct Planning Study**

The Parwan Employment Precinct Planning Study (SED, April 2018) provides an analysis of planning issues and opportunities for the Precinct. This forms part of a broader investigation of the suitability of the precinct for future development and builds on the recommendations provided in previous reports and assessments, specifically the recommendations pertaining to development Scenario 3 (high investment) from the Business Case.

The Study provides an overview of the relevant supporting strategies and major projects that could influence the role and function of the precinct, as well as the strategic justification and planning rationale for the project. This includes commentary on the rezoning of land to the Industrial 1 Zone to form the Moorabool Agribusiness Industrial Area (MAIA). This is a key land use change within the precinct to support further development of industrial uses. This positions the MAIA as a food processing and industrial hub, with key land uses to be accommodated including the proposed abattoir and rendering plant, warehousing and distribution, service industries and agribusiness.

The Study also recognises that development of the precinct is influenced by the timing of interrelated projects. There is a focus on the Eastern Link Road project to improve connectivity to the Western Freeway for greater levels of industry attraction to support the employment creation opportunities outlined in the Business Case.

Finally, the report identifies that the next step in the planning process is to prepare a Precinct Structure Plan (PSP) and Development Contributions Plan (DCP), which would finalise the various elements of the study that are proposed but not fully resolved. Specific recommendations for further technical work include:

- An ecological assessment for the areas requiring further investigation as identified in the Parwan Employment Precinct Biodiversity and Cultural Heritage Review and Sensitivity Mapping report prepared by RMCG. This will also confirm if there is benefit in preparing a native vegetation precinct plan for the PEP.
- Transport assessment; and
- Infrastructure delivery plan and associated costings which includes drainage and gas reticulation.

### **High Level Servicing and Infrastructure Assessment Report of Parwan Station PSP And Parwan Employment Precinct**

The High-Level Servicing and Infrastructure Assessment Report of Parwan Station PSP And Parwan Employment Precinct (Reeds Consulting, April 2020) provides an overview of the Precinct infrastructure, designed to aid in planning and designing the subject site. This includes an assessment of the:

- Road Network – an overview of the existing roads in the vicinity and upgrades required;
- Sewer Infrastructure – identifying upgrades required to cater for additional demand;
- Water Infrastructure – review of water categories available and suitable uses;
- Electrical Infrastructure – reviewing the capacity to service users of the Precinct;
- Gas Infrastructure – examining the existing gas transmission pipeline; and
- Telecommunications – examining the assets within the Precinct, including provision of an NBN service.

The report also includes relevant information relating to the provision of additional infrastructure required to cater for the estimated increase demand on the services. However, this is still dependant on specific business land use.

The report highlights the substantial infrastructure investment that is required to support a land use change towards agribusiness and/or urban uses within the Precinct.

### 3.3. DISCUSSION

Overall, although the background reports reviewed provide a sound basis to identify a range of issues and opportunities for the precinct, the land use focus of the reports is narrow and places a strong emphasis on future uses which would extend and complement existing agribusiness uses already located in the Precinct.

Closer consideration of the following is required:

- An assessment of the broader macro-economic and market conditions to identify key growth drivers that could impact land demand;
- A broader assessment of competing land supply and demand;
- Closer analysis of the implications and opportunities of urban growth and population growth in the surrounding region, particularly Western Melbourne and Bacchus Marsh;
- The intentions and experiences of major landowners in the precinct as part of future planning given the predominance of private land;
- The competitive advantages of the precinct relative to other precincts, and the prospect of successfully attracting large scale agribusiness investment across the precinct, having regard to the amount of land available and the alternative sites for this type of investment; and
- The implications of several major infrastructure assets and proposed projects, especially the role of the aerodrome, Parwan Station PSP, major road upgrades and the Western Irrigation Network.

### 3.4. KEY FINDINGS

- **A range of previous studies have been prepared which underpin the vision for the precinct as accommodating agribusiness investment.**
- **The mix of land uses considered in previous reports was relatively narrow and a more strategic approach is now required.**
- **This scoping study is designed to ‘bridge the gap’ between the initial reports and a detailed planning study, in particular to refresh the economic basis for the Precinct, develop a land use vision and progress key property, planning and infrastructure issues.**

## 4. CONSULTATION

### 4.1. OVERVIEW

Consultation was undertaken with key stakeholder groups to understand the issues and opportunities that could inform development of the Precinct, including:

- Landowners;
- Businesses;
- Government agencies;
- Council;
- Local real estate agents;
- Infrastructure authorities; and
- Aerodrome contacts.

The following strategic considerations for future development of the Precinct were identified during stakeholder consultation by stakeholder group. The complete consultation schedule is detailed in Appendix A.

The outcomes of consultation with infrastructure authorities are summarised in Section 5.3 and the outcomes of consultation with aerodrome contacts are integrated into the analysis in Section 5.4.

### 4.2. LANDOWNERS

Discussions with landowners (and current businesses operating within the Precinct) identified the following:

- The Precinct is essentially a 'blank canvas' that can be developed with appropriate infrastructure development. However, this requires Council direction to promote business investment.
- The Precinct is large and diverse enough to accommodate multiple land uses, including agriculture, food processing and industrial. However, the Precinct does not have the required infrastructure or services to accommodate or attract industrial businesses.
- The Precinct also presents excellent development opportunities for existing landowners who wish to expand business activity within the Precinct, given its strategic location and proximity to transport infrastructure.
- Catalyst infrastructure is required, especially water upgrades, road upgrades, electricity and gas. For example, one major landowner is ready to commence a multi-stage development of industrial land, however later stages of the proposed development are uncertain due to the need to make significant upgrades to infrastructure which would ultimately benefit the broader precinct. In the absence of a shared infrastructure funding arrangement and reimbursement scheme, land development and business attraction are likely to be restricted.
- Infrastructure investment will be critical to attract new businesses and increase land values. Land value appreciation will incentivise existing landowners and businesses to sell to facilitate land use transition and employment growth. Consultation with major landowners confirmed that even in land already zoned for industrial uses, development is unviable. Other 'unzoned' land is also unlikely to transact until land values increase.
- Initial informal market sounding undertaken by landowners in the Industrial 1 Zone achieved very strong business interest. Market sounding was paused when infrastructure challenges became more evident as the development proponent in this area is unable to commit to property leases or sales until greater certainty regarding infrastructure costs and apportionments is available.
- The first stage of development of the Industrial 1 Zone land has been approved by both Council and the EPA and will contain a Protein Recovery Facility. This facility will be one of the largest of its kind in Australia and will act as a catalyst investment which will both bring forward infrastructure investment and provide

opportunities to attract other similar businesses in the area to form an 'industrial ecology' precinct (i.e., transforming natural resources into commodities for sale).

- There are many large lots in the Precinct – several landowners indicated that opportunities to subdivide will be important so that medium and smaller businesses that require less land (such as food processing) can be accommodated. This will be an important way of generating employment growth in the area.
- Several landowners queried the level of demand for a major agribusiness precinct, suggesting that this type of use, if needed, could take a considerable period to build out, as opposed to urban land uses which would be more predictable.
- A major landowner in the northern section of the Precinct indicated that there is strong potential for a more urban-focused land use mix which would leverage the nearby urban growth area to underpin land demand, while also providing the first substantial increase in employment land in Bacchus Marsh for some time. This is an opportunity primarily to the north of the Precinct, as Parwan Station and other growth areas develop.
- Several landowners referenced the current relative lack of industrial and commercial land in Bacchus Marsh, suggesting that the Precinct provides an opportunity for some uses such as to provide relevant urban land uses such as industrial business parks, bulky goods retail and commercial land to meet demand.

#### **4.2.1. BUSINESSES**

The following information was ascertained from businesses that that have expressed interest in locating to (and/or investing in) the precinct or are seeking an equivalent site across Victoria.

- Future investment on-site will be largely dependent on growth drivers for land demand;
- With diminishing supply of industrial and commercial land in nearby Bacchus Marsh, the PEP (especially the northern area), presents the best opportunity to accommodate these land uses and meet growing demand.
- There is opportunity to accommodate businesses that can add value to, and complement, the agricultural industry, including food processing, packing and distribution.
- Although some agribusiness businesses intend to re-invest and expand operations, others (such as a broiler farm operator) consider that the land would be better suited to more urban uses in the future due to the strategic attributes of the location.

#### **4.2.2. GOVERNMENT AGENCIES**

Discussion with government agencies (including Regional Development Victoria, Infrastructure Victoria, and Sustainability Victoria) revealed the following information regarding Precinct development.

- The Precinct is in a highly strategic location, in terms of proximity to regional and urban centres, transport linkages and access to ports. As such, there is the opportunity to add value to nearby industrial and manufacturing businesses and support the supply chain through packing and distribution. In particular, the food manufacturing sector in Ballarat can be supported by the Precinct through logistics and transport.
- State government agencies have received and/or are aware of strong interest from major businesses to located in Parwan across different land uses, including storage and circular economy opportunities (i.e., renewable energy, waste to energy uses, food technology/innovation, etc.). However, significant infrastructure investment is needed to attract these investors and activate the Precinct. This includes gas (to be provided through the City Gate), water, electricity and enabling infrastructure.
- Many major investment proponents are attracted to the opportunity to help build a precinct at Parwan 'from the ground up'. The 'blank canvas' and large vacant sites presents strong opportunity for businesses to collectively establish a high quality, modern precinct, as distinct from seeking sites in existing areas.
- There is a clear opportunity to accommodate businesses from Melbourne that have been priced out of the core industrial areas.

- If the government took a leading role in the precinct development, infrastructure investment and facilitation, the resulting outcomes could significantly increase job containment for Moorabool residents and reduce 'leakage' to Melbourne and regional centres.

#### **4.2.3. MOORABOOL SHIRE COUNCIL**

The economic development unit within Council identified the following strategic considerations for Precinct development:

- Council recognises the opportunities to attract technology and innovation businesses, in addition to agriculture, to promote a sense of identity and competitive advantages for the PEP.
- The Precinct can help add value, through production and the supply chain, to support primary agricultural production and processing.
- A key consideration for future development is to maximise economic benefit for the Shire. This includes increases business investment, as well as job creation/containment (and prevent leakages to other areas).
- The provision of gas and water services will be a catalyst for development, and this will assist Council in marketing the Precinct.
- As Council is not a landowner (other than the Aerodrome), this constrains the level of development it can facilitate. As such, it should incentivise business investment and specific land uses through infrastructure provision (and promotion).

#### **4.2.4. REAL ESTATE AGENTS**

Discussions with real estate agents within the Shire revealed the following considerations:

- There is significant demand for employment land in Bacchus Marsh, including commercial and industrial, which presents an opportunity for the Precinct to meet this demand. Employment land supply is scarce in Bacchus Marsh and occupancy rates are high - more land is required for businesses.
- Overall, there is strong interest in purchasing agricultural and industrial land in the Bacchus Marsh area, however the current infrastructure limitations in the Precinct will prevent any substantial investment.
- Demand for rural land within Moorabool (and other areas close to metropolitan Melbourne) is primarily driven by developers and land bankers looking for a return on investment due to the strategic location of the land. This process has already priced out farmers and potential agribusinesses securing land in the Precinct.
- There is relatively limited demand for agricultural uses in these peri-urban areas, with the exception of land adjacent to Bacchus Marsh that is suitable for horticultural uses (although this land is generally very tightly held with little turnover).
- The broader region's agricultural property market almost exclusively relates to broadacre farming (cropping or grazing depending on land quality). Although demand for most rural land is high, the broader region has experienced little interest from agribusiness (or intensive agriculture), especially as distance from Melbourne increases.
- Supporting supply chain infrastructure (e.g., transport, distribution, warehousing) and proximity to labour is important for any agribusinesses seeking land in the area, lending support to the general concept of the PEP, however the consultation undertaken did not indicate that the level of interest / demand from agribusiness is high in the Parwan area.

### 4.3. KEY FINDINGS

The consultation outcomes are synthesised as follows:

- There is a broader mix of land use potential in the Precinct than just agriculture / agribusiness, including a variety of industrial and commercial uses, food technology and innovation and so on.
- There are currently several landowners and businesses with plans for significant investment and development in the Precinct. However, catalyst infrastructure is required in order to facilitate and accommodate this, including gas (via the City Gate), electricity, water and enabling infrastructure.
- There is strong market and developer interest in increasing the supply of employment land in Bacchus Marsh. Although there is also interest in agricultural land in the broader region, market demand is expected to be stronger and more reliable for a mix of urban employment land and properties which accommodate businesses which add value to existing agricultural uses in the area.
- Market sounding identified a major opportunity to develop a cluster of symbiotic industrial businesses which could contribute to 'circular economy' objectives, such as energy, waste and resource-focused businesses, leveraging the opportunities and infrastructure brought forward by the approved Protein Recovery Facility.
- The Precinct also has the potential to provide a value-add to existing agricultural and food manufacturing businesses, through processing, packaging and distribution.
- Consultees consistently noted that it is the strategic locational advantages of the precinct which will drive demand for property and business, primarily the proximity to nearby regional centres, proximity to Melbourne, transport linkages and access to rail, air and port freight.

# 5. PRECINCT ATTRIBUTES AND STRATEGIC CONTEXT

## 5.1. OVERVIEW

The following provides an overview of the strategic attributes of the PEP, with consideration of the Precinct features, location, regional context and infrastructure. This information informs the identification of key issues and opportunities for Precinct development.

## 5.2. LOCATION AND ACCESSIBILITY

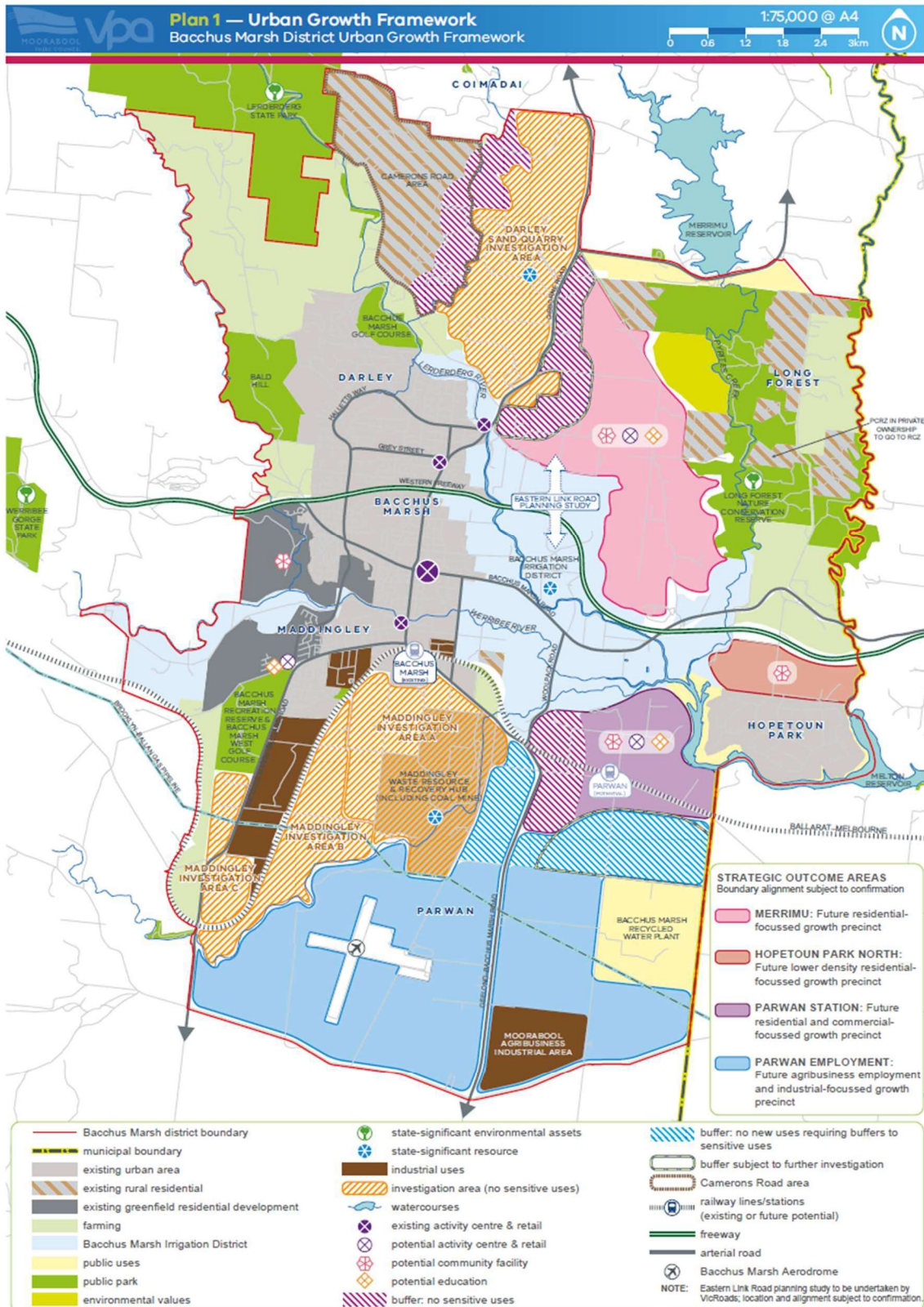
### Locational Context and Population Growth

The Precinct is strategically located in between key urban and regional centres, including Melbourne, Geelong, Ballarat and growth areas in Bacchus Marsh. This provides access to a significant population base, labour force and industry/economic base.

The Bacchus Marsh Urban Growth Framework (Figure F6) shows that the north-eastern section of the PEP directly interfaces with the Parwan Station Residential Growth Area, with additional residential growth areas identified further north at Merrimu and Hopetoun Park North. The Bacchus Marsh Irrigation District is located close to the northern boundary of the Precinct, albeit separated by a steep escarpment. The proximity of the Irrigation District is a particularly relevant influence and opportunity to accommodate complementary land uses in the PEP (agricultural opportunities are explored further in Section 7.2).

More broadly, the Precinct is strategically located in close proximity to some of Melbourne's largest and fastest growing urban growth areas in the City of Melton. The residential population within a reasonable travel time to the Precinct is projected to increase significantly, which will influence the land use opportunities in the area. The scale of this growth and the associated opportunities are considered in Section 6.

## F6. BACCHUS MARSH URBAN GROWTH FRAMEWORK



10 | BACCHUS MARSH URBAN GROWTH FRAMEWORK

FINAL REPORT – AUGUST 2018

\* Victorian Planning Authority, 2018. The State of Victoria does not warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that the State of Victoria shall bear no responsibility or liability whatsoever for any errors, omissions, defects or inaccuracies in the information.

Source: Victorian Planning Authority, 2018.

## **Transport and Accessibility**

The Precinct is proximate to major arterial roads and freeways, including the Western Freeway (which provides access to Melbourne and Ballarat), as well as the Geelong-Bacchus Marsh Road which provides access to Geelong and Bacchus Marsh and is also the main road travelling through the Precinct. These arterial roads facilitate freight and general traffic to the area.

One of the main existing weaknesses of the precinct is direct access to the Western Freeway for larger vehicles. The combination of indirect road routes, lack of a diamond interchange at the Freeway, conflicts with urban traffic in Bacchus Marsh and steep topography results in sub-optimal road accessibility for businesses which rely strongly on regular, efficient movement of goods. The proposed Bacchus Marsh Eastern Link Road is expected to largely address this weakness, however uncertainty regarding State government funding commitment and potential timing remains.

More broadly, there are road connections to the Princes and Calder Freeways, which are within 15km of the site and provides transport infrastructure to much of Victoria (and interstate).

Rail access is also available at Bacchus Marsh station and potentially in the future at Parwan Station. The railway line is part of Victoria's 'Principal Freight Network – Rail' (Victorian Freight Plan 2018-50, p.11).

These linkages to (and within) the site present opportunities for businesses seeking proximity to markets in Geelong, Bacchus Marsh, Ballarat and western Melbourne, especially where supply chain advantages can be established, for example by adding value to other businesses and products already in the region.

## **Freight**

The Precinct is proximate to multiple potential freight route options / types, including:

- Road – via the nearby Freeway network;
- Air – via the Bacchus Marsh Aerodrome, as well as major airports at Avalon (near Geelong), Tullamarine and Essendon (near Melbourne CBD) and Ballarat Aerodrome; and
- Sea – via the Port of Melbourne and Geelong Port;
- Rail – via the proposed Western Interstate Freight Terminal in Truganina, City of Melton.

## 5.3. INFRASTRUCTURE PROVISION

### 5.3.1. ISSUES AND OPPORTUNITIES

The following details the opportunities and constraints in developing certain areas within PEP from a service infrastructure perspective. This analysis was prepared by Cardno. The information is based on preliminary discussions with relevant service authorities, information gathered from background reports and certain assumptions gained from Cardno's experience in these types of projects.

A list of responsible service authorities relevant to the Precinct is shown in Appendix B.

#### Sewerage

Based on site contours and topography, it is not feasible to service the Precinct entirely with gravity mains.

Gravity mains could be used to collect wastewater to local low points where strategically-placed pump stations will convey the sewage east to the treatment plant. The High Level Servicing and Infrastructure - Sewer Reticulation Plan included in Cardno's report can be used as a guide for Greater Western Water to procure a servicing strategy for Parwan. Any further development of the aerodrome requires the need for a sewer connection to the network.

Ultimately, the sewerage outfall for the precinct will be the Bacchus Marsh Wastewater Treatment Plant (WTP) located to the immediate east of the Precinct. Despite the lack of sewerage infrastructure in the precinct, this is an opportunity due to the convenient location of the sewerage outfall.

The northern area of the precinct encompassed by Geelong-Bacchus Marsh Road, Miles Road, Nortons Road and the Parwan Station PSP could be viable for development in the short term due to the proximity to the WTP. However, Greater Western Water advised that gravity sewers from this area do not connect into the 600mm diameter rising main down Parwan Road. This would mean new rising mains would be required to pump wastewater to the treatment plant.

Pipe size depends on grade and expected flow of waste through the system. Industrial uses such as manufacturing, chemical processes and other non-residential land uses would produce more contaminated trade waste. Lower density developments such as agribusiness and bulk good storage/warehouses would discharge less effluent into the sewerage system. Due to the potential for 'urban' land uses in parts of the Precinct, the minimum pipe size would be 225mm in diameter as per the WSA code. 225mm diameter sewers can only cater for 63 hectares of industrial/commercial development at the steepest grade. Consultation and modelling will need to be undertaken by Greater Western Water to design and commission larger diameter branch sewers.

Greater Western Water has advised that the necessary upgrade to the WTP itself would be a capital works project meaning that the developer will not directly pay for it. Greater Western Water will raise the funds required through New Customer Contributions and appropriately budget for it in their capital works program. Greater Western Water are currently working through the timing and staging of this upgrade but confirmed it would cater for development of the PEP in its ultimate form.

Greater Western Water also advised that the WTP can provide recycled water to the PEP if there is a desire for it. Stakeholder interest would need to be gauged before pursuing this opportunity.

#### Water

The existing 100mm diameter main along Geelong-Bacchus Marsh Road is at capacity. Greater Western Water plan for an interim 225mm diameter main to supplement their existing customers in the PEP. A 300mm diameter water main north of the PEP along Geelong Bacchus Marsh Road is planned to be constructed in 2025 to provide initial supply to Parwan Station and this precinct. This will be the main point of supply for the precinct.

The water mains have nominally been labelled 225mm diameter. These will have to be confirmed once land use demands are known and Greater Western Water undertake internal supply analysis. However, it is possible that the main down Geelong-Bacchus Marsh Road will be 300mm in diameter. Ultimately, there will be a 600m diameter

transfer main built in 2050 to service the entire precinct to ensure future security. This will connect into a 450mm diameter main down Geelong-Bacchus Marsh Road in the ultimate scenario post 2050.

Landowner consultation discussions with the owners of the Industrial 1 Zone indicated that a substantial upgrade to trunk water supply infrastructure will be needed for the second and subsequent stages of the proposed development of that land, with costs estimated at \$5 million.

## **Gas**

Although there are no gas distribution assets in the PEP at present, a new City Gate on the APA gas transmission pipeline is currently under construction and is due to be completed in mid-2022. The City Gate will be the point of supply to supply distribution pressure gas to the precinct.

It is assumed that a larger (180PE) diameter main would be required along Parwan S Road to supply the Parwan Station PSP. Other mains can be extended from the City Gate to other developments in Parwan as they come online.

A 210m buffer zone applies to the transmission pipeline which restricts the type of development that could occur within this boundary. High risk, high density applications such as hospitals, schools and office buildings would not be allowed in this vicinity to mitigate the impact should the transmission pipeline fail. Permits need to be granted by APA Gas to develop within this buffer zone.

## **Electricity**

Discussions with Powercor revealed that the 2MVA remaining capacity referred to in the Reeds Servicing Report has since been allocated to the IN1Z development which has an approved planning permit. This means that there is minimal remaining capacity available in the existing network to use for any additional development.

Powercor advised that the option of upgrading the existing zone substation in Bacchus Marsh is unlikely to be feasible due to the age of the substation and its inability to supply the expected capacity required to meet ultimate demand. Furthermore, the pole and wires from the substation would either need to be upgraded or a new line built from the substation to the PEP.

From previous discussions with other interested stakeholders, the most viable option to ensure capacity for Parwan would be the commissioning of a new zone substation in the south of the precinct, as described in the Reeds Servicing Report. This substation would be delivered in stages to ensure capacity keeps pace with demand for the service area. Further investigation is required regarding the timing, provisioning and funding of this new critical infrastructure.

Powercor is aware that the upgrade to the WTP will require an upgrade to the electrical supply.

Powercor has no issue in principle with alternative energy generation to supply the PEP, such as the use of solar panels and battery storage (e.g., around the aerodrome). If they were provided with the energy generated, storage capacity of the batteries and desired reliability they can undertake modelling to assist in this. Further studies are required to determine how this arrangement could work.

## **Drainage**

Cardno received preliminary flood modelling advice from Melbourne Water regarding the need for drainage infrastructure assets in the precinct. These can include large diameter scheme drains, swales, wetlands, retarding basins and culverts.

The precinct borders Parwan Creek which may be a designated waterway in which Melbourne Water would impose a riparian buffer zone to prevent development close to a potential source of flooding. The preliminary flood data received from Melbourne Water, which illustrates flood depths, is shown in Appendix C. This information is subject to change, but it does identify some of the areas that are encumbered by flooding.

This demonstrates that there is an existing swamp in the southern section of the precinct (between Geelong-Bacchus Marsh and Parwan South Roads) which is under construction. Melbourne Water may require this to be formalised and/or upgraded into a wetland for stormwater quality or hydraulic purposes. The flood data

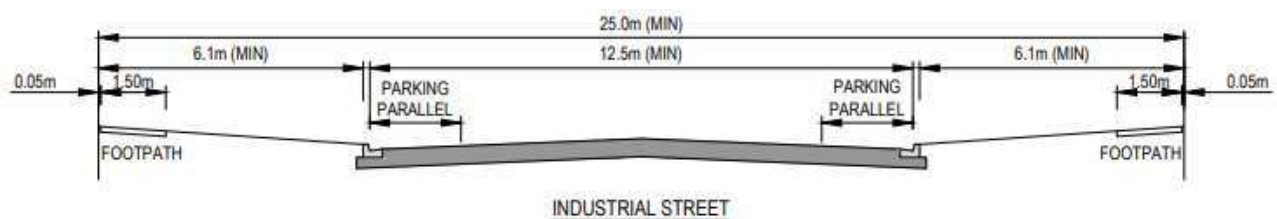
demonstrates how this area is subject to inundation. The area to the west of Geelong-Bacchus Marsh Road and north of Smiths Road (SUZ1) is constrained due to considerable drainage issues regarding tributaries and the varying topographical nature of the area. Melbourne Water advice is needed here to best understand what is required to facilitate development in this area.

Drainage infrastructure is driven by how much additional stormwater is generated by development. Concrete hardstands, roofs, road pavement and other works that reduce water's ability to infiltrate into the ground are known as impervious areas. Increasing the impervious area increases the amount of stormwater that runs off from a particular site which needs to be directed into a drainage network to prevent the stormwater from being trapped in low points or pooling on the ground causing flooding.

Agribusinesses and other low impervious area percentage land uses would generate less stormwater run-off than high impervious area percentage such as warehousing, hard stand loading docks for freight or bulky goods and other higher density land uses. With this in mind, it may be beneficial to have the warehousing/ bulky good developments closer to Parwan Creek to reduce the run-off and therefore the lengths of large sized diameter stormwater pipes to convey the stormwater downstream.

### Road Access

Based on service indications of likely areas to develop in the short-term, necessary upgrades to roads in the northern part of the precinct have been considered. Below is a typical road reserve cross section taken from the Infrastructure Design Manual for regional Council areas including Moorabool Shire.



Source: Cardno.

The following roads are expected to be upgraded to a standard similar to the below with exact road widths to be determined once traffic analysis has been undertaken.

- Miles Road is currently a one lane gravel road. It has an approximate road reserve width of 20m measured from fence line to fence line and length of 1.6km.
- East of Miles Road is an unnamed paper road. A paper road is a parcel of land which exists on cadastral information but where there is no physical evidence of a road. It is approximately 20m wide and runs for 1.6km to Geelong-Bacchus Marsh Road. A new road will need to be constructed along this stretch within the road reserve.
- Parwan S Road is a one lane sealed road with no kerb or formalised shoulder that is approximately 20m wide. There is existing overhead power on the west side on the road. The section of road dissecting the potential short-term development area is 1.6km in length.
- Smiths Road between Geelong-Bacchus Marsh Road and Cummings Road is a one lane sealed road with no kerb or formal shoulder, with an approximate width of 20m and length of 770m. There are also existing overhead power lines on the north side of the road.

Overall, substantial road upgrades and new internal roads will need to be provided within the Precinct. Large roundabouts have recently been constructed at each end of Geelong – Bacchus Marsh Road.

### 5.3.2. INFRASTRUCTURE OPPORTUNITIES AND CONSTRAINTS

Table T5 provides a summary of the opportunities and constraints to servicing the precinct as detailed above. This is not an exhaustive list, and more items may arise as planning for the precinct progresses.

The opportunities and constraints consider the potential for both agribusiness and more intensive urban employment land uses.

#### T5. INFRASTRUCTURE OPPORTUNITIES AND CONSTRAINTS

Infrastructure type	Constraint	Opportunity
Power	Minimal current electrical capacity in existing network	Solar panels and battery storage; feed excess power generation back into grid
	New substation eventually required – major capital expenditure required.	
Water	Major trunk extension and upgrade required to facilitate development beyond IN1Z stage 1.	Recycled Water reticulation
Gas	Gas pipeline buffer zone limits land uses in proximity	City Gate cost sharing among landowners
Drainage	Parwan Creek riparian buffer zone, steep topography in parts.	Land available for environmentally appealing drainage solutions
	Land in north-western section heavily constrained by topography and waterways.	
Sewer	Major Treatment plant upgrade required	Proximity of Treatment Plant
	Rising mains and pump stations needed.	
Roads	Relatively poor access to Western Freeway	Potential future Eastern Link Road
	Existing roads require upgrade to urban standard.	

Source: Cardno and Urban Enterprise.

This information catalogues the most up to date information relating to servicing the entire Parwan Employment Precinct. From this review, several major constraints to developing the precinct were identified, including:

- Electricity – Network approaching capacity, Powercor advises new regional substation likely solution.
- Sewerage – Topography is difficult for gravity sewers. Rising mains and pump stations expected.
- Drainage – Undulating terrain makes drainage modelling difficult.

In the past, the key barriers to understanding the infrastructure opportunities and constraints for the Precinct have been:

- The absence of direction available to service providers on the expected land use mix and likely scale of development in the area; and
- The availability of funding to enable network planning to proceed.

Service authorities now have guidance as to the types of land uses proposed by reference to the land use vision and planning framework set out in Section 8 of this Study.

Further, Regional Development Victoria and Moorabool Shire Council have now funded and commenced (in conjunction with Greater Western Water and Powercor) the *Parwan Employment Precinct Power, Water and Sewer Network Planning* study. The study, due for completion in late 2022, will document design options for infrastructure delivery and provide more detailed cost estimates for infrastructure provision. This will inform advocacy work and possibly subsequent funding programs to unlock potential investment opportunities.

## 5.4. BACCHUS MARSH AERODROME

### 5.4.1. OPPORTUNITIES

There are many potential opportunities for Bacchus Marsh Aerodrome (BMA) development, in the context of aviation growth as well as complementing future development of the Precinct. A list of aviation and non-aviation opportunities – and the likelihood of implementation – are outlined below, based on past studies, stakeholder consultation and analysis prepared by aviation expert Syd Herron<sup>1</sup>.

#### Aviation-related Opportunities

Potential aviation related opportunities are canvassed in Table T6, with a high-level assessment of the likelihood of the opportunity being realised. The assessment has been made from previous airport and aerodrome planning and development experience – applied to BMA.

The opportunities are coded in terms of probability as follows: red – no opportunity; yellow – some opportunity and green – strong opportunity. From this assessment, there are a range of potential development opportunities at the Aerodrome, with the expansion of emergency services and provision of events the strongest.

#### T6. AVIATION-RELATED OPPORTUNITIES

Opportunity	Description	Assessment
Regional Air Services (RPT) by Code 3C aircraft	New standards for a Code 3C airport are geometrically demanding and the demand for Code 3C aircraft low	
Air charter	Inbound and outbound air charter in up to Code 2B aircraft could be established in line with PEP developments and other regional business growth	
Regional Air Services (RPT) by Code 2B aircraft	BMA is located too close to Melbourne Airport with good road access.	
Corporate jets	Cost versus benefit prohibitive for Code 3C corporate jet operations. Some corporate jets are Code 2B and could operate into a possible future Code 2B aerodrome.	
Aviation education and training	Opportunity for TVSA to grow and possibly a further operator to establish on the aerodrome.	
Regional aerospace manufacturing and maintenance	Opportunity low and limited landside and apron areas may preclude efficient development of a major facility	
Emergency services	Emergency services helicopters and firefighting aircraft operations.	
Private aircraft storage hangars	Continued growth	
Aviation-related events	Limited to events with small to medium participants and spectators	
Helicopters	In association with PEP and regional business growth	
Residential Airpark	Land available abutting the aerodrome	
Air Freight	Low demand. Existing logistics are very efficient to Melbourne Airport or by interstate road transport	
Gliding	Continued expansion of operations and membership	
Ballooning	Not an optimal departure point for commercial flights	

Source: Syd Herron, 2021.

## Non-aviation-related Opportunities

Using the same assessment methodology as above, the following non-aviation related opportunities are considered viable based on the analysis prepared Syd Herron (see Table T7):

- Agriculture production;
- Food processing and distribution;
- Advertising sales – external & internal (i.e., selling wall spaces/billboards to expose products and services);
- Car clubs, vehicle sellers; and
- Aviation and/or car museum.

The opportunities shown in the table below are typical of the opportunities that are usually considered in master planning exercises for aerodromes. These have been developed over time to focus on improving non-aviation revenue (and enhancing the sustainability of airport operations).

### T7. NON-AVIATION RELATED OPPORTUNITIES

Opportunity	Description	Assessment
Retirement village	Incompatible zoning	
Office Block	No demand. Space available in the city or as part of PEP	
Hotel	Motel across highway. Demand?	
Café/restaurant	Demand? Competition across highway	
Eco-tourism accommodation	Not an eco-tourism environment	
Relocation of Government organisations	No demand and not an attractive locality from an economic geography perspective	
Drive through nursery	Competition elsewhere and could be part of PEP	
Service centre	Not an appropriate location with limited throughput	
Bulk landscaping supplies	Competition elsewhere and could be part of PEP	
Haulage and truck companies	Better locations close to services elsewhere	
Agriculture production	On spare land and adjacent land within PEP	
Food processing and distribution	On spare land and adjacent land within PEP	
Motorhome rental centre	Poor location	
Commercial storage facilities	On spare land and adjacent farmland within PEP	
Cabins/caravan park	Unless part of a flying school, for example	
Truck/trailer storage and maintenance	Better locations close to services elsewhere	
Vehicle storage/pre delivery area	Better locations close to services elsewhere	
Advertising – external & internal	No impediment	
Golf Course	On adjacent PEP land, but demand and location to be tested	
Night Golf Driving Range	Possibly in PEP. Competition?	
4-wheel drive & other driver training	On adjacent PEP land	
Children's driving school	Better sited in town	
Car clubs, vehicle sellers	Car clubs (Not vehicle sellers). But more likely on PEP land.	
Aviation and/or car museum	Expand gliding museum as a major regional tourist attraction	

Source: Syd Herron, 2021.

## 5.4.2. CONSTRAINTS

The following constraints should be considered with regards to the spatial planning and development of the PEP.

- Aircraft noise. There is no Australian Noise Exposure Forecast (ANEF) for BMA. However, aerodromes of the size of BMA generally produce small noise footprints from the type and volume of general aviation movements. As there is no intention to have residential development within the PEP boundaries, the existing noise limits (ANEF contours) are likely to remain on or just over the airport boundaries. These contours are acceptable for a range of future agricultural and industrial uses anticipated for the PEP. However, this assumption can only be validated by the preparation of a formal ANEF, which is outside the scope of this project.
- Building height limitations. The current Obstacle Limitation Surfaces (OLS) shows the building height limitations on each runway end and over the balance of the PEP area. These height limitations should be taken into consideration for future PEP planning. A future OLS would show OLS splays for the parallel gliding strips. Some consideration should be given to this, albeit without any detailed information.
- Wind shear and turbulence. The implications of wind shear and turbulence trigger areas should be considered. Buildings or other structures in this area will require a wind analysis to be undertaken, taking into account building height and siting.
- Public safety areas. Public safety trigger areas must be considered in the context of future development. Siting of activities with employees in this area will require a formal risk analysis to be undertaken.
- Wildlife guidelines. The wildlife guidelines should be reviewed to reduce the potential for the attraction of birds and consequent bird strikes on aircraft.

These constraints are considered in Section 8 (Planning Framework), including the location of impacts and suitable planning controls to manage land use implications.

## 5.4.3. AERODROME CONCLUSIONS AND RECOMMENDATIONS

### Aviation Opportunities

Based on the above analysis, aviation operations that may be best facilitated by the development of PEP include:

- Air charters. The development of the PEP may be the catalyst for the establishment of general aviation air charter to service business activity – particularly connecting with other regional agricultural areas.
- Corporate jet operations. The development of the PEP may be the catalyst for the use of private corporate jets by interstate businesspeople with interests in PEP. Aircraft would be limited to Code 2B.
- Helicopter movements. The development of the PEP may be the catalyst for the use of private helicopters by PEP businesses and visitors or the establishment of a helicopter base at BMA.
- Air freight. The development of PEP may be the catalyst for the use of up to Code 2B aircraft for specialist niche movement of high-value Agri-product, technology, processing or aviation equipment.

### Potential synergistic opportunities with the PEP

- Aviation education and training. It is likely that aviation education and training would occur as an extension to the existing TVSA flying school or as part of an additional operator. If, however, a major international pilot training academy were to be attracted to BMA, then it would likely need an adjacent and connecting land area in PEP. The probability of attracting such a facility is assessed as low.
- Regional aerospace manufacturing and maintenance. Expansion of general aviation aircraft maintenance, repair and overhaul can be accommodated on BMA. Any future attraction of airframe manufacturing, aircraft manufacturing and/or avionics repair and manufacturing may need to be established on an adjacent and connecting land area in PEP.
- Solar farms. Airports are starting to consider and carry out investments in solar farms to reduce their power costs and improve their environmental footprint. BMA could do likewise and would have sufficient land in the

master planned BMA precinct for an independent solar farm. However, a larger scale solar farm connecting into the Victorian grid might be considered within both the aerodrome and part of PEP.

#### 5.4.4. AERODROME MASTERPLAN

A Draft Bacchus Marsh Aerodrome Masterplan was issued in May 2022 and will be considered for adoption by Council in mid 2022.

The Draft Masterplan identifies the following priorities and opportunities for the aerodrome (summarises from section 3 of the Masterplan):

- Retain and protect existing runways in the airfield precinct;
- Protect land for possible future airfield expansion, including new taxiways, parking aprons, more permanent firefighting aircraft facilities and dedicated helicopter parking and hanger space;
- Prepare a new precinct plan for the Hangar Precinct to provide new hangar sites and taxiways;
- Improvement to the terminal building and public amenities;
- Potential marketing of the aviation services precinct to other aviation service providers;

Recommended facility upgrades include:

- Runway widening, upgrades and lighting;
- Introduction of parallel glider runway strips;
- New and upgraded taxiways;
- A new Helicopter Landing Site;
- A new multi-user terminal building;
- New fuel facilities and weather information services; and
- Improved precinct infrastructure, including water, sewer and road upgrades.

In terms of planning controls, the Draft Masterplan recommends:

- Rezoning the aerodrome land to the Special Use Zone; and
- Updating planning overlays to reflect the findings of a new Obstacle Limitation Surface assessment.

The Draft Masterplan references the opportunities associated with proximity to future businesses in the PEP but notes the importance of ensuring that development in the vicinity does not compromise the ongoing operations and development of the aerodrome.

The findings of this Scoping Study are largely consistent with or do not overlap with those of the Draft Masterplan. Once adopted by Council, it will be important for the Masterplan to be considered and implemented alongside all future PEP plans given the close interfaces associated with economic opportunities, infrastructure requirements and planning controls.

#### 5.5. KEY FINDINGS

- **The Precinct is strategically located between key urban and regional centres, including Melbourne, Geelong, Ballarat and Bacchus Marsh, providing a significant population base, labour force and industry base.**
- **The Precinct is strategically located in close proximity to some of Melbourne's largest and fastest growing urban growth areas in the City of Melton and near recently designated urban growth areas in Bacchus Marsh.**
- **A key weakness is direct access to the Western Freeway for larger vehicles. Although the proposed Eastern Link Road would address this weakness, uncertainty regarding funding and timing remains.**
- **Major upgrades to all key urban infrastructure services are required. Service authorities will be in a position to consider the scale and timing of network upgrades by reference to the Planning Framework in this study.**

- The presence of the aerodrome presents both opportunities and constraints for the broader precinct. It is possible and advantageous for the aerodrome to operate concurrent to the development of the Precinct, however new planning controls need to be introduced to ensure compliance with aviation safety guidelines.
- Airport opportunities identified include air charters, corporate jet operations, helicopter movements and air freight. Potential synergistic opportunities between the aerodrome and the broader precinct include aviation education and training, regional aerospace manufacturing and maintenance and solar farms.
- Once finalised, it will be important for the Aerodrome Masterplan to be considered and implemented alongside all future PEP plans given the close interfaces associated with economic opportunities, infrastructure requirements and planning controls.

## 6. ECONOMIC AND MARKET ANALYSIS

### 6.1. OVERVIEW

This section examines market conditions and trends relevant to precinct opportunities, including a review of industry growth drivers and demographic and economic indicators for the region.

This information provides the evidence base for consideration of appropriate land uses within the Precinct to respond to the needs and industry specialisations of the surrounding area.

### 6.2. MACRO-ECONOMIC CONDITIONS

The following macro-economic trends are considered relevant to future investment and business opportunities for employment land uses and industries that could be considered for the PEP.

#### Population and Urban Growth in Victoria

Notwithstanding a short term decrease in overall population growth due to border closures in 2020 and 2021, Victoria's population is projected to continue to grow strongly over the next 20 years, including both metropolitan and regional areas.

Regional Victoria is projected to experience an increase of population of 556,000 additional residents between 2021 and 2051, requiring more than 320,000 additional dwellings. Bacchus Marsh is identified in State planning policy as a location for urban growth, including both housing and employment, and the recent completion of the Bacchus Marsh Urban Growth Framework puts in place substantial precincts which will accommodate new housing areas.

Melbourne's western growth front is approaching Moorabool Shire – growth area land in the City of Melton is rapidly being developed for housing and metropolitan housing demand is 'spilling over' into Moorabool Shire, along with many other peri-urban and regional towns located near the metropolitan area. This trend has been accelerated by the impacts of the COVID pandemic, with housing construction rates increasing dramatically across regional Victoria and a short-term increase in migration from metropolitan to regional areas within Victoria.

#### Global Demand for Food

Population growth and an increase in average incomes are driving an increase in global demand for food. Asia and the sub-continent are the fastest growing regions – predicted to grow to over 3 billion people by 2030<sup>6</sup> – and will drive a large proportion of demand for food in the long term. The Food and Agriculture Organisation (FAO) estimates that the current level of global agricultural production will need to increase by 50% to meet the global demand for food by 2050<sup>7</sup>.

According to the *Victorian Food and Fibre Sector Strategy*, more consumers are expressing specific preferences for food, including organic products, high-quality produce and other foods that meet specific dietary requirements. As such, maintaining high safety and quality standards underpins the ability of the sector to maintain access to markets here and abroad.

Food and fibre production across Australia has increased significantly in recent years, as a result of a growing international demand for Australian agricultural produce. Australia produced approximately 69.5m tonnes of food and fibre in 2017 compared with 56.7m tonnes in 2013, representing a 23% increase. In 2017, Victoria contributed one quarter (25%) of Australia's total food and fibre production (11.2m tonnes, valued at \$12.8bn)<sup>8</sup>.

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<sup>6</sup> Food and Fibre Sector Strategy, Victorian Government 2016

<sup>7</sup> Agricultural Outlook, OECD-FAO 2018 to 2027, 2018

<sup>8</sup> Victorian Food and Fibre Export Performance Report 2016/17, Agriculture Victoria, 2018

Strong population growth domestically and internationally particularly in Asia and India, in conjunction with Australia's strong reputation for high quality agricultural produce is expected to generate further demand for food and fibre production.

The PEP presents opportunities to capitalise on the strong market demand through increasing production and productivity (through innovation), as well as value-adding to the sector where possible (through generating supply chain efficiencies).

### **Agriculture Sector Challenges and Opportunities**

According to *Agriculture Victoria*, there are a number of common challenges and opportunities for the State's agricultural sector, all of which are relevant to the potential development of agribusiness within the Precinct:

- Infrastructure: Addressing supply chain inefficiencies including improving road and rail freight flows, using ports more efficiently and maintaining airfreight capacity.
- International markets: Victoria is well placed to capitalise on a growing international middle class that is demanding more food and agricultural products. However, there are certain challenges such as technical trade barriers.
- Climate change: Becoming more susceptible to weather volatility and extreme weather events such as floods, rainstorms and drought.
- Innovation: Opportunities exist in new and emerging technologies to increase productivity and remain competitive in a global environment. This includes the increased use of robotics, new packaging material, biotechnology and digital and wireless technologies for data measurement, weather monitoring, animal monitoring, geospatial monitoring and water management and chemicals.

### **New Energy Technologies**

The energy sector is rapidly transforming both in Victoria and internationally as new technologies emerge. Victoria's *New Energy Technology Strategy* attributes this to a combination of:

- Global commitments to reduce emissions;
- Increased consumer and community engagement with energy efficiency and productivity;
- Demand for new energy technologies, particularly in developing nations; and
- Globalisation and increasing competition in producing energy technologies and innovation.

As a result, there is global demand for investment in new, clean energy technologies and products to increase energy efficiency and reduce emissions.

Victoria is positioned to significantly benefit from this transformation and to capitalise on new and developing technologies including renewable energy and energy storage, and energy efficiency products and services. Victoria enjoys significant advantages in areas such as information and communications technology (ICT), advanced manufacturing, and material engineering.

This draws on the presence of abundant world-class renewable energy resources, smart meter infrastructure, and research and technological capabilities, making Victoria well-placed to capitalise on sector growth.

Substantial investment in infrastructure to support renewable energy generation in Victoria's north and west is proposed. When combined with the increasing number and scale of wind farms in Victoria's west (including in Moorabool) and solar farms in Victoria's north, the scale of this industry is increasing substantially and will continue to increase over the period during which the Precinct may develop. Many agribusiness and industrial businesses draw on high power loads and there is a need for major increases to the electricity infrastructure within the Precinct to support the proposed development.

These circumstances confirm the need and opportunity to both encourage the use of land within the Precinct for renewable energy generation and to facilitate businesses and industries which adopt circular economy principles (those that focus on minimising waste/reducing emissions for resource production, and co-locating businesses and land uses which make use of and add value to by-products, products and waste of other uses).

### **Global Trends in Manufacturing**

There has been an ongoing decline in the scale of traditional manufacturing production and employment in Victoria for more than 40 years. Globalisation has seen the shift of production to lower cost labour destinations around the world.

One area of manufacturing which has maintained strength in Victoria is food processing. Due partly to automation and the link between food processing and agriculture this industry has been maintained and, in some instances, grown and developed further. The COVID-19 pandemic has also demonstrated the importance of local production in order to secure access to food and other goods.

The PEP is well placed to support the food processing sector, with the potential to leverage from primary producers in the region.

### **Impact of COVID-19**

The COVID-19 pandemic has had a significant impact on the global economy and restrictions on business and travel have already had major impacts on the national and state business base. Some sectors have been affected to a larger degree than others, with many industries relying on exports and an efficient supply chain (e.g., agriculture, manufacturing) experiencing a downturn.

In particular, Australia's food and agribusiness sectors will face ongoing challenges through disrupted supply chains, global trade impacts and limited access to foreign workers<sup>9</sup>. There are also many businesses within the supply chain that are under financial pressure and struggling to meet the needs of farmers.

This presents opportunities for local manufacturers and suppliers to help meet demand, particularly in instances where specific materials are unable to be sourced from overseas. The need to future-proof the regional supply chain and provide certainty for primary producers could influence development of the PEP, although the duration of the pandemic impacts is difficult to predict.

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<sup>9</sup> KPMG Australia, COVID-19: Impacts on Australia's food and agribusiness sector, 2020

## 6.3. STATE, REGIONAL AND LOCAL STRATEGY

### STATE GOVERNMENT PLANNING STRATEGIES

Plan Melbourne (2017) is the State Government's strategic plan to guide Victoria's growth to 2050, providing guidance for the future development of metropolitan and peri-urban areas, and providing direction for Regional Victoria.

Outcome 7 of the Plan relates to Regional Victoria and includes strategic directions and policy that is relevant to Moorabool Shire. The Plan states that growth in peri-urban areas will attract about 32% of Regional Victoria's population to 2031. The Plan identifies that as traditional economic delineations change, economic linkages between Regional Victoria and Melbourne will become increasingly important. The priority industries for Regional Victoria's future are identified as agriculture, energy and resources, tourism, health and education.

Plan Melbourne also states the following in respect of economic and employment growth in the State's peri-urban areas: *"Maintain a strong, dynamic economy and employment base by building on the comparative advantages in agriculture, timber, transport, tourism, education, manufacturing, the service industry and commerce."*

Outcome 7 of the Plan relates to regional Victoria and includes the following direction and policy relevant to urban Moorabool Shire:

- Direction 7.1: Invest in regional Victoria to support housing and economic growth.
- Policy 7.1.2 Support planning for growing towns in peri-urban areas.

Plan Melbourne states that:

*"A number of towns in peri-urban areas have capacity for more housing and employment-generating development without impacting on the economic and environmental roles that surrounding non-urban areas serve. Those towns include ...Bacchus Marsh... Other towns identified by Regional Growth Plans as having potential growth include .... Ballan." (p.131)*

*"Peri-urban towns can provide an affordable and attractive alternative to metropolitan living." (p.131)*

Plan Melbourne (2017) recognises that Bacchus Marsh and Ballan are peri-urban towns with potential to accommodate additional residential and housing growth in the future. Importantly, the Shire provides a gateway and economic link to regional areas further west, including the Regional City of Ballarat.

The Victorian Planning Authority is working with Moorabool Shire to plan for several new urban growth areas around Bacchus Marsh, including Parwan Station and Merrimu precincts. Council is also planning for other growth areas in the municipality, including Hopetoun Park North and several growth precincts in Ballan.

### CENTRAL HIGHLANDS GROWTH PLAN

The Central Highlands Growth Plan (which includes Moorabool Shire) provides a regional approach to land use planning in the Central Highlands and identifies opportunities to encourage and accommodation growth and manage change over the next 30 years. Importantly the plan identifies:

- Where future development will be supported and assessed at a regional scale.
- Environmental economic, community, and cultural assets and resources of regional significance that should be preserved, maintained, or developed;
- How the region can respond to opportunities, challenges and long-term drivers of changes; and
- Key regional priorities for future infrastructure planning and investment to support growth.

The vision (identified initially in the Central Highlands Regional Strategic Plan) for the Central Highlands region towards 2030 and beyond is to provide a productive, sustainable and liveable region for its people.

Key principles of relevance for this project include:

- The region's economy should be strengthened so that it is more diversified and resilient;
- The development of sustainable and vibrant communities should be supported by enhancing the level of access to key services;
- Encourage services, facilities and housing that meet the diverse needs of the community;
- Planning for growth should be integrated with the provision of infrastructure;
- Encourage infrastructure that has a range of positive benefits or can support directions in the plan;
- The region's land, soil, water, and biodiversity should be managed, protected and enhanced;
- Capitalise on the region's environmental assets to improve environmental outcomes and support economic development;
- Recognising the importance of cultural heritage and landscapes as economic and community assets;
- Recognise the economic development and liveability benefits associated with the region's cultural heritage and landscapes.

The plan highlighted that the majority of the population growth across the Central Highlands Region over the next 30 years was likely to occur in the Ballarat West Growth Area and Bacchus Marsh.

### **MOORABOOL SHIRE ECONOMIC DEVELOPMENT AND VISITOR ECONOMY STRATEGY, 2022 (DRAFT)**

The Moorabool **Economic Development Strategy** (Draft) will provide Council with strategic guidance to facilitate employment growth, investment attraction and business development in the Shire. It supersedes the previous Economic Strategy prepared in 2015.

The Strategy describes PEP as a major employment precinct that will attract suitable industries and provide local employment opportunities. It contains the following priorities specific to the Precinct:

- Finalise the PEP Scoping Study and Precinct Structure Planning, to identify appropriate land uses and infrastructure requirements to generate economic outcomes and local employment, including complementary uses to support the Bacchus Marsh Aerodrome.
- Complete the network planning required to understand infrastructure development requirements to connect power, water and sewerage to the area, which will facilitate future business investment and support productive use of the land.

Moorabool Shire's **Visitor Economy Strategy** (Draft) provides a unified strategic direction for the evolution of the visitor economy between 2022 and 2027, with a focus on driving awareness, product development, and enabling infrastructure. This will be achieved by empowering and supporting local industries.

Parwan Employment Precinct is identified in the strategy for its status as a major infrastructure development and potential to contribute to the local visitor economy. For example, product produced within the precinct, aviation-based experiences, or working with the Traditional Owners, the Wadawurrung people, to interpret Parwan's rich Aboriginal cultural heritage values, could form the basis of authentic cultural tourism activities for the Precinct.

### **BACCHUS MARSH URBAN GROWTH FRAMEWORK, 2018**

The Bacchus Marsh Urban Growth Framework was prepared by the VPA in partnership with Council in 2018 and provides guidance for the future expansion of Bacchus Marsh. The Plan identifies the PEP as a future agribusiness and industrial precinct, with potential for the Precinct to be a significant employment hub due to its strategic location. The Plan also identifies the additional planning work required (including the preparation of a Precinct Structure Plan) to facilitate the development of the Precinct.

## 6.4. MOORABOOL SHIRE ECONOMY

The following provides an overview of the Moorabool Shire economy, including its economic role and specialisations. It is important that the land uses proposed for Parwan capitalise on the areas of strength, specialisation and emerging opportunities for the Shire economy wherever possible.

### 6.4.1. ECONOMIC PROFILE

Moorabool Shire has an estimated population of 32,000 people and accommodates close to 8,000 local jobs. In 2019, the Shire's economy's Gross Regional Product was \$1.3 billion and generated \$2.3 billion in economic output and exported goods and services with a total value of \$620 million (see Table T8).

#### T8. MOORABOOL SHIRE'S ECONOMY – HEADLINE INDICATORS, 2019

Population	Gross Regional Product	Annual Output	Local Jobs	Export Value
31,820	\$1.3 billion	\$2.3 billion	7,882	\$620 million

Source: Remplan Economy, 2019.

The Shire's key economic drivers and industry specialisations are outlined in Table T9. The local economy is primarily based on agricultural activities (including intensive horticulture/food production), as well as natural resources. As the population of the municipality increases, particularly in Bacchus Marsh, the scale and importance of population and professional services is also increasing, while tourism remains an important industry based primarily on nature-based activities.

Many of the concentrations of economic activity and specialisation are situated in and around the Precinct, including the Bacchus Marsh Irrigation District and several coal and other mines located close by.

#### T9. INDUSTRY SPECIALISATIONS & GENERAL LOCATIONS

Industry	Specialisations	Locations
Food & Agriculture	Agribusiness & primary production: Broad acre cropping, grazing, intensive horticulture, viticulture	Productive and versatile areas outside of townships. Designated agribusiness and irrigation precincts (BMID).
Energy, Resources & Extractive	Earth resources: coal and sand. Renewable energy: wind	Darley/Coimadai sand quarries, Dunnstown gravel quarries, Maddingley Waste & Resource Recovery Hub, wind farms close to and west of Ballan.
Tourism	Nature-based attractions & activities, food and wine, arts, heritage and cultural attractions, peri-urban villages.	Rural landscapes (forests, parks, gorges & water catchments), peri-urban villages.
Population & Professional Services	Construction, retail, food services, other services, health and education, professional services.	Mostly confined to urban areas.

Source: Urban Enterprise, derived from ABS, REMPLAN Economy & Moorabool Shire (strategy & policy).

## 6.4.2. JOBS, OUTPUT AND EXPORT VALUE

Table T10 summarises the annual output, employment and export value by industry sector in Moorabool. The results provide further evidence of the key drivers and specialisations across the Shire's economy. Key observations include the following:

- Agriculture is the Shire's largest export industry and is a large driver of employment and output; and
- Energy, resources & extractive industries<sup>10</sup> generate high export value but low employment;

Agriculture and extractive industries make up almost half of the Shire's annual export value. These industries are fundamental to the function and productivity of the local economy and should be encouraged within the Shire.

In addition, manufacturing and transport generates a significant level of economic output and exports for the region and is an area of strength for the economy.

### T10. JOBS, OUTPUT & EXPORT VALUE BY INDUSTRY, MOORABOOL SHIRE, 2019

Industry	Jobs		Output (\$m)		Regional Exports (\$m)	
Agriculture, Forestry & Fishing	796	10.1%	\$295.5	13%	\$206.7	33%
Mining	130	1.6%	\$75.2	3%	\$67.5	11%
Electricity, Gas, Water & Waste Services	67	0.9%	\$40.8	2%	\$9.6	2%
Construction	1,003	12.7%	\$431.2	19%	\$104.1	17%
Education & Training	964	12.2%	\$122.9	5%	\$29.3	5%
Health Care & Social Assistance	964	12.2%	\$127.3	6%	\$2.3	0%
Retail Trade	683	8.7%	\$80.3	3%	\$4.5	1%
Professional, Scientific & Technical Services	388	4.9%	\$106.2	5%	\$4.3	1%
Rental, Hiring & Real Estate Services	96	1.2%	\$58.0	3%	\$9.8	2%
Financial & Insurance Services	61	0.8%	\$45.1	2%	\$5.3	1%
Information Media & Telecommunications	24	0.3%	\$13.1	1%	\$1.4	0%
Other Services	308	3.9%	\$43.5	2%	\$1.0	0%
Accommodation & Food Services	458	5.8%	\$60.7	3%	\$13.5	2%
Tourism	433	5.5%	\$80.6	3%	-	-
Arts & Recreation Services	113	1.4%	\$19.9	1%	\$3.3	1%
Transport, Postal & Warehousing	405	5.1%	\$100.7	4%	\$57.1	9%
Public Administration & Safety	384	4.9%	\$74.0	3%	\$1.8	0%
Manufacturing	331	4.2%	\$204.9	9%	\$88.7	14%
Administrative & Support Services	176	2.2%	\$40.4	2%	\$4.0	1%
Wholesale Trade	93	1.2%	\$37.7	2%	\$6.1	1%
Ownership of Dwellings	5	0.1%	\$255.8	11%	-	-
<b>Total</b>	<b>7,882</b>	<b>100%</b>	<b>\$2,313.7</b>	<b>100%</b>	<b>\$620.3</b>	<b>100%</b>

Source: REMPLAN Economy, 2019.

<sup>10</sup> Includes Electricity, Gas, Water & Waste Services and Mining

### 6.4.3. HISTORIC OUTPUT GROWTH

Table T11 shows the output growth over time for Moorabool Shire, demonstrating an increase of \$853 million (7% p.a.) between 2012 and 2019. Whilst most industries experienced growth in output, there was significant growth in the agriculture and extractive industries, contributing to over 22% of total output growth (+\$190 million).

In addition, some of the largest output increases were attributed to the population driven industries, including construction and rental/real estate services; whilst some of the industrial-based sectors (inc. manufacturing and transport) experienced slower rates of growth.

The growth in agriculture was driven by significant output increases in the other agriculture subsector (i.e., nursery, horticulture and food production), which contributed to 63% of total growth. In contrast, more 'traditional' farming sectors grew at a slower rate. This demonstrates the strength of agriculture, specifically high- intensive uses, which could influence future land uses within the Shire.

**T11. HISTORIC OUTPUT GROWTH BY INDUSTRY, MOORABOOL SHIRE, 2012 TO 2019**

Industry	2012	2019	Growth (\$M)	AAGR (%)
Agriculture, Forestry and Fishing	\$144m	\$275m	+\$131m	+10%
Electricity, Gas, Water and Waste Services	\$16m	\$42m	+\$26m	+15%
Mining	\$51m	\$84m	+\$33m	+7%
Construction	\$197m	\$442m	+\$245m	+12%
Education and Training	\$77m	\$125m	+\$47m	+7%
Financial and Insurance Services	\$30m	\$46m	+\$16m	+6%
Health Care and Social Assistance	\$80m	\$125m	+\$45m	+7%
Information Media and Telecommunications	\$11m	\$13m	+\$2m	+2%
Other Services	\$26m	\$44m	+\$18m	+8%
Professional, Scientific and Technical Services	\$70m	\$109m	+\$39m	+7%
Rental, Hiring and Real Estate Services	\$189m	\$321m	+\$132m	+8%
Retail Trade	\$69m	\$88m	+\$19m	+4%
Accommodation and Food Services	\$56m	\$84m	+\$28m	+6%
Arts and Recreation Services	\$12m	\$25m	+\$14m	+11%
Manufacturing	\$204m	\$218m	+\$15m	+1%
Public Administration and Safety	\$63m	\$75m	+\$12m	+2%
Administrative and Support Services	\$24m	\$46m	+\$22m	+10%
Transport, Postal and Warehousing	\$91m	\$119m	+\$28m	+4%
Wholesale Trade	\$57m	\$39m	-\$18m	-5%
<b>Total</b>	<b>\$1,467m</b>	<b>\$2,321m</b>	<b>+\$853m</b>	<b>+7%</b>

Source: ABS Census 2012, REMPLAN 2019.

#### 6.4.4. PROPULSIVE SECTORS

Propulsive industries are those that drive a local economy in terms of regional exports, employment, value-added and local expenditure on goods and services (i.e., backward linkages). Industry sectors with backward linkages have well developed local supply chains, which deliver broad based economic benefits to the region.

In Moorabool, the two key propulsive industries with strong local supply chains, are Agriculture and Construction, as well as Transport, Postal & Warehousing; Professional, Scientific & Technical Services; and Arts and Recreation Services. This demonstrated in Table T12, which outlines all propulsive industries.

This demonstrates the strength of the agricultural supply chain, which could influence development opportunities for the PEP, leveraging its position in relation to primary producers across the Shire.

**T12. PROPULSIVE INDUSTRY SECTORS, MOORABOOL SHIRE, 2020**

Industry	Backward Linkages	Exports	Employment	Value-Added
Agriculture, Forestry & Fishing	✓	✓	✓	✓
Construction	✓	✓	✓	✓
Education & Training			✓	✓
Health Care & Social Assistance			✓	✓
Transport, Postal & Warehousing	✓	✓		
Professional, Scientific & Technical Services	✓			
Manufacturing		✓		
Mining		✓		
Arts & Recreation Services	✓			
Rental, Hiring & Real Estate Services				✓
Retail Trade			✓	

Source: REMPLAN Economy, 2019; Note: industries that do not contribute to any of these categories were excluded from this table.

## 6.5. REGIONAL ECONOMY

A regional catchment has been established, covering the broader area across which supply chains, labour force, business activity and land supply opportunities are generally related (Figure F7). The area includes the **Moorabool, Wyndham, Melton, Golden Plains, Geelong** and **Ballarat** Local Government Areas.

This area will have a particularly strong influence on the Precinct opportunities in the medium to long term as the urban areas and economies of these surrounding areas continue to grow and change.

## F7. REGIONAL CATCHMENT



Source: Urban Enterprise.

### 6.5.1. REGIONAL ECONOMIC PROFILE

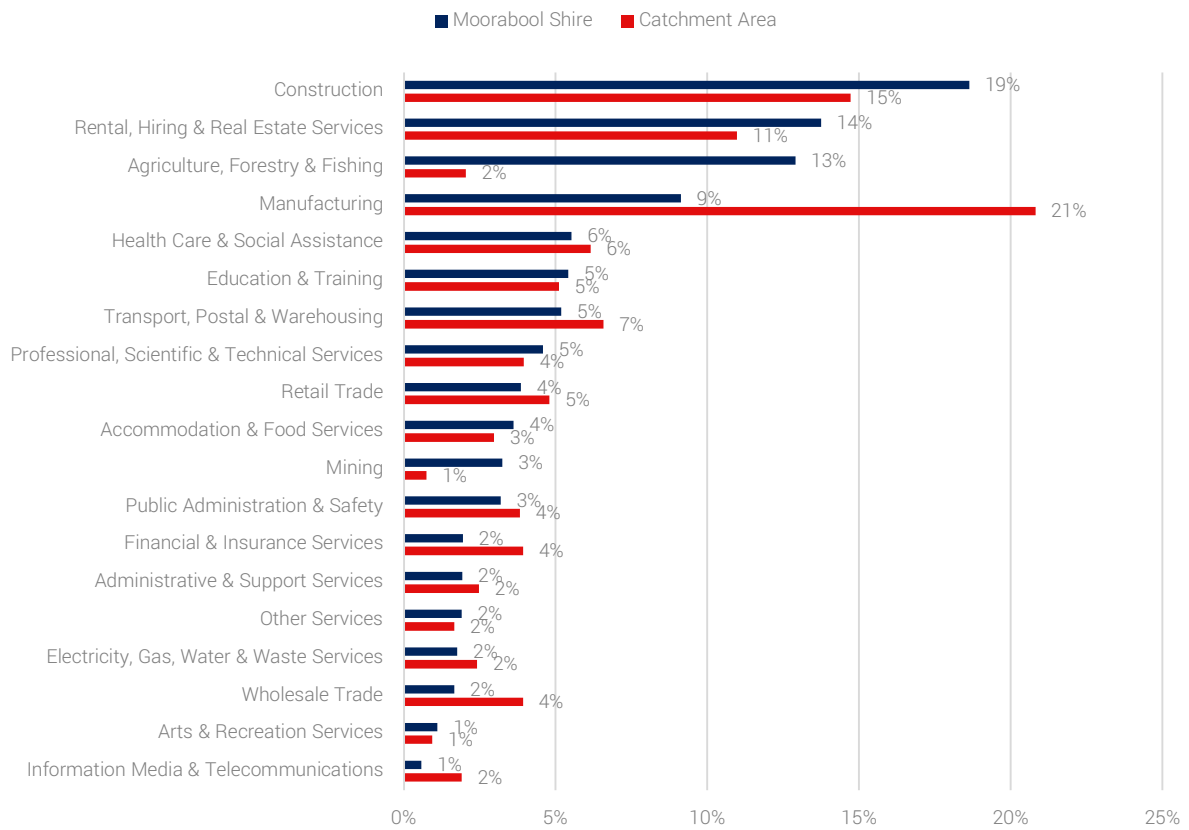
The following examines the economic and industry trends for the broader catchment area. These trends provide an indication of growth and demand for business investment in industries relevant to the spatial opportunities presented in the precinct.

#### INDUSTRY OUTPUT

Industry output for the catchment area and Moorabool Shire (as a proportion of total output) is presented in Figure F8. This shows that the broader area’s economy is driven primarily by a combination of manufacturing and population-driven industries (such as construction and real estate).

Moorabool’s existing specialisation in the agricultural sector is evident, driven by the ‘other agriculture’ (i.e., horticulture and food production) subsector.

**F8. INDUSTRY OUTPUT, MOORABOOL SHIRE & CATCHMENT AREA 2019**



Source: REMPLAN, 2019

## EMPLOYMENT GROWTH BY INDUSTRY

### Historic Employment Growth

Table T13 shows growth in employment by industry (from 2011 to 2019) in both the catchment area and Moorabool, highlighting relevant agricultural and industrial-based sectors. Between 2011 and 2019, the catchment area and Moorabool experienced significant employment growth of over 30%, driven by growth in population service industries, including health care and social assistance, education and training and retail trade. This reflects the recent population and urban growth within the catchment (examined further in Section 6.5.2).

For Moorabool Shire, employment growth was experienced in several industrial sectors such as transport, postal and warehousing and manufacturing. There has been significant growth in agricultural employment in both the catchment and Moorabool, reflecting the intensification of agricultural land uses in peri-urban areas as distinct from the overall reduction in employment in outer regional areas due to farm consolidation and increasing use of technology in broadacre agriculture.

**T13. EMPLOYMENT GROWTH BY INDUSTRY, MOORABOOL SHIRE & CATCHMENT AREA 2011 TO 2019**

Industry	Catchment Area Growth		Moorabool Shire Growth	
	No.	%	No.	%
Accommodation and Food Services	+5,697	+46%	+151	+31%
Administrative and Support Services	+2,670	+56%	+80	+70%
Agriculture, Forestry and Fishing	+1,384	+47%	+211	+36%
Arts and Recreation Services	+1,265	+45%	+63	+76%
Construction	+12,101	+89%	+406	+68%
Education and Training	+8,007	+40%	+284	+41%
Electricity, Gas, Water and Waste Services	+605	+34%	+18	+37%
Financial and Insurance Services	+811	+21%	-1	-2%
Health Care and Social Assistance	+12,026	+47%	+253	+35%
Information Media and Telecommunications	+467	+22%	-5	-17%
Manufacturing	-2,351	-10%	+18	+6%
Mining	+329	+63%	+65	+100%
Other Services	+2,505	+37%	+116	+59%
Professional, Scientific and Technical Services	+2,902	+34%	+101	+35%
Public Administration and Safety	+3,630	+33%	+14	+4%
Rental, Hiring and Real Estate Services	+958	+37%	+22	+27%
Retail Trade	+6,672	+26%	+19	+3%
Transport, Postal and Warehousing	+5,904	+58%	+122	+34%
Wholesale Trade	+470	+6%	-78	-45%
<b>Total</b>	<b>+66,052</b>	<b>+36%</b>	<b>+1,800</b>	<b>+30%</b>

Source: ABS Census 2011, REMPLAN 2019.

## Forecast Employment Growth

Federal Government employment projections are published for each SA4 area for the 5-year period from 2019 to 2024. This is demonstrated in Table T14, including the projected employment growth for Victoria, the Ballarat SA4 (including Moorabool Shire) as well as Geelong and Melbourne West. These SA4s capture all land in the catchment area and the employment projections provide an indication of the trends in industry growth that should be considered as part of strategic land use planning for employment precincts.

The projections show that:

- There is strong growth projected in population-driven sectors (construction, real estate, health, education) as well as professional services, driven by population and urban growth across the state. This reflects increased demand for utilities and key infrastructure, to service the growing residential population;
- The projected decline in agricultural employment reflects the sector-wide trend which is primarily relevant to broadacre farming sub-sectors; and
- There are differing projections for industrial (and value-adding) sectors such as manufacturing and transport, but employment in these industries is expected to grow across Victoria.

These forecasts have implications for the potential land use mix within the PEP, particularly in relation to the need to accommodate greater population service jobs in proximity to urban growth areas and the opportunity to facilitate businesses in both the agricultural and industrial sectors.

### T14. EMPLOYMENT BY INDUSTRY FORECAST CHANGE 2019-2024

Industry	Victoria	Melbourne - West	Ballarat (inc. Moorabool)	Geelong
Accommodation and Food Services	+18,788	+3,879	+322	+463
Administrative and Support Services	+11,351	+1,329	+23	+45
Agriculture, Forestry and Fishing	-1,532	0	-464	-124
Arts and Recreation Services	+9,978	+2,191	+33	+29
Construction	+38,037	+3,946	+252	+2,364
Education and Training	+40,137	+4,041	+690	+2,166
Electricity, Gas, Water and Waste Services	+3,383	+1,239	+38	+110
Financial and Insurance Services	+7,705	+2,237	+36	+27
Health Care and Social Assistance	+64,994	+12,025	+437	+4,333
Information Media and Telecommunications	+220	-153	+42	-
Manufacturing	+1,127	-55	+336	-720
Mining	+24	-12	+4	+8
Other Services	+9,051	-83	+40	+142
Professional, Scientific and Technical Services	+65,132	+6,388	+952	+1,481
Public Administration and Safety	+13,525	+5,181	+193	+609
Rental, Hiring and Real Estate Services	+4,507	+150	+22	+38
Retail Trade	+25,655	+7,244	+1,177	+682
Transport, Postal and Warehousing	+13,432	+9,191	-54	-251
Wholesale Trade	+4,393	-437	+215	+99
<b>Total</b>	<b>+329,909</b>	<b>+58,301</b>	<b>+4,293</b>	<b>+11,502</b>

Source: Department of Jobs and Small Business, 2019.

## 6.5.2. POPULATION PROFILE

### Forecast Population Growth

Population forecasts prepared by *Victoria in Future* (VIF) from 2019 to 2036 for the catchment area are provided in Table T15. The catchment is forecast to experience strong population growth of 3.2% p.a. to 2036, which is more than double the projected growth rate of Regional Victoria (1.5% p.a.).

Substantial growth is also expected in Moorabool Shire – Victoria in Future projects an average growth rate of 2.4% p.a. over the period 2019 to 2036, while Council's forecasts (prepared by Forecast ID) project a higher growth rate of 2.9% per annum over the same period.

The catchment is projected to increase in population by more than 500,000 residents over the 17-year period to 2036. In areas close to Parwan (i.e., Moorabool Shire and Melton City), the population is projected to increase by more than 180,000 residents over the period.

### T15. FORECAST POPULATION 2019-2036

Region	2019	2036	CHANGE 2019-2036	
			Growth	AAGR %
Ballarat	109,505	145,926	+36,421	1.9%
Golden Plains	23,722	33,073	+9,351	2.2%
Greater Geelong	258,934	360,245	+101,311	2.2%
Melton	164,895	332,051	+167,156	4.8%
Moorabool	35,049	49,939	+14,890	2.4%
Wyndham	270,487	459,216	+188,729	3.6%
Catchment Area	<b>862,592</b>	<b>1,380,451</b>	<b>+517,859</b>	<b>3.2%</b>
Regional Victoria	<b>1,595,974</b>	<b>1,986,620</b>	<b>390,646</b>	<b>1.5%</b>

Source: Victoria in Future 2019. Note: forecasts were prepared prior to the onset of the COVID-19 pandemic and are expected to be updated in the near future.

### Urban Growth Areas

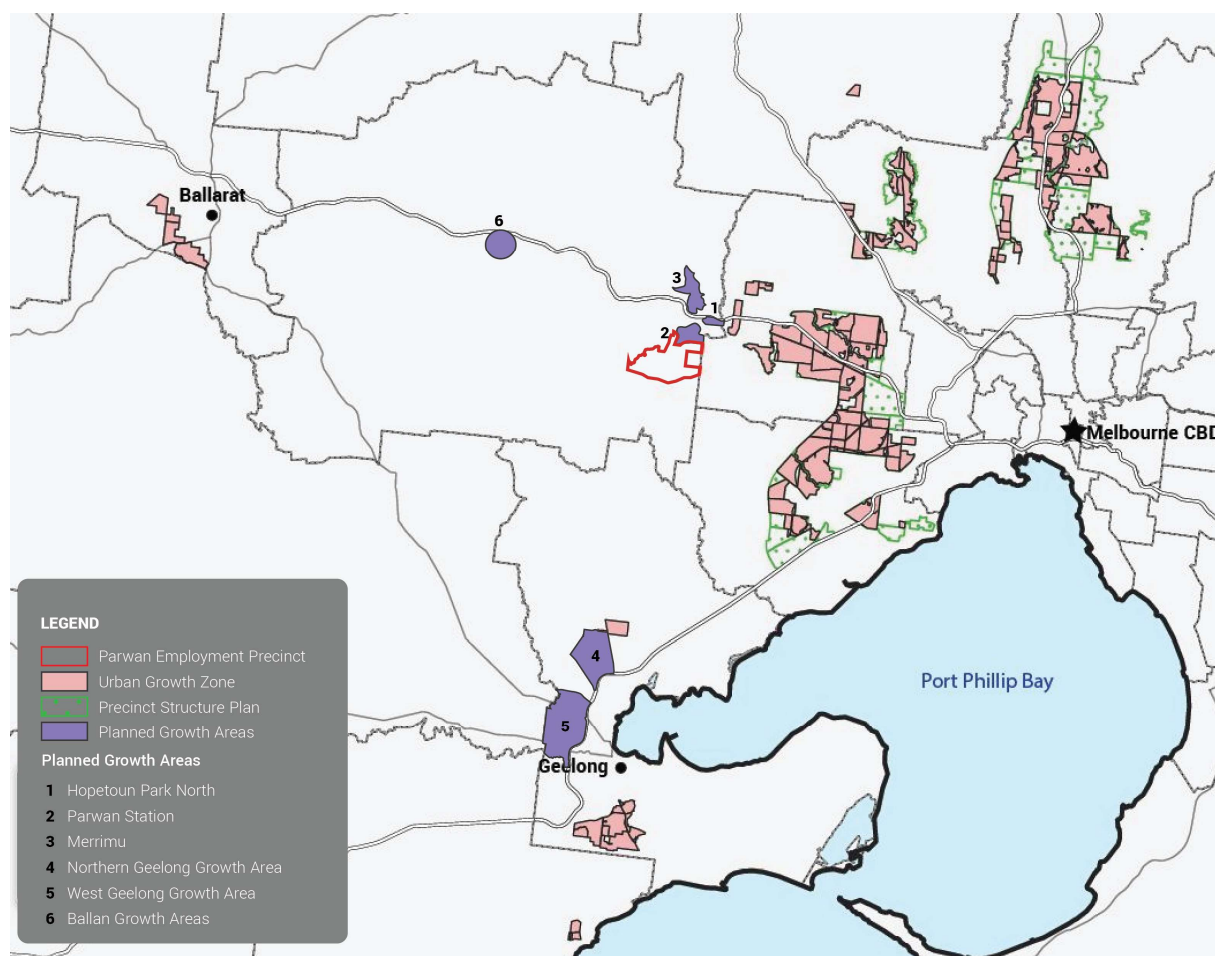
As shown in Figure F9, the Precinct is located in close proximity to many urban growth areas, including those in the Urban Growth Zone such as:

- Growth areas in Melton including Toolern, Rockbank, Mt Atkinson and others;
- Growth areas in Wyndham including Wyndham West and Wyndham North; and
- Ballarat West Growth Area.

The figure also shows other growth areas not yet zoned for urban development but designated for future urban growth proximate to the Precinct, including Parwan Station, Merrimu, Hopetoun Park North, Ballan Growth Areas and the Northern and Western Geelong Growth Areas.

These growth areas located across the catchment area are extending urban areas closer to Bacchus Marsh and the precinct, creating a substantial and fast-growing demand base and labour force. Over time, this growth will present increasingly significant opportunities for services and employment requiring urban employment land.

## F9. URBAN GROWTH AREA LOCATIONS



Source: Urban Enterprise, based on available VicData mapping layers.

### Local Population Growth

In the local area, population forecasts (2019 to 2036) are driven by urban development occurring within the Moorabool and Melton municipalities, including in the following main growth suburbs / SA2s:

- Bacchus Marsh: projected growth of +13,042 residents (+2.7% p.a.);
- Hillside: +40,005 residents (+5.8% p.a.);
- Melton South: +39,785 residents (+5% p.a.); and
- Rockbank-Mount Cottrell: +56,439 residents (+12.5% p.a.).<sup>11</sup>

Forecast ID projections prepared for Council show materially higher expected rates of growth in Bacchus Marsh than the VIF projections, equating to an additional 18,000 residents over the period 2019 – 2036 at an average rate of 3.5% per annum.

This development and growth will drive demand for infrastructure and services (water, power, gas, etc.), construction, retail, health and education services, as well as substantially increasing the supply of labour supply in the area. This will create opportunities for businesses in a variety of settings, including activity centres, institutions and employment precincts.

<sup>11</sup> Victoria in Future, 2019.

## 6.6. KEY FINDINGS

- There are a range of macro-economic trends influencing the direction of agriculture and energy/resource consumption that could impact the development of the PEP, including global demand for food production, agricultural innovation and new energy technologies.
- Moorabool's economy is currently driven by agricultural activities, extractive industries, tourism and population & professional services. In particular, agriculture and extractive industries are key propulsive sectors with strong local supply chains and export value that could drive future economic growth.
- The Precinct could accommodate businesses which support both existing agricultural strengths, production and distribution supply chains and emerging population driven demand for local employment and services. These businesses would extend across several land use types, including industrial, commercial and agricultural.
- Agricultural sector opportunities in locations close to Melbourne will be driven by higher intensity production such as nursery and nursery and horticulture businesses. Importantly, there is an opportunity for businesses in the PEP to support existing agricultural businesses in the Bacchus Marsh area, for example with food processing, packing and distribution.
- The region will experience strong population and urban growth, especially around Bacchus Marsh, Melton and Wyndham, which will require increases in infrastructure and services and drive demand for urban employment land. This land use has not been closely considered by previous studies.

# 7. LAND DEMAND AND SUPPLY

## 7.1. INTRODUCTION

This section provides a review of land demand and supply conditions for relevant land uses.

## 7.2. LAND SUPPLY

### 7.2.1. AGRICULTURAL LAND

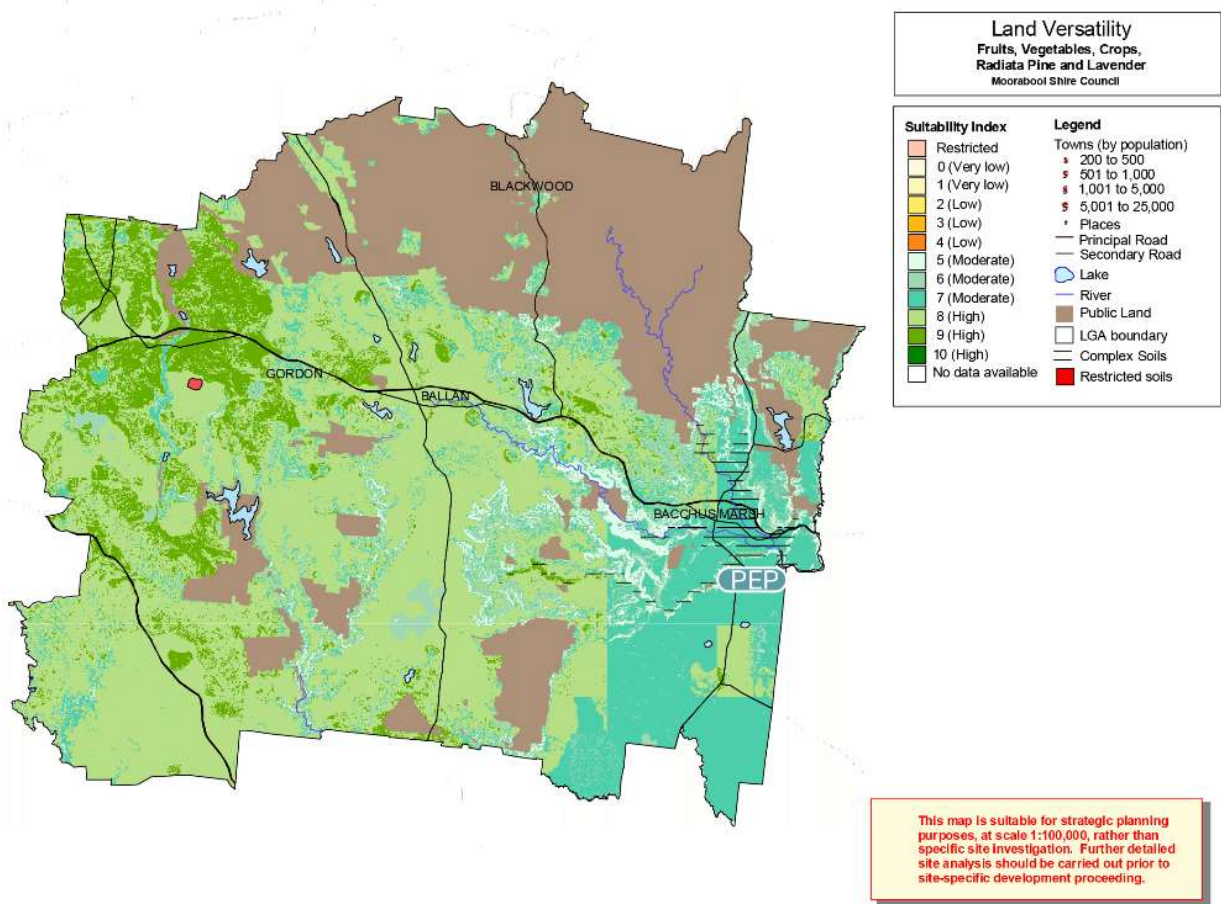
#### LAND QUALITY AND LAND USES

Agricultural production is a strength of the Moorabool economy and is a growth opportunity for the region. Figures F10 and F11 shows the land versatility (i.e., quality) for agricultural land across Moorabool Shire, as well as the types of land uses. Key points to note include:

- Most of Moorabool Shire consists of 'high' to 'moderate' quality agricultural land;
- The eastern area of the Shire is generally classified as 'moderate' quality land and consists of a combination of mixed farming and cropping;
- The Bacchus Marsh Irrigation District is highly fertile and productive land accommodating a concentration of horticulture, fruit and vegetable production;
- Land in the western section of the Shire is generally classified as highly suitable for agriculture and accommodates a range of farming activity including livestock grazing and vegetable growing.

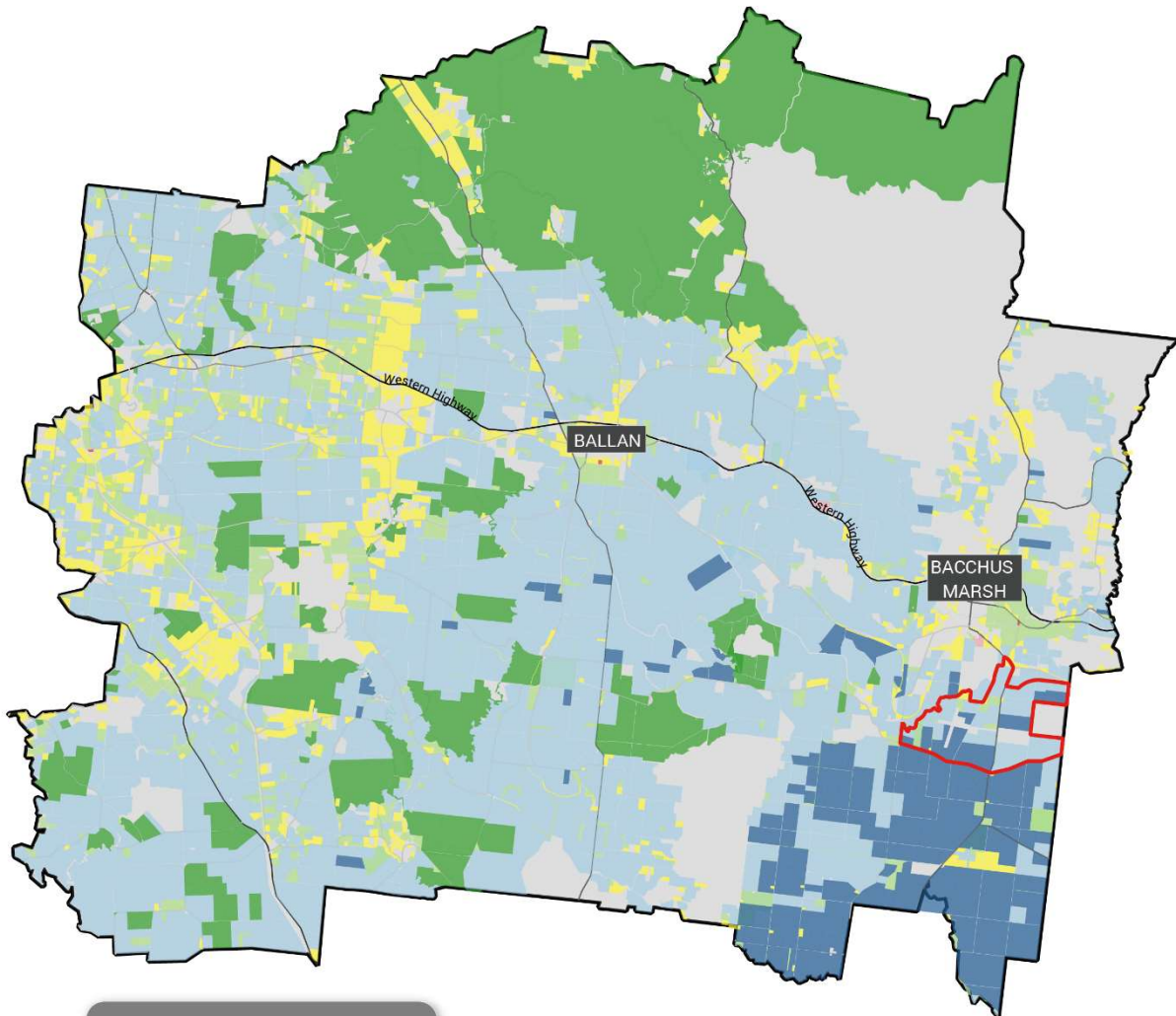
An important factor to consider is that agricultural and some agribusiness businesses generally have the ability to establish in a wide variety of locations across the State on land in the Farming Zone. A key limitation to this land is the availability of infrastructure for certain uses and the cost of connecting for a single site.

**F10. MOORABOOL SHIRE – QUALITY OF AGRICULTURAL LAND**



Source: Agriculture Victoria

**F11. MOORABOOL SHIRE – AGRICULTURAL LAND USES**



**LEGEND**

- Parwan Employment Precinct
- Moorabool Shire Boundary
- Land Use Type
- Poultry Farming
- Timber Production
- Mixed Farming and Grazing
- Cropping
- Horticulture Fruit and Veg Crops
- Rural Residential with agriculture

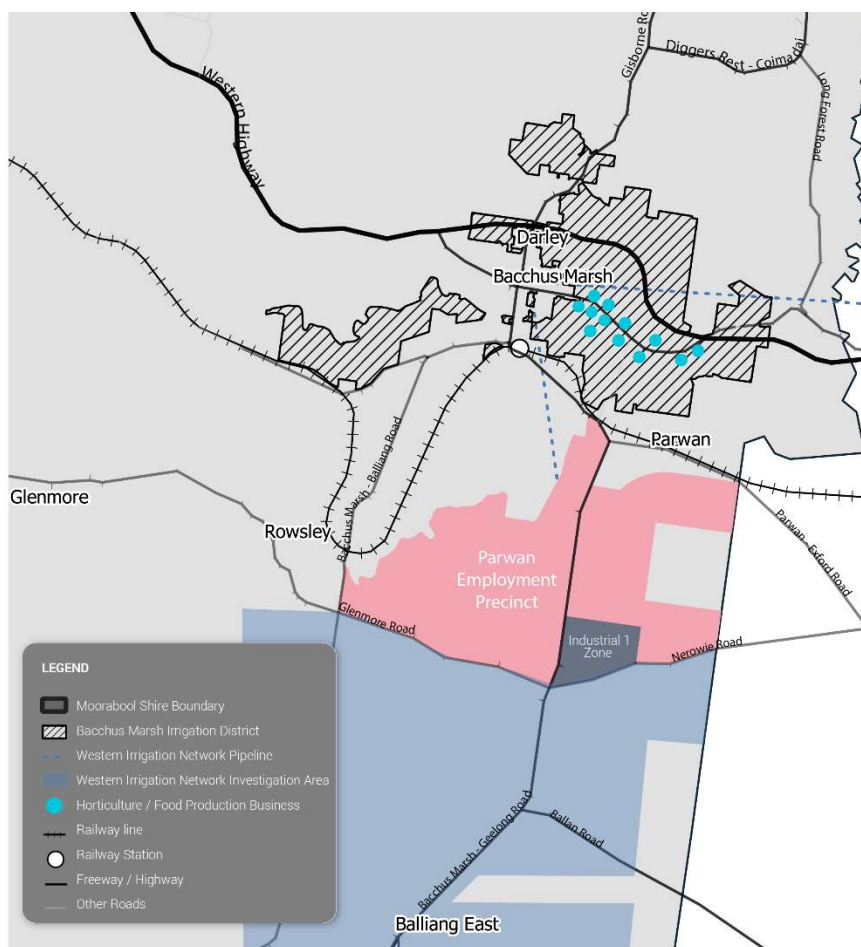
Source: Urban Enterprise, based on Agriculture Victoria mapping data.

## IRRIGATION ACCESS AND OPPORTUNITIES

Figure F12 illustrates the existing and proposed irrigation network in the vicinity of Bacchus Marsh and the Precinct. Key points to note are:

- Directly to the north of the PEP is the Bacchus Marsh Irrigation District (BMID), a state significant irrigation and agricultural district with fertile soils. The BMID supports most of the agricultural production surrounding Bacchus Marsh, which is transported throughout Australia and internationally. The BMID facilitates a high volume of horticultural production, primarily fruit and vegetables.
- The proposed Western Irrigation Network (WIN) would establish newly irrigated land to the south of the Precinct in the Balliang area. This could promote transformation of land uses from cropping to higher value and more intensive horticulture and other food growing uses. The WIN is expected to be completed for farming access in 2022.
- Greater Western Water has indicated that they have the potential to provide Class C water to supply land uses in the Precinct. End users can convert this into Class A water for agricultural and other use.
- There are well developed road networks connecting the Precinct to both the BMID and the proposed WIN, providing a strategic opportunity for businesses to locate within the Precinct which support the existing and potential future agricultural businesses and capitalise on supply chain benefits (e.g., packing and distribution). It is noted that many of the existing BMID producers pack and distribute produce as part of their on-site operations, however over the longer term the Precinct could provide excellent proximate opportunities for new producers and other supply chain efficiencies over time.

## F12. CURRENT AND PROPOSED IRRIGATED LAND



Source: Urban Enterprise, based on desktop analysis and information published by WIN.

## 7.2.2. EXISTING AND PROPOSED AGRIBUSINESS PRECINCTS AND CASE STUDIES

A scan of current and proposed agribusiness precincts in Victoria, Sydney and Adelaide shows that very few such precincts currently exist in south-east Australia. Three relevant precincts were analysed further as case studies with key points summarised in Table T16.

Overall, the following findings of the case study exercise are noted:

- There are very few examples of operating agribusiness precincts of the kind initially planned for Parwan across southern Australia.
- Of the relevant precincts identified, all are in relatively strategic locations in close proximity to key freight routes and close to major urban centres.
- Despite the strategic locations and policy support for development being in place for some time in most cases, only the Northern Adelaide example demonstrates a successful, well developed agri-business precinct. Further detail on this precinct is provided in Appendix D.
- Other precincts identified have achieved no or little development, such as:
  - Ararat Agribusiness Precinct appears to only include one large meat processing business in its current form;
  - Golden Plains Food Production Precinct is still in the early stages of development with no key businesses currently operating; and
  - Western Sydney Aerotropolis Agribusiness Precinct is a recent proposal that will not be operational in the short term.

There are limited examples of successful agribusiness precincts which is likely to reflect the difficulty in creating an economically sustainable and viable precinct of this nature. Successful examples primarily exist where substantial irrigated and serviced land exists and have mainly developed organically through the clustering of similar businesses in a location of competitive advantage.

## T16. AGRIBUSINESS CASE STUDY ANALYSIS

Case Study	Status	Key land uses	Key businesses	Employment	Development opportunities	Strategic attributes	Limitations	Competitive advantages
<b>Ararat Agribusiness Precinct</b>	<ul style="list-style-type: none"> <li>• Early stage development</li> </ul>	<ul style="list-style-type: none"> <li>• Intensive Food Production</li> <li>• Meat Processing</li> </ul>	<ul style="list-style-type: none"> <li>• Ararat Meat Exports</li> </ul>	<ul style="list-style-type: none"> <li>• 721 (current) people employed</li> </ul>	<ul style="list-style-type: none"> <li>• Hydroponics/Glasshouse</li> <li>• Micro-processing</li> <li>• Poultry, wine, honey, bread, pastry, goat Agri-Tourism/Events</li> </ul>	<ul style="list-style-type: none"> <li>• Proximity to key freight routes (Melbourne and Adelaide)</li> </ul>	<ul style="list-style-type: none"> <li>• Distance from major urban centres, freight terminals, and port and air freight.</li> </ul>	<ul style="list-style-type: none"> <li>• Opportunity for carbon offsets &amp; renewable energy.</li> <li>• Opportunity for micro processing.</li> <li>• Niche food – olives, wine, fruit, vegetables, honey, rabbit, and goat.</li> <li>• Availability of skilled agricultural workers.</li> </ul>
<b>Northern Adelaide Plains Food Cluster</b>	<ul style="list-style-type: none"> <li>• Completed</li> </ul>	<ul style="list-style-type: none"> <li>• Intensive horticulture production</li> </ul>	<ul style="list-style-type: none"> <li>• Largely comprised of family businesses – some of which have grown into multifaceted, large companies</li> </ul>	N/A	<ul style="list-style-type: none"> <li>• Market development &amp; export capability</li> <li>• Value-adding</li> <li>• Technology adoption</li> <li>• Enabling infrastructure</li> <li>• Circular economy projects</li> </ul>	<ul style="list-style-type: none"> <li>• Skilled multicultural workforce</li> <li>• Industry-led organisation</li> </ul>		<ul style="list-style-type: none"> <li>• Fertile red-brown sandy soils and a Mediterranean climate</li> <li>• Proximity to Adelaide/ freight routes</li> </ul>
<b>Western Sydney Aerotropolis Agribusiness Precinct</b>	<ul style="list-style-type: none"> <li>• Proposed</li> </ul>	N/A	N/A	<ul style="list-style-type: none"> <li>• 5,400 jobs by 2036</li> <li>• 10,000 jobs by 2056</li> </ul>	<ul style="list-style-type: none"> <li>• Integrated Logistics Hub, Food and Pharma Hub, Integrated Intensive production Hub and an Australian Centre of Excellence in Food Innovation may be located within the precinct</li> </ul>	<ul style="list-style-type: none"> <li>• Fully connected to local, district and regional centres by transport and parkland networks</li> <li>• Proximity to Sydney</li> </ul>	<ul style="list-style-type: none"> <li>• Topography</li> </ul>	<ul style="list-style-type: none"> <li>• Flexible enterprise land uses</li> <li>• Tourism and cultural uses are anticipated</li> <li>• Employment zone centres are provided across the precinct</li> </ul>

Source: Urban Enterprise, using desktop information published for each precinct and publicly available.

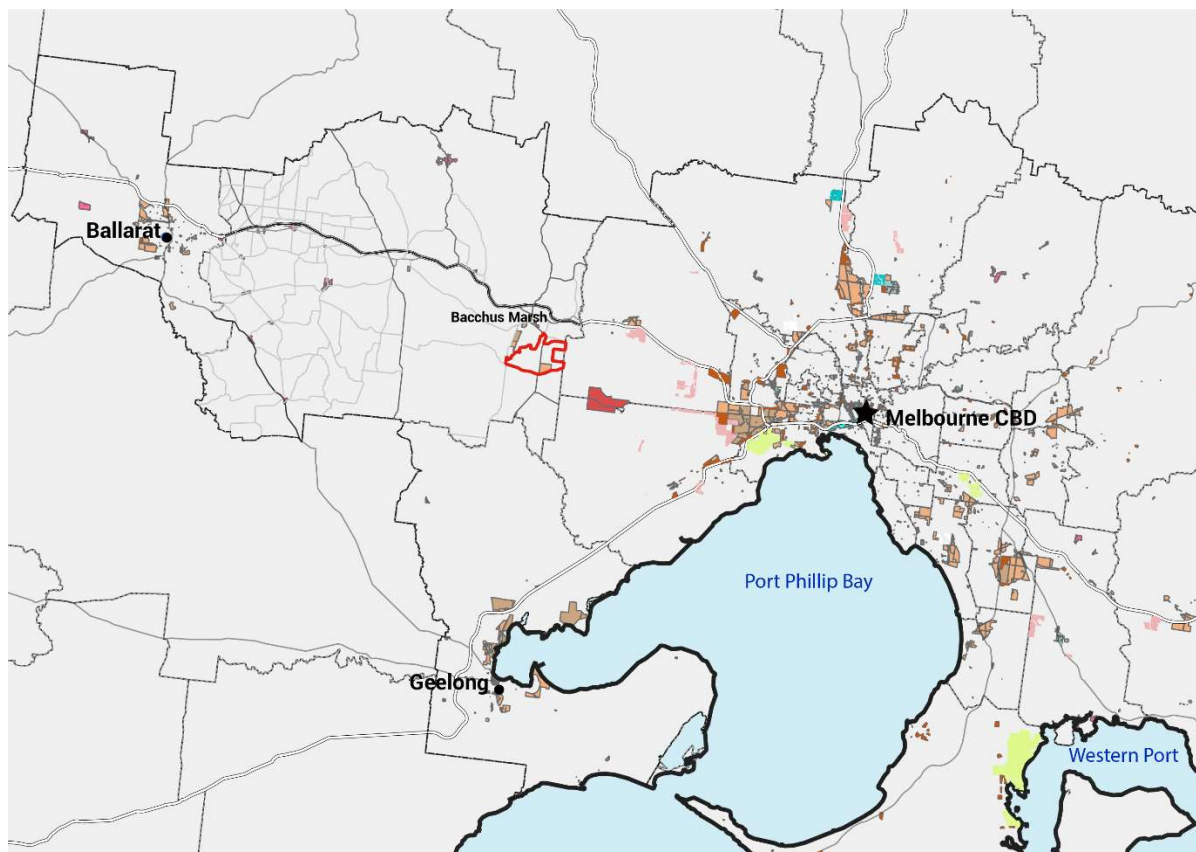
### 7.2.3. REGIONAL EMPLOYMENT LAND SUPPLY

Figure F13 provides an overview of employment land supply (commercial, industrial and other employment land) across Melbourne, Geelong, Ballarat and Moorabool. Figure F14 shows the current and proposed industrial land in Western Melbourne.

The Figures show that:

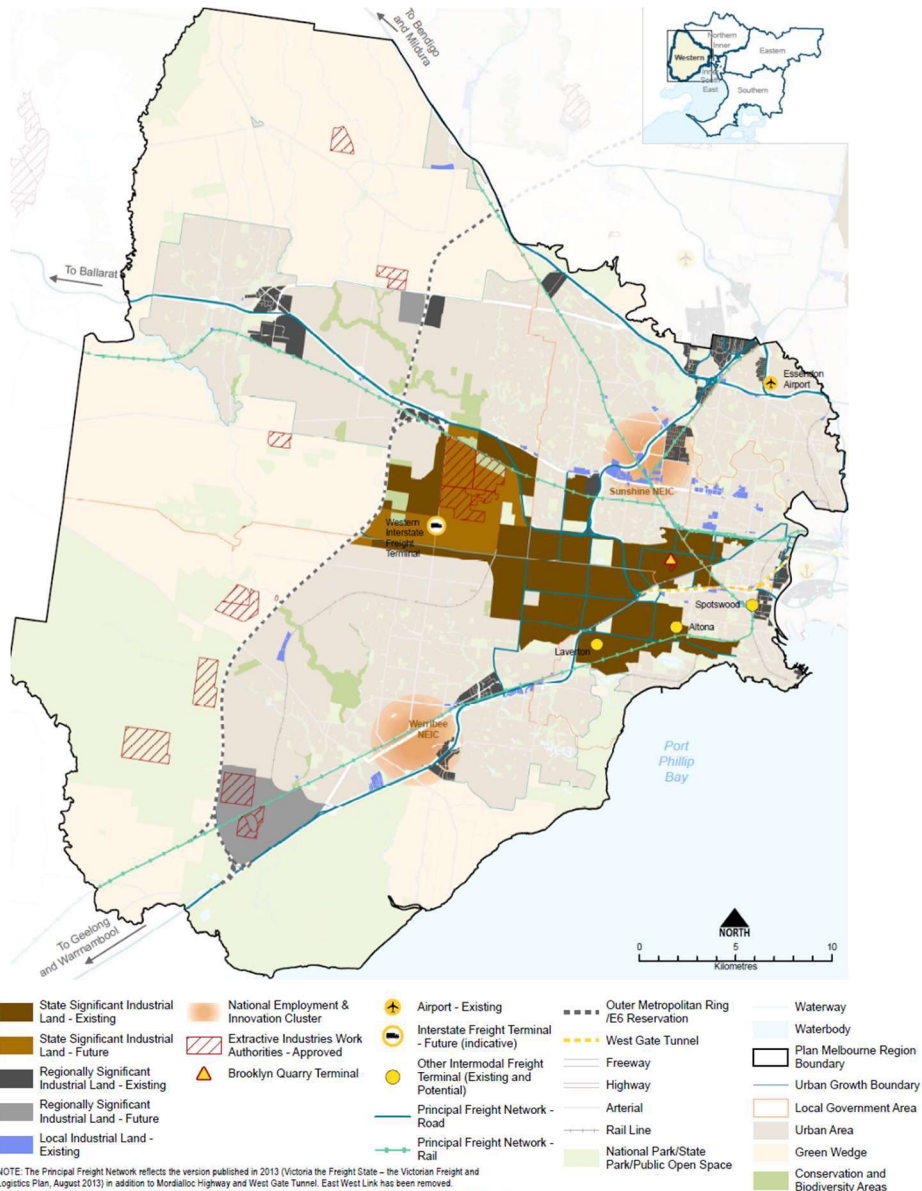
- Melbourne’s west contains a substantial quantum of employment land, however this land is rapidly being consumed. Strategic supplies of State Significant Industrial Land and the proposed Western Intermodal Freight Terminal will accommodate metropolitan demand in this area, particularly for logistics and freight purposes.
- There is limited employment land available in Moorabool Shire, although larger stocks are available in Ballarat and Geelong.
- The Werribee NEIC is identified as a cluster which could support approximately 50,000 jobs in health, education and research.
- Ongoing expansion of the Western State Significant Industrial Precinct is proposed, however some of this land is affected by earth resources. A large employment precinct is designated in Toolern which is planned accommodate both business park and industrial uses near the growth areas of Melton.
- The western section of Melton does not contain any further proposed employment precincts that would be located close to Parwan, and there are no other major employment precincts planned in or around Bacchus Marsh.

#### F13. REGIONAL EMPLOYMENT LAND SUPPLY



Source: Urban Enterprise, based on VicData mapping layers.

# F14. WESTERN MELBOURNE INDUSTRIAL LAND SUPPLY



NOTE: The Principal Freight Network reflects the version published in 2013 (Victoria the Freight State – the Victorian Freight and Logistics Plan, August 2013) in addition to Mondialoc Highway and West Gate Tunnel. East West Link has been removed. The Department of Transport are currently undertaking a review of the Principal Freight Network and will publish an updated one later in 2020.

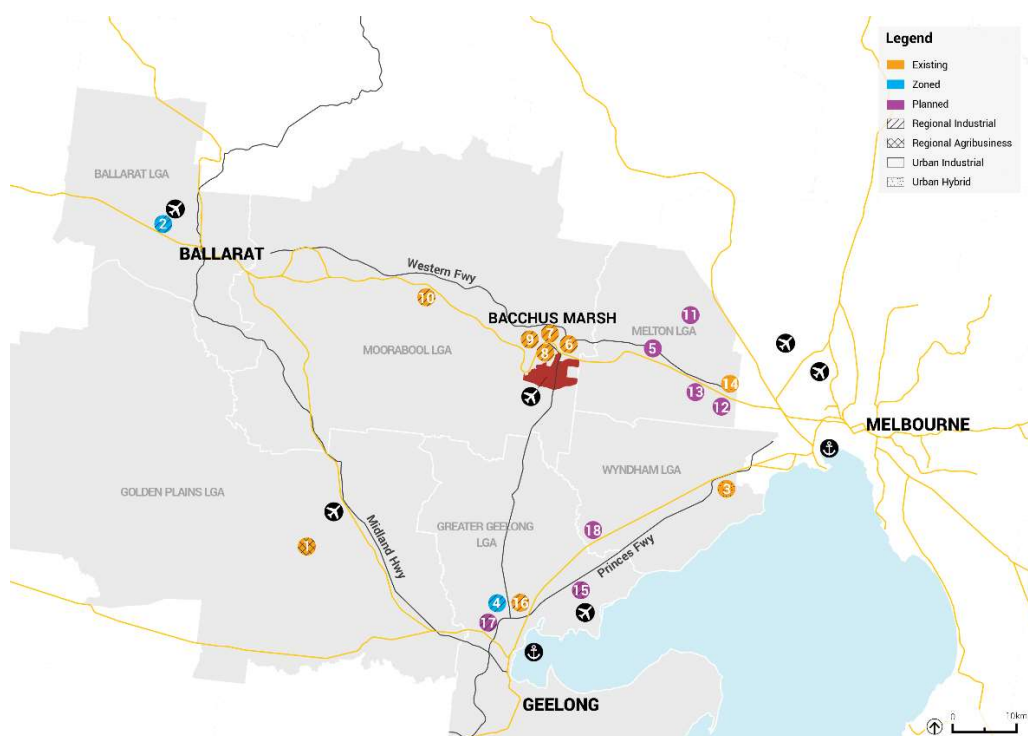
Source: Melbourne Industrial and Commercial Land Use Plan.

## MAJOR EMPLOYMENT PRECINCTS

Figure F15 shows the location of larger employment precincts in the catchment. The five most comparable precincts to Parwan are described in Table 17. Analysis of the table shows that:

- There are already several precincts in the area that have been identified as strategic locations for certain types of industrial and/or agri-business uses. In these circumstances, it is important to differentiate the land use vision and role of the precinct to appeal to particular business types based on the area's competitive advantages;
- The competing employment precincts are primarily focused on industrial uses, including light industry, manufacturing and logistics. The industrial-focused precincts are generally considerably smaller than the area of land available at Parwan;
- Agribusiness uses and research are planned for both Golden Plains and East Werribee, presenting options for businesses in those land use categories.
- Most precincts are well located to major freeways, and some are located close to ports. Parwan is at a relative disadvantage at present in terms of the relatively indirect access to the freeway network.

### F15. MAJOR EMPLOYMENT PRECINCTS IN THE REGION



Source: Urban Enterprise.

Whilst the five most comparable precincts are detailed in Table 17, the full list of employment precincts in the region shown in Figure 15 includes:

- |   |  |
|---|--|
| <ol style="list-style-type: none"> <li>1. Golden Plains Food Production Precinct</li> <li>2. Ballarat West Employment Zone</li> <li>3. East Werribee Employment Precinct</li> <li>4. Geelong Ring Road Employment Precinct</li> <li>5. Toolern Employment Precinct</li> <li>6. Maddingley 1 (Maddingley numbering from Moorabool Industrial Areas Strategy, 2015)</li> <li>7. Maddingley 2</li> </ol> | <ol style="list-style-type: none"> <li>8. Maddingley 3</li> <li>9. Maddingley 4 (JBD Industrial Park)</li> <li>10. Ballan Industrial Precinct</li> <li>11. Melton Highway Employment Precinct</li> <li>12. Hopkins Road Business Precinct</li> <li>13. Western Employment Precinct</li> <li>14. Ballarat Road Employment Precinct</li> <li>15. Avalon Airport Precinct (proposed)</li> <li>16. Lara Industrial Precinct</li> <li>17. Western Geelong Employment Precinct</li> <li>18. South-West Quarries Industrial Node</li> </ol> |
|---|--|

## T17. COMPETING EMPLOYMENT PRECINCT ANALYSIS

#	Name	LGA	Distance from PEP (km)	Type	Size / Jobs	Key Land Uses	Key Businesses	Strategic Attributes	Limitations
1	Golden Plains Food Production Precinct	Golden Plains	58km	Regional agribusiness	4000ha	<ul style="list-style-type: none"> <li>Intensive agriculture</li> <li>Broad hectare grazing</li> </ul>	<ul style="list-style-type: none"> <li>Eleven established intensive agriculture businesses including broilers, eggs and pigs</li> </ul>	<ul style="list-style-type: none"> <li>Proximate to Lethbridge Airport</li> <li>Road access via Midland Highway</li> </ul>	<ul style="list-style-type: none"> <li>Quality of roads is poor in some areas</li> <li>Sewage services are not currently available</li> </ul>
2	Ballarat West Employment Zone	Ballarat	80km	Regional Industrial	438ha	<ul style="list-style-type: none"> <li>Industrial</li> <li>Wholesale</li> <li>Logistics</li> <li>Construction</li> <li>Commercial</li> <li>Residential</li> </ul>	<ul style="list-style-type: none"> <li>Ballarat Intermodal Freight Hub Terminal</li> <li>Findlay Engineering</li> <li>Civil construction company - Pipecon</li> <li>Equipment manufacturer Westlab</li> <li>Milestone Benchtops</li> </ul>	<ul style="list-style-type: none"> <li>Freight hub on site</li> <li>Access for high productivity freight vehicles</li> <li>Close access to Ballarat airport</li> </ul>	<ul style="list-style-type: none"> <li>Development limitations associated with Ballarat Airport e.g., Height, noise</li> <li>Potential buffer requirements to nearby residential uses</li> </ul>
3	East Werribee Employment Precinct	Wyndham	34km	Urban hybrid	730ha	<ul style="list-style-type: none"> <li>Research &amp; development</li> </ul>	<ul style="list-style-type: none"> <li>CSIRO Food and Nutritional Sciences</li> <li>Dairy Innovation Centre</li> <li>Agri-food Technology</li> </ul>	<ul style="list-style-type: none"> <li>Potential for higher skilled "white collar" employment</li> <li>Access to Melbourne labour force</li> <li>Princes Highway frontage</li> </ul>	<ul style="list-style-type: none"> <li>None identified</li> </ul>
4	Geelong Ring Road Employment Precinct	Greater Geelong	40km	Regional Industrial	130ha	<ul style="list-style-type: none"> <li>Light manufacturing</li> <li>Service industry</li> <li>Freight</li> <li>Logistics</li> <li>Business Park</li> </ul>	<ul style="list-style-type: none"> <li>Construction supplies</li> <li>Light manufacturing</li> <li>Light engineering</li> <li>Warehousing and distribution</li> <li>Bus depots</li> <li>Defence activities</li> </ul>	<ul style="list-style-type: none"> <li>Road (Princes Freeway)</li> <li>Air (Avalon Airport)</li> <li>Sea (Port of Geelong)</li> <li>Industrial 2 Zone</li> </ul>	<ul style="list-style-type: none"> <li>Relatively limited area</li> </ul>
5	Toolern Employment Precinct	Melton	21km	Urban Industrial	420ha 22,000 jobs	<ul style="list-style-type: none"> <li>Light Industrial</li> <li>Restricted Retail/Showroom</li> <li>Business Park</li> <li>Specialised Uses</li> </ul>	<ul style="list-style-type: none"> <li>Trade and service industries</li> <li>Warehousing and Logistics</li> <li>Manufacturing and repairs</li> <li>Construction</li> <li>Trade supplies</li> </ul>	<ul style="list-style-type: none"> <li>Proximity to the proposed Toolern Metropolitan Activity Centre</li> </ul>	<ul style="list-style-type: none"> <li>Potential for residential buffer requirements</li> </ul>

Source: Various publicly available precinct plans and supporting information, compiled by Urban Enterprise, 2021.

## MOORABOOL INDUSTRIAL LAND SUPPLY

The Moorabool Industrial Areas Strategy (2015) found that although 346 hectares of industrial land was available in Bacchus Marsh at the time, much of this land was constrained for heavier industrial business use due to buffer requirements to sensitive uses and other constraints.

The Strategy recommended that a new location for manufacturing and other industrial activity should be established, with Parwan nominated as a leading candidate area.

Council is currently undertaking the Maddingley Planning Study which is reviewing the land within and surrounding the Maddingley Brown Coal mine. This area contains sections of land in both the Industrial 1 and Industrial 2 Zones. The outcomes of the study are not yet finalised.

## INDUSTRIAL AREAS SUITABLE FOR BUSINESSES WITH AMENITY IMPACTS

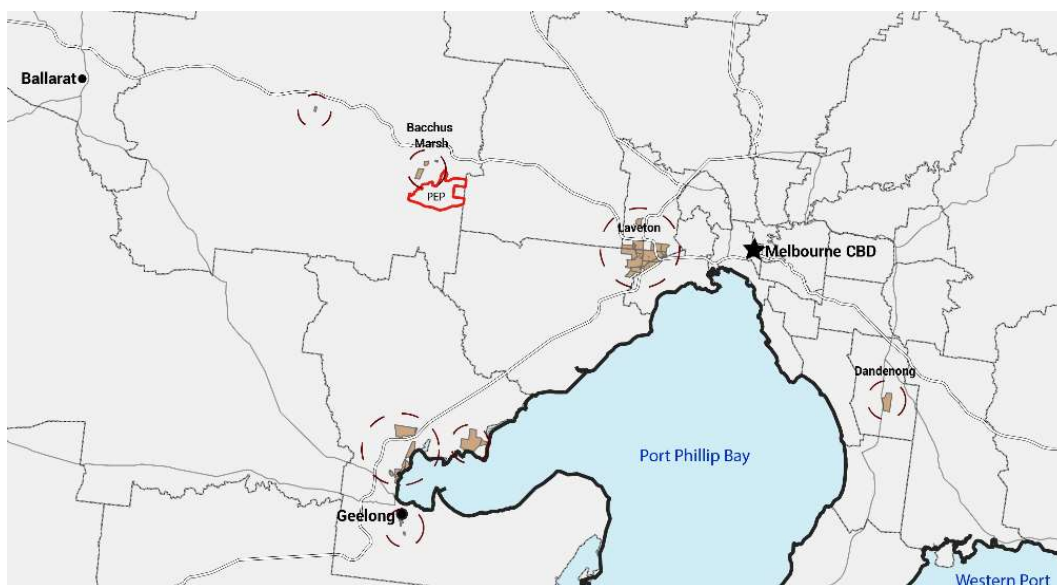
The Industrial 2 Zone is best suited to accommodate land uses with extensive buffers to sensitive uses and is therefore particularly relevant to many of the industrial land uses which could be contemplated for the PEP.

Figures F16 and F17 show the location of total and vacant land in the Industrial 2 Zone. Across metropolitan Melbourne, there are very few locations where this zone can be effectively applied due to the widespread presence of residential land and interfaces.

Other key findings are:

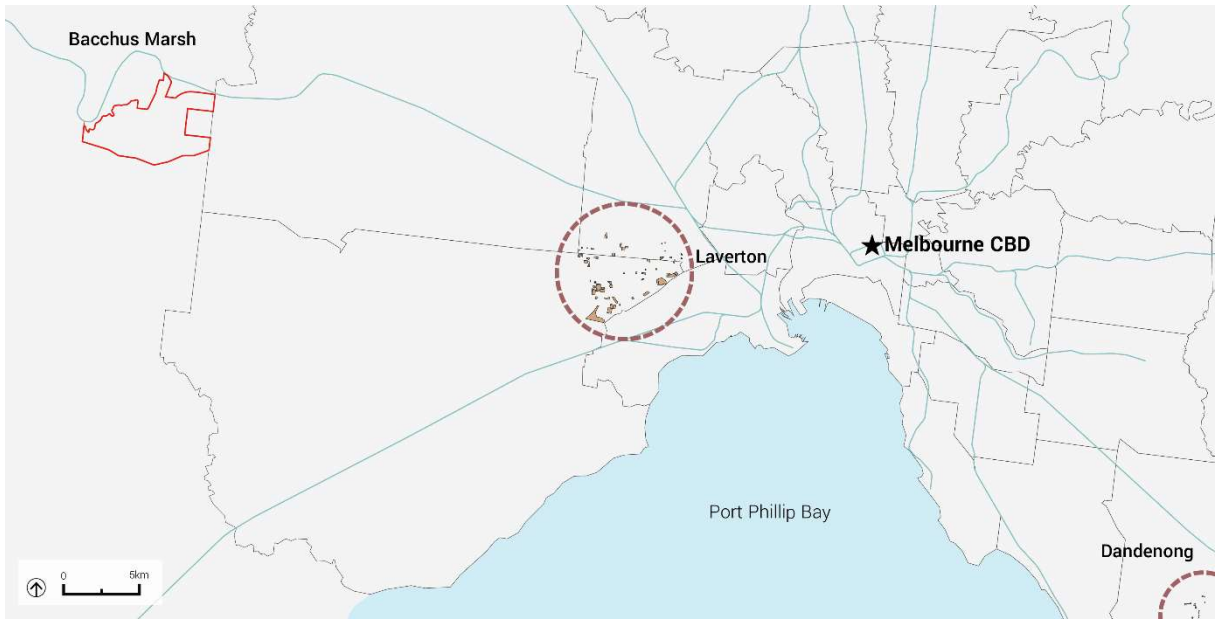
- Some land in Bacchus Marsh (Maddingley) is in the Industrial 2 Zone – this is used for a waste and recycling centre, storage yards, auto repairs and supplies, wholesalers, fitness centres and building supplies. Much of this land is either occupied or close to residential interfaces, limiting suitability for new businesses requiring separation from sensitive uses. The Maddingley Planning Study recommended rezoning most of this land from Industrial 2 Zone to Industrial 1, Industrial 3 or Commercial 2 Zone.
- The nearest other Industrial 2 Zone sites are in northern Geelong and the Western State Significant Industrial Precinct.
- Overall, large vacant sites in the Industrial 2 Zone are very scarce in eastern, southern and northern Melbourne, and becoming scarce in western Melbourne. Businesses seeking large separation from sensitive uses are faced with diminishing opportunities in the metropolitan area and are likely to seek other strategically located sites in peri-urban areas.

## F16. REGIONAL INDUSTRIAL 2 ZONED LAND SUPPLY



Source: Urban Enterprise, based on VicData mapping layers.

**F17. VACANT INDUSTRIAL 2 ZONE LAND IN MELBOURNE**



Source: Urban Development Program 2018, Urban Enterprise 2021.

### 7.3. LAND DEMAND

Demand for land in the Precinct will be driven by a range of factors, many of which have been discussed in earlier sections of this report. The key demand drivers are:

- Population growth in the catchment, generating demand for goods and services;
- Domestic and international demand for food, resulting in opportunities to expand the existing agricultural and related businesses in the area, through:
  - Expansion of existing business operations within the precinct;
  - Attraction of new agri-businesses to the precinct; and
  - Establishment of businesses which support the specialised local production role of agricultural businesses in the BMID and proposed WIN.
- The availability of suitable and relatively affordable land for business which is becoming scarcer in metropolitan Melbourne;
- The changing nature of energy production, waste processes and opportunities for new and existing businesses to engage in the circular economy; and
- Opportunities to increase the scale of uses that are complementary to the aerodrome, such as aircraft storage, aviation maintenance, flight training and so on.

#### 7.3.1. REAL ESTATE AGENTS AND MARKET SOUNDING

As noted earlier in this report, discussions with real estate agents active in the area and landowners and government stakeholders who have undertaken market sounding for the precinct identified the following key drivers and characteristics of land demand in the Bacchus Marsh area:

- There is significant demand for employment land in Bacchus Marsh including commercial and industrial which is currently not being met;
- Overall, there is strong interest in purchasing agricultural and industrial land in the Bacchus Marsh area, however the current infrastructure limitations in the Precinct will prevent any substantial investment; and
- The precinct is highly attractive to large industrial businesses seeking to co-locate with the proposed Protein Recovery Facility, driven by the opportunity to establish an innovative precinct focusing on industrial ecology / circular economy principles.

### 7.3.2. POPULATION GROWTH AND URBAN EMPLOYMENT LAND NEEDS

The population of Bacchus Marsh is projected to increase substantially over the period to 2041 and beyond. Victoria in Future projections for Bacchus Marsh are for an additional **18,134 residents** by 2041. The Bacchus Marsh Urban Growth Framework designates three new urban growth areas around Bacchus Marsh (Merrimu, Parwan Station and Hopetoun Park North) which will accommodate substantial volumes of new housing. The UGF estimates a total capacity of **36,200 additional residents**, double the current VIF projections to 2041.<sup>12</sup>

This scale of population growth will generate the need for a wide range of businesses across the land uses of retail, office, health, education, recreation and industrial. Although the existing Bacchus Marsh town centre and nearby employment precincts could accommodate some of this demand, vacant land supply is limited and consultation undertaken for this project has indicated that there is a substantial degree of latent demand for employment land, especially larger format retail and light industrial.

Population growth will considerably increase the demand for these land use types – the UGF does not nominate a major employment growth area, other than the agribusiness designated for Parwan. The Parwan precinct represents an important opportunity to accommodate population serving businesses across larger format retail, light industrial and recreation businesses, as well as maintaining and potentially improving employment retention in the area as the population grows over time.

#### ESTIMATING DEMAND FOR URBAN EMPLOYMENT LAND

Table 18 shows an estimate of the demand for urban employment land based on population projections, demand for larger format retail floorspace based on expenditure and estimates of urban / light industrial land needs based on the relationship between employment and population in Bacchus Marsh.

The assessment considers the employment land required to accommodate business activity over the period in which the Bacchus Marsh Urban Growth Framework will be realised. The UGF provides sufficient residential land to accommodate 13,000 dwellings and 36,000 residents<sup>13</sup> – this scale of growth will result in the population of Bacchus Marsh increasing from approximately 24,000 in 2021<sup>14</sup> to over 60,000 at UGF completion, excluding any population growth accommodated through infill development and other subdivisions.

A total of approximately 169ha of urban industrial land and 20 hectares of Commercial 2 Zone land would be needed in Parwan to accommodate projected employment and business demand. Projection details are provided in Appendix E.

#### T18. URBAN EMPLOYMENT LAND DEMAND

Land use / Zone	Gross Land Area	Indicative Employment
Urban Industrial Land	169 ha	2,500
Commercial 2 Zone Land	20.5 ha	410
<b>Total Urban Industrial and Commercial Land</b>	<b>189.5 ha</b>	<b>2,910</b>

Source: Urban Enterprise.

These projections assume that the PEP, as the primary location of greenfield land suitable for urban employment uses in Bacchus Marsh, will attract and accommodate the majority of urban industrial and larger format commercial development over the period (assumed at 80% of urban industrial and 75% of large format commercial). The balance of land demand would be accommodated in other locations, including existing industrial and commercial precincts

<sup>12</sup> This difference is a key reason for the higher population growth rate projected for Bacchus Marsh and Moorabool by Forecast ID / Council compared with VIF. To ensure consistency with current planning policy for Bacchus Marsh (i.e. the UGF), the Forecast ID projections have been applied to underpin future employment land demand projections in this study.

<sup>13</sup> Comprising Parwan Station, Merrimu and Hopetoun Park North Growth Areas.

<sup>14</sup> Forecast ID, Bacchus Marsh and Surrounds.

and potential other sections of new employment land that may be created through planning processes, such as the Parwan Station PSP or the Maddingley Planning Study<sup>15</sup>.

It is noted that demand for urban employment land is separate from and in addition to any demand and growth related to agribusiness, aerodrome or major industrial precincts that could be accommodated elsewhere in the Precinct which would capitalise on competitive advantages to serve state, national and international markets, as opposed to serving population growth in the Bacchus Marsh area.

## OTHER DEMAND INDICATORS

The Moorabool Industrial Land Strategy 2015 found that demand for industrial land in the municipality would be in the order of 193 hectares by 2051 (Table 19), an increase of 40 hectares compared with 2021. These projections were based on projected employment in the local area and as such do not fully capture the strategic opportunities and land take of major new businesses, such as those that have expressed interest in locating in the current Parwan Industrial 1 Zone<sup>16</sup>.

It is noted that the Strategy preceded the Bacchus Marsh Urban Growth Framework and, as such, does not factor in the additional residential land capacity and resulting higher capacity for and likely rate of population growth that the UGF facilitates.

The Strategy does identify the potential for existing industrial businesses in Bacchus Marsh to relocate from existing premises to a new industrial precinct to take advantage of larger properties, modern premises and reduced land use conflicts with established residential areas.

### T19. PREVIOUS INDUSTRIAL LAND DEMAND ASSESSMENT RESULTS, MOORABOOL SHIRE

Year	Demand (ha)	Vacancy Allowance (20%)	Total Required Industrial Land (ha)
2011	117.7	23.5	141.2
2021	127.7	25.5	153.2
2031	136.8	27.4	164.1
2041	149.3	29.9	179.1
2051	161.0	32.2	193.1

Source: SGS, Moorabool Industrial Areas Strategy, 2015.

### DEMAND FOR INDUSTRIAL LAND IN METROPOLITAN MELBOURNE

The Urban Development Program (2019) estimates that 337 hectares of industrial land was consumed in metropolitan Melbourne during 2019, the highest level of consumption since before the Global Financial Crisis. Over the last 5 years, industrial land consumption has averaged around 280 hectares per annum.

In Western Melbourne, the UDP notes that the Western SSIP has consistently maintained the highest average levels of land consumption and is the largest and most active industrial land market in Victoria, with 160 hectares consumed in 2019. The supply in this area is modelled to be exhausted in the mid 2030s (approximately 15 years). During periods of limited supply, it is common for prices to increase and land demand to be pushed to nearby areas. Consultation with several stakeholders identified that this is already occurring to some extent, with some industrial businesses requiring large sites already priced out of western Melbourne and looking for cheaper alternatives close to the metropolitan area. There is likely to be a role for Parwan in accommodating these types of businesses in the medium term.

<sup>15</sup> The Maddingley Planning Study was prepared concurrently to this Scoping Study. The Final Study report recommends rezoning certain land in Maddingley from the Industrial 2 Zone to the Industrial 1 Zone, Industrial 3 Zone or the Commercial 2 Zone, subject to an assessment of employment land demand and supply across Bacchus Marsh (Summary Brochure p.22-27).

<sup>16</sup> Note: This report was provided before the development of the Bacchus Marsh Urban Growth Framework (2019), which included significant population growth.

The decentralisation of industrial activity is also driven by rezoning of several industrial precincts in inner and middle ring suburbs, resulting in businesses being pushed from inner to outer suburbs. When combined with the very strong population growth and labour force growth in the western corridor, along with the major drivers of industrial land demand in the area (primarily transport and freight infrastructure), this is likely to drive ongoing land industrial demand along the western corridor.

Property market commentary on the industrial market in Melbourne's West confirms strong demand for industrial land in this area. Market research reports<sup>17</sup> into industrial land demand identified the following:

- Almost two thirds (62.5%) of all take up in the Melbourne industrial market in 2019 occurred in the Western industrial region.
- Land values for industrial land in the west rose by 10% over 2019, indicating strong demand, whilst values for lots greater than 5 hectares doubled over the same period.
- The demand is driven by many tenants from other areas, particularly the city fringe, moving to the west where rents are more affordable.

Although many industrial businesses currently operating in western Melbourne will not consider the attributes of Parwan as suitable for their business (especially transport and logistics businesses given road network weaknesses), others will be attracted to larger lots available at lower prices than metropolitan alternatives, if relatively affordable premises can be delivered in Parwan.

### **7.3.3. STRATEGIC BUSINESS ATTRACTION**

Consultation undertaken for this project identified the opportunity and importance of attracting strategic businesses serving broad catchments and export markets. The following observations regarding strategic business demand are relevant:

- The experience of landowners and state government agencies in fielding interest from large businesses at Parwan indicates that the scale of land demand for the precinct is likely to be considerably greater than simply accommodating local business demand and 'overflow' from metropolitan areas.
- The market sounding exercise undertaken by landowners of the Industrial 1 Zone area revealed that many businesses are seeking sites of between 3ha and 10ha - these businesses see a clear competitive advantage in locating in the precinct if co-location as part of an industrial ecology precinct can be achieved.

Based on current information and due to the nature of the businesses involved, it is difficult to predict the quantum of businesses and land requirements for these business types, however the strategic attributes of the precinct are such that these larger businesses could result in considerable land in the precinct being consumed over the long term if planning controls allow and if suitable infrastructure is made available.

The market sounding exercise undertaken by landowners and the interest expressed to State government by international businesses in locating within a designated circular economy / industrial ecology precinct adjacent to the proposed Protein Recovery Facility provides confidence that a substantial area of land should be designated for these land use types. The current Industrial 1 Zone has a gross area of 191 hectares – land should be designated adjacent to this zone for future businesses seeking to cluster with symbiotic activities and preferring separation from sensitive uses.

### **AGRIBUSINESS**

Previous studies and consultation for this scoping study revealed that several existing businesses intend to expand their agribusiness operations within the precinct. Key to these expansions and the demand for other agribusinesses to locate in the precinct is the availability of infrastructure, especially water, gas and electricity.

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<sup>17</sup> Knight Frank, Melbourne Industrial, March 2020; Melbourne West Industrial Market, Colliers, April 2020

Strong growth was achieved within the North Adelaide Plains Food Cluster through the provision of recycled water – a reliable water source could catalyse demand for greater food growing in the precinct.

## **AERODROME**

The Bacchus Marsh Aerodrome currently supports a variety of related land uses including aircraft storage, aviation businesses, flight training and a museum. As the population and business base of the broader region increases and as businesses are attracted to the PEP in particular, demand for aviation related businesses will increase.

The Draft BMA Masterplan projects an annualised growth in general aviation movements at the aerodrome of 2% over the forward period, which if realised would result in a 49% increase in movements in 2042 compared with 2022. This increase would translate to additional demand for hangars, businesses, training and related space. Land should be designated to enable an expansion of both landside and airside activity adjacent to the existing aerodrome and related uses. Although some land is available within the aerodrome itself, allowing for strategic longer term expansion of uses that are both directly and indirectly related to the aerodrome activities is recommended.

## **7.4. KEY FINDINGS**

- **There are limited examples of successful agribusiness precincts in Victoria and several other employment precincts in the region have been identified as strategic locations for certain types of industrial and/ or agri-business uses. It is therefore critical to differentiate the land use vision and role of the precinct based on the competitive advantages of the location.**
- **Melbourne’s west contains a substantial quantum of employment land, however this land is rapidly being consumed and is the strongest demand location for industrial land in Melbourne.**
- **There is limited employment land available in Moorabool Shire, although larger stocks are available in Ballarat and Geelong. The western section of Melton does not contain any further proposed employment precincts that would be located close to Parwan, and there are no other additional major employment precincts planned in or around Bacchus Marsh.**
- **There is significant demand for employment land in Bacchus Marsh including commercial and industrial which is currently not being met. Demand modelling estimates a need for an urban industrial and commercial precinct of approximately 190 hectares to support long term population and business growth in Bacchus Marsh.**
- **Across metropolitan Melbourne, there are very few locations where businesses seeking large buffers to sensitive uses can be accommodated (such as in the Industrial 2 Zone) due to the widespread presence of residential land and interfaces.**
- **The experience of landowners and state government agencies in fielding interest from large businesses indicates that the scale of land demand for the precinct is likely to be considerably greater than simply accommodating local business demand and ‘overflow’ from metropolitan areas.**
- **Other business demand is anticipated to respond to the competitive advantages of the precinct, in particular businesses seeking to respond to increased aviation activity, capitalise on infrastructure improvements for agri-business purposes and co-locate with the Protein Recovery Facility as part of a specialised circular economy precinct.**

## 8. LAND USE VISION AND PLANNING FRAMEWORK

### 8.1. INTRODUCTION

This section includes a refreshed land use vision for the Precinct and a Planning Framework which identifies the recommended approach to broad planning controls and intended land use outcomes in each broad section of the Precinct.

### 8.2. LAND USE CONSIDERATIONS

Figure F18 shows the key strengths, weaknesses, opportunities and threats for the Precinct.

#### F18. PEP SWOT ANALYSIS

<p style="text-align: center;"><b>Strengths</b></p> <ul style="list-style-type: none"> <li>• Proximity to freight routes</li> <li>• Proximity to urban growth areas and Melbourne’s urban fringe</li> <li>• Large land area and separation from sensitive uses</li> <li>• Strong policy support for business and employment outcomes</li> <li>• Access to major infrastructure assets, especially gas and wastewater.</li> </ul>	<p style="text-align: center;"><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>• Poor road connection to Western Freeway</li> <li>• High cost of establishing urban infrastructure capacity, particularly water and electricity</li> <li>• Current lack of an infrastructure funding plan</li> <li>• Lack of publicly owned land</li> </ul>
<p style="text-align: center;"><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Catalyst development can bring forward infrastructure investment</li> <li>• Catalyst business can establish place brand and clustering opportunity</li> <li>• Residential growth areas can provide labour and generate local demand for business growth</li> <li>• Aerodrome can support new businesses in the broader precinct and could also support further ancillary uses if infrastructure is available.</li> <li>• Agricultural specialisation in the surrounding area presents opportunities for supply chain benefits and further specialisation in food production and export.</li> <li>• Capitalise on global surge in circular economy investment and local need for greater resource and energy efficiency.</li> </ul>	<p style="text-align: center;"><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Competition from several other employment precincts to attract investment</li> <li>• Land use and investment uncertainty within precinct could lead to lost investment</li> <li>• COVID-19 Pandemic impacts on population growth and overall economic conditions</li> <li>• Substantial land area – if precinct development is not staged and divided into distinct sub-precincts, an oversupply of a particular land type could result, representing an opportunity cost.</li> </ul>

Source: Urban Enterprise, 2021.

The SWOT analysis brings into focus the breadth of employment and business opportunity that could be accommodated in the Precinct, along with the substantial challenges that need to be overcome in terms of infrastructure planning and development staging.

As discussed earlier in this report, although the Precinct is located in close proximity to both the Bacchus Marsh Irrigation District and the proposed Western Irrigation Network area, the research undertaken for this study indicates that dedicating all precinct land towards the ultimate development of a large-scale agribusiness precinct could risk

sterilising a highly strategic location for a range of business uses in favour of a land use outcome that is not certain to be achieved at the scale available across the Precinct.

Land demand and supply conditions and the strategic attributes of the precinct indicate that there is interest and opportunity to accommodate a range of employment uses within the precinct, including agribusiness, as well as:

- Industrial uses that can add-value to nearby primary producers as well as to other employment precincts in the region. In particular, leveraging its supply chain opportunities – packing and distribution – through its accessibility to key transport infrastructure and freight terminals (rail, air, port);
- Focusing on innovation in agriculture/food technology to adapt to changing technologies in this sector, which could increase Victoria’s competitiveness and help meet global demand for food production;
- Investment that helps accommodate the significant population and urban growth expected in the region and improve local employment retention, including offices, larger format retail and light industrial;
- Seeking to establish a place brand and cluster of ‘future economy’ uses which prioritise resource efficiency as part of a circular economy model, aligning with global trends and investment in these sectors.

### 8.3. PRECINCT VISION AND VALUE PROPOSITION

#### VISION

The recommended land use vision for the Precinct is shown below.

#### **Precinct Vision**

**Parwan will be a unique enterprise precinct that is well serviced and has been progressively and deliberately developed over time to meet both local and global economic opportunities.**

**The precinct will attract businesses and investors across the industrial, commercial, agri-business and aviation sectors to capitalise on the locational advantages, strategic infrastructure investment and the place brand as a location of choice for investors in the circular economy.**

#### VALUE PROPOSITION

- The precinct offers a unique opportunity for businesses to operate on large properties close to a growing labour force, produce source, consumption source and transport infrastructure yet separated from sensitive uses.
- The precinct has a catalyst development which is driving infrastructure investment and partnerships between stakeholders. Other land in the precinct can leverage and benefit from this investment over time.
- The precinct has a catalyst land use that will drive an identity and create a brand value which will appeal to investors and businesses involved in the circular economy.
- There is potential for businesses to develop a place brand that aligns with the Moorabool image and identity which draws heavily on the environmental values of the area.
- The precinct is located adjacent to major infrastructure assets which can be leveraged to provide efficient delivery of gas, sewerage and water.
- The precinct is the only dedicated growth area employment precinct in Bacchus Marsh with unconstrained capacity to accommodate business demand in response to substantial increases in local population.

## 8.4. LAND USE RECOMMENDATIONS

### KEY PRECINCTS

Four broad land use sub-precincts are recommended as follows:

- Urban industrial and commercial  
These uses are best accommodated in the northern section of the Precinct in proximity to the Parwan Station residential growth area. This area is within reverse amenity buffers for the residential area and is not suitable for heavier industry or other uses with off-site impacts but could assist in meeting demand for larger format retail, office and light industrial uses that cannot be met elsewhere in Bacchus Marsh.
- Agribusiness  
Several agribusiness uses exist through the central section of the Precinct, some with plans to expand. Lot sizes are smaller in this section, and it is also relatively remote from infrastructure nodes (with the exception of the wastewater treatment plant which presents the opportunity to provide recycled water for treatment and use in agricultural production). This section of the precinct should retain a focus on agribusiness uses to complement and build on existing uses in the area, especially once greater infrastructure capacity is made available in the precinct (which is expected to be led by larger industrial development to the south).
- Aviation and related uses  
A strengthened aerodrome sub-precinct in the west of the precinct could leverage existing proposals for ancillary uses such as training and accommodate the projected increase in movements, visitation and subsequent land requirements for associated businesses and uses (especially if infrastructure investment enables greater land use intensity in this area). Although the aerodrome currently performs a primarily recreational and emergency services role, there are benefits of ensuring that the operations are protected and that any synergies with employment precinct development can be achieved.
- Large format future economy precinct  
A future economy precinct in the south and east of the precinct, taking in larger developer land holdings with a focus on circular economy opportunities that can support/leverage existing agribusiness and industrial activity, including renewable energy, waste to energy uses, food technology/innovation, etc. This section of the precinct is strategically located away from sensitive uses and adjacent to the early infrastructure access that will be created by catalyst investment in the Protein Recovery Facility.

### OTHER AREAS

#### Special Use Zone

Land in the Special Use Zone in the north-western section of the precinct is currently zoned for mining activity (SUZ1). The Maddingley Planning Study is reviewing the appropriateness of the zone, however no alternative zoning is proposed at this stage and the study is yet to be implemented.

Parts of the land appear constrained for development, primarily due to steep topography and the presence of several declared waterways. Other parts may be suited to commercial land uses given exposure to main roads and proximity to the Parwan Station PSP and Bacchus Marsh urban area.

Given the current zoning and observed development constraints, it is recommended that this section of land be further investigated prior to any inclusion in the PEP. This investigation should consider the extent of developable land, whether the land can be readily serviced, and planning considerations associated with proximity to mining activities.

## Farming Zone Land West of Aerodrome

A section of Farming Zone land in the south-west corner of the Precinct is relatively remote from infrastructure and catalyst land uses and not required for employment land uses from a land supply perspective.

This area is therefore not recommended for any initial rezoning.

### LAND USE PLAN

An indicative land use plan has been prepared as shown in Figure F19, with a summary provided in Table 20. The recommended areas have regard to demand analysis and practical groupings of existing properties proximate to key infrastructure and catalyst land uses. Likely development encumbrances have also been considered based on maps shown in Appendix F.

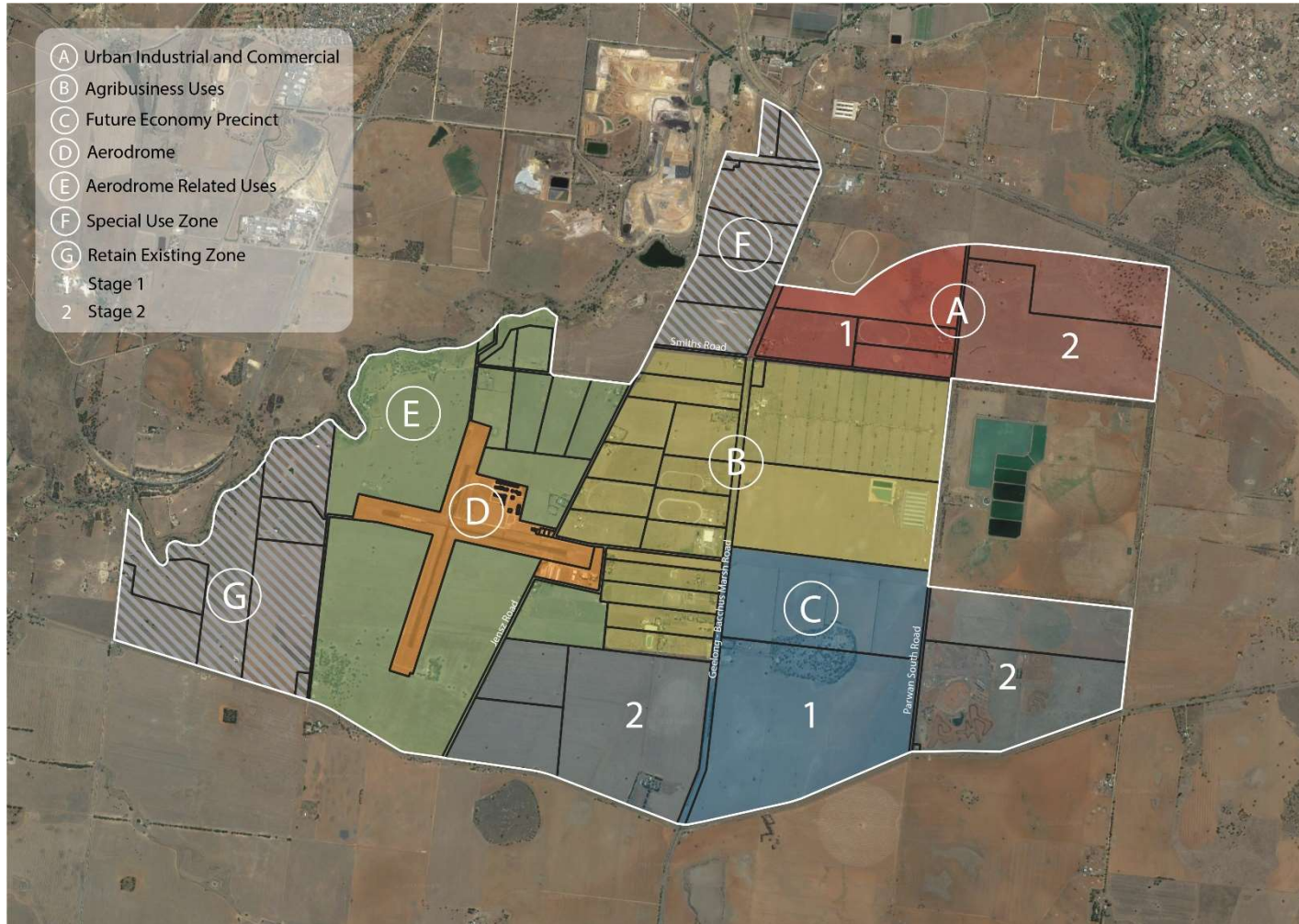
Indicative development staging is nominated in Table 20 and shown in Figure F19 to provide guidance on the spatial locations that are most proximate to existing infrastructure and accessibility and are expected to be more conducive to early development than the balance of the respective sub-precincts. This is important from an infrastructure investment and sequencing perspective given the substantial area of land in the overall Precinct and the long timeframes over which full development is expected to occur based on demand projections.

### T20. LAND USE RECOMMENDATIONS SUMMARY

Sub-precinct	Role / Catchment	GDA (ha)	Staging
A: Urban industrial and commercial	District	290 ha	First stage west of Parwan S. Rd (114ha)
B: Agribusiness uses	Regional	465 ha	Infrastructure led
C: Future economy	State	500 ha	First stage IN1Z (190ha) and adjacent land to north.
D: Aerodrome	Regional	N/A	Based on Aerodrome Masterplan
E: Aerodrome related uses	Regional	135 ha	Commence with sites adjacent aerodrome
F: Special Use Zone	Subject to further investigation		
G: Farming zone west of aerodrome	Retain existing zone		

Source: Urban Enterprise. GDA is based on property area minus airport land and any apparent encumbrances including steep land, waterways and associated setbacks and conservation areas.

**F19. RECOMMENDED LAND USES AND SUB-PRECINCTS**



Source: Urban Enterprise. Note: land areas and boundaries are indicative only and subject to refinement / change.

## **8.5. PLANNING FRAMEWORK**

### **8.5.1. SUITABILITY OF CURRENT ZONES**

Most land within the Precinct is currently in the Farming Zone. The purposes of the Farming Zone include:

- To provide for the use of land for agriculture.
- To encourage the retention of productive agricultural land.
- To ensure that non-agricultural uses, including dwellings, do not adversely affect the use of land for agriculture.

The vision for the PEP is for a more intensive employment and production-focussed precinct, requiring substantial infrastructure provision and planning controls which align with the vision. Although the Farming Zone permits a range of agricultural and related uses to occur within the precinct, the use and development of land for more urban industrial and related activities is not possible within the zone. Importantly, the Farming Zone has a minimum subdivision area of 100 hectares in this location.

This requires consideration of the most suitable alternative planning zones which align with the vision and will facilitate investment, development and business attraction.

### **8.5.2. LAND USES AND COMPATIBLE ZONES**

Table 21 shows the land uses that could be encouraged within each sub-precinct based on this scoping study and the zones within which these types of uses could potentially be accommodated. Land uses are subject to refinement as part of precinct planning and a range of zoning options are available as discussed in the following sections.

## T21. PROPOSED LAND USES BY SUB-PRECINCT

Sub Precinct	Purpose	Encouraged Land Uses <sup>1</sup>	Potential Zone(s) and lot sizes
<b>A Urban Industrial and Commercial</b>	To accommodate urban commercial and light industrial uses which respond to local and sub-regional demand for goods and services.	<ul style="list-style-type: none"> <li>• Service industry</li> <li>• Industry</li> <li>• Restricted retail</li> <li>• Trade supplies</li> <li>• Landscape gardening supplies</li> <li>• Manufacturing sales</li> <li>• Warehouse</li> <li>• Indoor recreation</li> <li>• Office</li> <li>• Service station</li> <li>• Car sales</li> </ul>	<ul style="list-style-type: none"> <li>• Industrial 1 Zone</li> <li>• Commercial 2 Zone</li> </ul> <p>Lot sizes typically range from 0.1ha to 2ha.</p>
<b>B Agribusiness</b>	To facilitate growth of existing agribusinesses and attraction of new businesses (including those ancillary to agriculture) to capitalise on improved infrastructure.	<ul style="list-style-type: none"> <li>• Agriculture</li> <li>• Horticulture</li> <li>• Animal production*</li> <li>• Industry</li> <li>• Warehouse</li> <li>• Primary produce sales</li> </ul>	<ul style="list-style-type: none"> <li>• Special Use Zone</li> </ul> <p>Lot sizes typically range from 4ha to 20ha.</p>
<b>C Future Economy Precinct</b>	To facilitate business growth in larger format industrial land uses with a focus on land extensive businesses and circular economy objectives.	<ul style="list-style-type: none"> <li>• Rural industry</li> <li>• Research and development centre</li> <li>• Research centre</li> <li>• Industry</li> <li>• Warehouse</li> <li>• Energy generation</li> <li>• Utility installation</li> <li>• Education centre*</li> </ul>	<ul style="list-style-type: none"> <li>• Industrial 1 Zone</li> <li>• Industrial 2 Zone</li> </ul> <p>Lot sizes typically exceed 3-5ha.</p>
<b>D Aerodrome  E Aerodrome Related Uses</b>	To facilitate an expansion of existing airport uses and accommodate businesses seeking to capitalise on proximity to the airport.	<ul style="list-style-type: none"> <li>• Transport and minor logistics</li> <li>• Helicopter landing</li> <li>• Emergency services</li> <li>• Education centre*</li> <li>• Warehouse</li> <li>• Energy generation</li> <li>• Industry</li> <li>• Outdoor recreation.</li> </ul>	<ul style="list-style-type: none"> <li>• Special Use Zone (aerodrome)</li> <li>• Industrial 1 Zone</li> </ul> <p>Range of lot sizes.</p>

Source: Urban Enterprise. \* see interfaces section for limitations. 1. Uses are based on the economic analysis in this report. Not intended as an exhaustive or definitive list of all land uses – this will need to be defined as part of Precinct Plans and associated Planning Scheme Amendments and may require adjustment based on further investigations and planning considerations.

### 8.5.3. ZONE OPTIONS

The Victoria Planning Provisions provide a range of zone options which could be applied to the PEP – relevant zone options are considered as follows.

#### OTHER RURAL ZONES

In addition to the Farming Zone, the following five rural zones are available<sup>18</sup>:

- Rural Activity Zone – a mixed use rural zone that caters for farming and other compatible land uses. The main feature of the Rural Activity Zone is the flexibility that it provides for farming and other land uses to co-exist.
- Rural Conservation Zone – a conservation zone that caters for rural areas with special environmental characteristics
- Green Wedge Zone – a zone that provides for all agricultural uses and limits non-rural uses to those that either support agriculture or tourism, or that are essential for urban development but cannot locate in urban areas for amenity or other reasons
- Green Wedge A Zone – a zone that provides for all agricultural uses and limits non-rural uses to those that support agriculture, tourism, schools, major infrastructure and rural living
- Rural Living Zone – a zone that caters for residential use in a rural setting.

The only rural zone potentially aligned with the PEP vision is the Rural Activity Zone (RAZ), which could be applied to achieve the land use vision of the Agribusiness sub-precinct. Planning Practice Note 42 identifies that the RAZ is “designed to be applied to rural areas where:

- Farming is an important activity in the area but the planning objectives identified for the land support the establishment of other land uses;
- A mixed-use function would support farming activities in the area, assist in preventing the unplanned loss of productive agricultural land elsewhere, or allow for the logical and efficient provision of infrastructure;
- The use of land in the area for non-farming purposes would not compromise the long term productivity of surrounding farmland;
- Appropriate buffers can be provided between different land uses so that land use conflicts are avoided;
- The planning authority has developed a clear policy about how discretion in the zone will be exercised.”

PPN42 notes that “Possible Rural Activity Zone areas include:

- An existing mixed use rural area where the mix of uses complements the agricultural, environmental and landscape values of the area and supports the council’s urban settlement objectives;
- Rural areas where commercial, tourism or recreational development will complement and benefit the particular agricultural pursuits, landscape features or natural attractions of the area;
- Farming areas where complementary rural industry, intensive animal husbandry, agribusiness uses, and rural research facilities are encouraged.”

Any consideration of applying the RAZ should include a review of whether the zone would adequately enable intensification of agribusiness and associated uses to occur (noting the substantial increase in infrastructure that is proposed) and whether the schedule to the zone could be designed to enable the vision for the sub-precinct to be achieved.

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<sup>18</sup> Planning Practice Note 42 – Applying the Rural Zones.

## **INDUSTRIAL AND COMMERCIAL ZONES**

The relevant purposes of the industrial and large format commercial zones are summarised below:

- Industrial 1 Zone:
  - To provide for manufacturing industry, the storage and distribution of goods and associated uses in a manner which does not affect the safety and amenity of local communities.
- Industrial 2 Zone:
  - To provide for manufacturing industry, the storage and distribution of goods and associated facilities in a manner which does not affect the safety and amenity of local communities.
  - To promote manufacturing industries and storage facilities that require a substantial threshold distance within the core of the zone.
- Commercial 2 Zone:
  - To encourage commercial areas for offices, appropriate manufacturing and industries, bulky goods retailing, other retail uses, and associated business and commercial services.

The above zones are well aligned with the vision for several of the sub-precincts. For example, the Industrial 1 Zone and Commercial 2 Zone are aligned with the vision for the Urban Industrial sub-precinct, while the Industrial 2 Zone is well aligned with the vision for the Future Economy sub-precinct.

It is important to note, however, that the PEP vision is for a relatively specialised and complex mix of land uses across the precinct which will require close consideration of the interfaces between precincts and the land uses that are to be encouraged within each precinct (including any siting and interface issues to avoid land use conflicts within the PEP).

In this context, the direct application of a combination of existing zones may not lead to the best planning outcome, warranting consideration of special purpose zones and a precinct-wide approach to planning.

## **SPECIAL USE ZONE**

The purpose of the SUZ is to “recognise or provide for the use and development of land for specific purposes as identified in a schedule to this zone”. Planning Practice Note 3 (PPN3) *Applying the Special Use Zone* (DELWP, 2017) notes that:

- Complex site specific zones are discouraged - clear policy guidelines are preferred as the primary tool.
- The number of zones used should be minimised to reduce the complexity of planning requirements.
- The Special Use Zone can be considered when:
  - The application of other zones and overlays will not lead to the objectives / requirements desired; or
  - The strategic intent of a site is not known and therefore an appropriate zone can not be determined.

Potential alternatives to the SUZ include applying other zones and utilising zone flexibility, applying a local policy and/or preparing a masterplan for the site.

The SUZ is likely to be suitable for the aerodrome land (as recommended by the Draft Aerodrome Masterplan) and is potentially suitable for other sub-precincts where no other zone fully aligns with the planning vision (such as the agri-business and future economy sub-precincts).

#### **8.5.4. PRECINCT-WIDE PLANNING APPROACH**

Although sub-precincts could be rezoned individually (for example, through the application of a standard planning zone and the use of a Development Plan and associated overlay), the specialised nature of the PEP vision may require a precinct-wide approach to planning.

A precinct-wide approach to planning would enable consideration of tailored planning controls to achieve the desired land use mix consistent with an overarching Land Use Framework and holistic consideration of the approach to infrastructure funding.

The main options for applying precinct-wide planning controls are:

- Comprehensive Development Zone (CDZ); or
- Urban Growth Zone (UGZ).

#### **COMPREHENSIVE DEVELOPMENT ZONE**

The purpose of the Comprehensive Development Zone is to “provide a range of uses and the development of land in accordance with a comprehensive development plan incorporated in this scheme”.

The ‘A Practitioners Guide to Victorian Planning Schemes’ (DELWP) states that a special purpose zone, such as the CDZ and SUZ can be applied “Where the strategic intent of a site is unknown or the application of a combination of zones, overlays and local policies is not able to achieve the desired planning outcomes”.

The application of a special purpose zone, including the CDZ, is discouraged unless no other zone is suitable.

#### **URBAN GROWTH ZONE**

The Urban Growth Zone (UGZ) is applied to land identified as being suitable for future urban development. Planning Practice Note 47 identifies that the zone has the following four purposes:

- “To manage the transition of non-urban land into urban land;
- To encourage the development of well-planned and well-serviced new urban communities in accordance with an overall plan;
- To reduce the number of development approvals needed in areas where an agreed plan is in place; and
- To safeguard non-urban land from use and development that could prejudice its future urban development.”

To apply the UGZ a Precinct Structure Plan must be prepared.

The preparation of Precinct Structure Plans could occur either for the entire precinct or for individual sub-precincts following completion of further studies required at the precinct level (such as flora and fauna, native vegetation, cultural heritage and an infrastructure delivery and funding strategy).

Closer examination of land use buffers, interfaces and necessary overlays would need to be considered as part of any PSP process as only general analysis is included in this Scoping Study.

### 8.5.5. CONSTRAINTS AND OVERLAYS

Although several overlays currently apply to land in the Precinct, additional overlays will be required to manage development outcomes as the land transitions to a more urban land use profile.

Table 22 summarises the current overlays which apply.

#### T22. CURRENT OVERLAYS

Overlay	Area	Purpose
<b>Airport Environs Overlay</b>	All land west of Geelong Bacchus Marsh Road except SUZ1.	Identify areas subject to high levels of aircraft noise; to limit number of people residing in the area, and to ensure land use and development is compatible with the operation of the airport.
<b>Design and Development Overlay Schedule 2</b>	All land west of G-BM Rd and some land to the east of G-BM Rd.	For visual amenity and building design.
<b>Development Plan Overlay Schedule 2</b>	Industrial 1 Zone only	To manage the future development of the Moorabool Agribusiness Industrial Area.
<b>Environmental Significance Overlay Schedule 4</b>	Land within Future Economy Precinct and along Parwan Creek Corridor.	Various purposes related to the protection of the environmental, scientific and habitat significance of wetlands and waterways.

Source: Urban Enterprise.

The following additional overlays and constraints may need to be addressed to manage the transition to more urban land uses while protecting existing values and activities in the area:

- Better defined **aviation** overlays;
- Overlays which more clearly define **buffer areas** for mining, agribusiness, Protein Recovery Facility and wastewater treatment plant operations;
- Overlays to define land subject to inundation and **flooding**; and
- **Infrastructure funding** overlays.

The purpose and extent of each overlay is detailed below.

## AVIATION SAFETY

In order to ensure adherence with the National Airports Safeguarding Framework (NASF, a policy document referenced in Clause 18.02-7S of the Planning Scheme) and to manage the potential introduction of a range of new activities within the PEP in close proximity to the Bacchus Marsh Aerodrome, additional overlays should be established as part of any rezoning and precinct planning exercise.

Table 23 summarises the issues that need to be addressed within future aviation overlays and the further information needed to finalise the nature and spatial extent of relevant controls. Maps relevant to each issue are provided in Appendix F based on current information available.

It is common for these issues to be captured through the use of the Airport Environs Overlay – this can include the application of multiple schedules to the AEO if required.

### T23. AVIATION INTERFACE ISSUES TO BE ADDRESSED IN OVERLAYS

Issue	Description
Public Safety	Siting of certain <u>land uses and activities</u> within the area in close proximity to the runway ends require a formal risk analysis to be undertaken – this is primarily relevant to the areas near the eastern approach to the east-west runway.
Wind Turbulence	<u>Building design</u> in areas near airports must have regard to resultant wind turbulence. Some sections of land within the Aerodrome and Future Economy sub-precincts are within designated areas where this needs to be considered as part of obtaining a permit (see Appendix F for affected areas).
Obstacle Limitation Surface	<u>Building heights</u> in areas surrounding the aerodrome need to be managed so as not to protrude the Obstacle Limitation Surface (OLS). The primary implication is the need for development proposals to ensure height limits are not exceeded, particularly in the vicinity of the eastern approach to the east-west runway.
Aircraft Noise	<u>Land uses</u> near the aerodrome need to avoid unsuitable airport noise outcomes – these vary depending on the land use. Although it is unlikely that the employment land uses proposed will conflict with the Aircraft Noise Exposure Forecast (ANEF) restrictions, no ANEF assessment has been prepared. This will need to be captured in overlay controls once an assessment is prepared.
Wildlife Strike	<p>The following <u>land uses</u> should be prohibited within 3km from the Aerodrome Reference Point (the approximate geometric centre of all usable runway surfaces) to remove risk of wildlife strike:</p> <ul style="list-style-type: none"> <li>• Turf farm;</li> <li>• Piggery;</li> <li>• Fruit Tree farm;</li> <li>• Fish processing / packing plant;</li> <li>• Wildlife sanctuary / conservation area – wetland;</li> <li>• Showground;</li> <li>• Food processing plant;</li> <li>• Food / organic waste facility;</li> <li>• Putrescible waste facility – landfill; and</li> <li>• Putrescible waste facility – transfer station.</li> </ul> <p>The Guidelines also recommend mitigation and monitoring of other land uses similar to the above.</p> <p>A substantial proportion of the PEP is within 3km of the aerodrome (see Appendix F for map), and several of the above listed land uses would generally be consistent with the land use vision for the agribusiness precinct e.g., turf farm, piggery) and the future economy precinct (e.g. food processing plant, organic waste facility). Some of these uses are already permissible in the Industrial 1 Zone, while others will need to be restricted for land not yet zoned for urban development.<sup>1</sup></p>

Source: Urban Enterprise, based on input from Syd Herron, 2021.

1. The NASF recommends that land use planning authorities should ensure that airport operators are given adequate opportunity to formally comment on planning applications for new or revised land uses. Airport operators will be expected to respond with comments on how the proposed changes to land use might increase the risk of wildlife strike and on any regulatory actions that could increase the risk of wildlife strike, such as permits related to land uses of concern. Other risk mitigation measures noted in the NASF include a requirement for a Wildlife Program. Mitigation measures should be considered as part of detailed precinct planning for the agribusiness and future economy sub-precincts.

## BUFFER AREAS

Several land use buffers apply to land in the precinct; however none are formalised through the planning scheme. A Buffer Area Overlay (BAO) could be applied (where appropriate) to formalise buffers for:

- Maddingley Brown Coal;
- Wastewater Treatment Plant;
- High pressure gas pipeline; and possibly
- Parwan Mushroom Farm and Protein Recovery Facility.

Greater clarity regarding the origin, extent and nature of these buffers (including the land uses that are and are not permissible within each buffer area) would be beneficial to Council and future businesses as part of planning and implementing the PEP vision.

In consultation with Council, DELWP representatives noted that the process to introduce a BAO is led by the business or activity which requires the buffer and is subject to eligibility. Therefore, the introduction of new BAOs is not recommended as part of the rezoning process.

In addition to the above buffer areas, further analysis of planning controls necessary to manage the land use interface between industrial land and the agribusiness precinct is required to ensure that agribusiness uses are not compromised by certain types of industrial activity. This exercise would require a specific assessment of compatible and non-compatible uses, along with recommendations regarding design and land use controls which could suitably manage the interface through planning permit processes.

## FLOODING

As described in this report, a flood study is yet to be prepared for the precinct, however initial modelling prepared by Melbourne Water has identified that certain parts of the Precinct are expected to be subject to inundation and flooding (see Appendix C for mapping). The future increase in impervious area due to urban development, especially in Sub-Precinct A (Urban Industrial and Commercial) and Sub-Precinct C (Future Economy), will require close consideration of flooding and drainage infrastructure needed.

The presence of flooding may need to be reflected in planning overlays such as the Land Subject to Inundation Overlay (LSIO) and/or the Flood Overlay (FO).

## INFRASTRUCTURE FUNDING

Planning scheme overlays can be applied to enable the collection of development contributions towards shared infrastructure costs. Although an approach to infrastructure funding is yet to be defined, the use of a suitable overlay (such as the Development Contributions Plan Overlay) should be considered in detail at the time of any planning scheme amendment which enables urban development to occur. In employment precincts, Development Contributions Plans primarily levy contributions to roads and drainage infrastructure.

## SUMMARY OF RECOMMENDED OVERLAYS

Table 24 summarises the overlays that should form part of future Planning Scheme Amendments. Other overlays may be necessary as a result of investigations which form part of the PSP process (i.e., native vegetation assessment, cultural heritage and so on). This will assist in defining encumbered and developable areas.

### T24. RECOMMENDED OVERLAYS

Overlay	Area
Airport Environs Overlay (AEO)	All areas affected by aerodrome, which is expected to exceed the current AEO extent.
Flood/ Inundation Overlays	Areas affected by flooding and inundation identified in flood studies.
Development Contributions Plan Overlay (DCPO)	All land in the Precinct (note: a DCPO should only be applied if it is resolved that a DCP is the preferred mechanism to apportion infrastructure costs).

Source: Urban Enterprise.

## 8.6. INFRASTRUCTURE REQUIREMENTS AND COSTS

An assessment of the likely infrastructure requirements and costs has been prepared and is detailed in Appendix G, along with maps showing the location of trunk infrastructure and catalyst projects required to facilitate development of the precinct.

This assessment is based on the preliminary scoping information available throughout this report, consultation with infrastructure authorities and previous assessments of infrastructure requirements and costs. Ultimately, the infrastructure requirements of the Precinct and of each sub-precinct will only be known once detailed assessments are prepared in conjunction with infrastructure authorities. This level of detail is beyond the scope of this study and is currently being progressed as part of the *PEP Power, Water and Sewer Network Planning* project.

Table 25 summarises the key infrastructure considerations for the Precinct and the approximate estimated cost of major items.

### T25. INFRASTRUCTURE REQUIREMENTS AND APPROXIMATE ESTIMATED COSTS OF MAJOR ITEMS

Infrastructure Type	Catalyst works	Indicative Cost*	Timing considerations	Priority Next Step
Sewer	WTP upgrade, pump stations, combination of gravity sewer and rising mains	\$16m + WTP upgrade	Some development likely to be possible prior to WTP upgrade. Other pump stations and trunk mains can be delivered over time.	GWW Servicing Plan
Water	Merrimu WFP upgrade, water main upgrades (600mm and 450mm).	\$22m + WFP upgrade	Limited capacity available prior to WFP and mains upgrades.	GWW Servicing Plan
Gas	City Gate	\$5m + \$7.7m trunk works	City Gate expected to be completed in 2022, development will be possible once trunk distribution is in place.	Establish timing of trunk main to Parwan Station
Power	New substation in south of precinct	\$11.75m initial + \$5m per upgrade	No capacity in existing network. Sub-station required to unlock future development.	Power network planning
Roads	Intersections to arterial network Eastern Link Road	Intersections TBD.	Internal network can be progressively delivered. ELR timing uncertain, major driver of economic opportunity.	Prepare precinct traffic modelling.
Drainage	Trunk pipes and sub-precinct scale retardation (TBC by Melbourne Water).	\$31m trunk drainage plus retardation and treatment.	Each catchment / sub-precinct will require suitable drainage infrastructure prior to development commencing.	Flood and drainage study

Source: CardnoTGM. \*indicative cost of catalyst and trunk works, to be updated based on network planning.

## **INFRASTRUCTURE FUNDING**

Given the substantial scale and cost of catalyst and enabling infrastructure works required to facilitate development across the Precinct, a critical consideration is infrastructure funding and cost apportionment.

Before overall infrastructure requirements can be fully understood, an **Integrated Infrastructure Strategy** should be prepared covering all infrastructure types. This requires input from all relevant infrastructure authorities, including the results of the current Network Planning exercise.

Different authorities generally have different approaches to collecting 'contributions' from development proponents – these will need to be considered as part of the Strategy. Given that reticulated infrastructure such as water, sewer, power and gas cannot be funded through a formal Development Contributions Plan, alternative mechanisms to arrange precinct-wide contributions to these infrastructure types will need to be considered.

An important aspect of finalising the Strategy will be arranging multi-lateral funding agreements between landowners, Council, infrastructure authorities and State government.

It is critical that the delivery of catalyst and trunk infrastructure is staged wherever possible. The indicative staging of each sub-precinct shown in the Recommended Land Uses and Sub-Precincts plan (Figure F19) provides a guide to the quantum of land that could be serviced through two major phases. Within each phase, individual infrastructure projects will need to be staged so that land can be progressively developed without the need to 'forward-fund' major projects designed to accommodate urban development of all land across the PEP.

Once headline / precinct-wide costs and apportionment approaches are known, sub-precinct development contributions plans can be considered, either separately (if planning scheme amendments are to be initiated independently) or as part of a combined and/or staged DCP.

Landowners are particularly conscious of the challenges that high upfront infrastructure costs will pose to development feasibility, particularly in early stages of development. Some landowners have investigated non-standard approaches to infrastructure funding, the merits of which should be assessed as part of future analyses of infrastructure funding options.

Consultation with landowners and State government indicated that under current circumstances, the substantial trunk and catalyst infrastructure required to progress any urban development beyond current approvals in the Industrial 1 Zone results in development being unviable, even with a change of zoning.

## **8.7. PLANNING FOR CHANGE**

Parwan is planned to accommodate a specialised employment precinct – this presents challenges for property development, not least of which due to the relative unpredictability of the nature, scale and rate of land demand.

There are three main ways that these property development challenges can be mitigated:

1. Providing a sufficient degree of land use flexibility, both across the Precinct and within precincts (as set out in this Planning Framework);
2. Providing a plan as to how and when catalyst infrastructure will be delivered and funded by all stakeholders; and
3. Focusing early stages of development and infrastructure investment in areas where land is readily serviceable and catalyst developments can bring forward enabling infrastructure projects.

It is recommended that all future plans and strategies for the Precinct respond to these principles as a priority.

## 8.8. NEXT STEPS

Table 26 shows the recommended next steps to finalise planning for the precinct.

### T26. RECOMMENDED NEXT STEPS

No	Description
1	Finalise <b>network planning</b> and costs estimates for <b>water, sewer and power</b> (Greater Western Water, Powercor, Council and RDV – underway)
2	Prepare a <b>drainage and flooding assessment</b> (Melbourne Water)
3	Prepare <b>traffic modelling</b> to identify catalyst transport projects (Council / VPA)
4	Finalise the <b>Bacchus Marsh Aerodrome Masterplan</b> and its recommended planning tasks, including preparation of an ANEF (Council)
5	Investigate <b>alternative resource production and use</b> within the precinct (in conjunction with stakeholders, landowners and businesses), including renewable energy production (such as solar and battery) and recycled water treatment and use (Council)
6	Prepare an <b>Integrated Infrastructure Strategy</b> comprising details of all necessary infrastructure types based on input from agencies (Council, VPA and infrastructure agencies)
7	Prepare an <b>Infrastructure Funding Strategy</b> , building on the Integrated Infrastructure Strategy and identifying the equitable apportionment of infrastructure costs across government and landowners and the best mechanisms to implement the strategy (Council, VPA and infrastructure agencies)
8	Investigate and finalise <b>planning overlays and interface controls</b> required to protect the operations of the Bacchus Marsh Aerodrome and to manage the interface between agribusiness and other uses (Council / VPA)
9	Complete necessary background and technical reports to ascertain the extent of developable land, <b>environmental and physical constraints</b> , including native vegetation and other environmental values to be protected and cultural heritage (Council / VPA)
10	Prepare a <b>Planning Scheme Amendment</b> to apply suitable zones and overlays which facilitate the land use vision for the Precinct overall and sub-precincts (Council / VPA)

Source: Urban Enterprise.

# APPENDICES

## APPENDIX A CONSULTATION SCHEDULE

Organisation	Contact
T&V Stankovic's Broiler Farm	Bobby Stankovic
Moorabool Shire Council	Andy Waugh
Regional Development Victoria	Scott White
Invest Victoria	Sue McMillan
Arbee Real Estate	Steve Creese
Parwan + Co.	Cameron Jones
Sustainability Victoria	Kelly Wickham
Insight Planning	Jason Black
Gentle Riviera Pty Ltd	Peter Lau; Peter Wong
Landowner	Chris Mayr
Melbourne Water	Laurence Newcombe; Logan Walter
Greater Western Water	Adam Heaton
Powercor	Daniel Anderson
Entura	Akhil Pai; Ray Massie
Southern Rural Water	Bart Keogh
Bacchus Marsh Aerodrome Management	Phil Prap
TVSA Pilot Training	Adonis Zhao
Melbourne Gliding Club	Tighe Patching

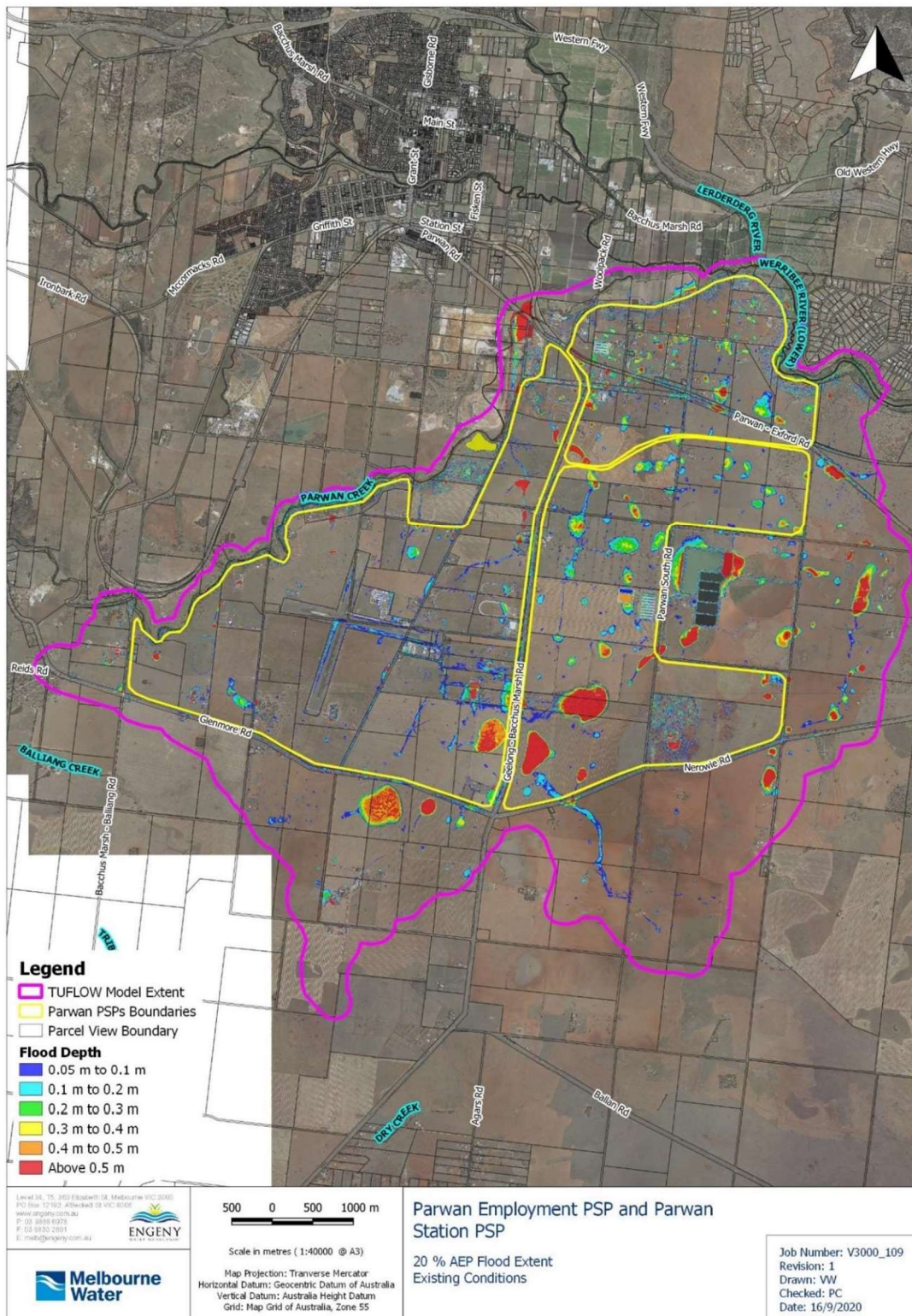
## APPENDIX B PEP SERVICE AUTHORITIES

Service	Authority/Agency
Sewerage	Greater Western Water
Water	Greater Western Water
Transmission Gas	APA Group
Distribution Gas	Ausnet
Electricity	Powercor
Regional Drainage	Melbourne Water
Local Drainage	Moorabool Shire Council
Arterial Roads	Department of Transport
Local Roads	Moorabool Shire Council

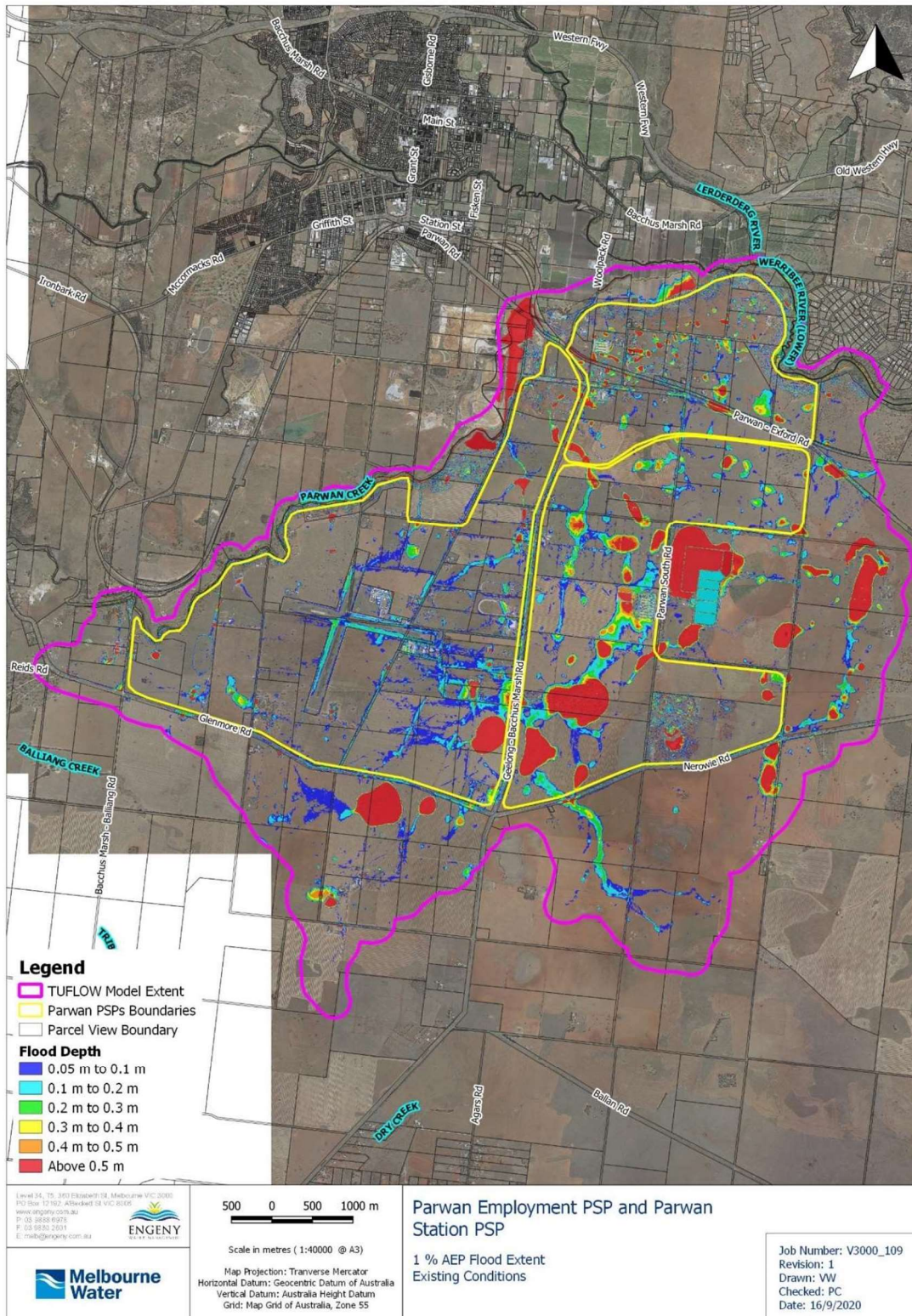
Note: Western Water joined with City West Water to become Greater Western Water on 1 July 2021.

# APPENDIX C FLOOD MAPPING

## F20. PARWAN EMPLOYMENT PRECINCT FLOOD DATA



## F21. PARWAN EMPLOYMENT PRECINCT FLOOD DATA



## APPENDIX D CASE STUDY AGRIBUSINESS PRECINCT

### Case Study Profile: Northern Adelaide Plains Food Cluster

Following the review of the preliminary case studies, the Northern Adelaide Plains Food Cluster was identified for further investigation based on its relatively mature state of development. The following provides further details and analysis of this precinct, as well as a comparison to the key characteristics of the PEP.

#### Overview

The Northern Adelaide Plains (NAP) is situated to the north of Adelaide and is spread across six local government areas, with a footprint of over 1,000 hectares. The region generates over a third of South Australia's horticulture production, producing approximately 215,000 tonnes of fresh produce valued at over \$355 million per annum.

The NAP is primarily focused on intensive horticulture production, with vegetables comprising the majority of production (\$325 million), while nuts (\$12 million) and fruits (\$0.6 million) also make a significant contribution. The region is ideally located for intensive horticulture production as it possesses fertile red-brown sandy soils and a Mediterranean climate characterised by hot, dry summers and mild, wet winters.

The cluster is highly accessible and closely connected to domestic and international freight and transport and has a concentration of technical services and suppliers, thus supporting the entire supply chain. The precinct is largely comprised of family businesses – some of which have grown into multifaceted, large companies that use advanced processing techniques. The region also has access to a skilled multicultural workforce that supplies products to national and international markets.

In terms of governance of the cluster, a formal governing council was established in 2018 following extensive consultation amongst stakeholders. The structure of the cluster governing council includes industry, industry associations, government representatives, universities and training organisations. Only industry members have voting rights on matters brought to the council to ensure that all action meets the needs of industry.

The introduction of irrigation in the 1950's and its subsequent expansion into the 1960's and 1970's enabled the production of potatoes, onions, carrots, and glasshouse crops. The area evolved into a premium and reliable horticultural zone, able to produce the volume of vegetables demanded by the Adelaide market and the Eastern seaboard.

Recycled water was introduced in the late 1990's through the Virginia Pipeline Scheme, unlocking the potential of land that previously had insufficient access to suitable water and was not viable for growing. This alternative water source was the catalyst to expand an already large horticultural production base and reduce the reliance on underground water supplies.

The recently announced Northern Adelaide Irrigation Scheme is expected to provide 12 gigalitres of reclaimed water to the region and presents an unprecedented opportunity for growers to secure a long-term supply of reliable water.

#### Summary

The NAP is one of the rare successful agribusiness precincts that has been established within Australia. Key features of the precinct that have supported its growth are identified below:

- Fertile soil;
- Skilled multicultural workforce;
- Large scale of operations (1,000ha);
- Highly accessible and closely connected to domestic and international freight and transport;
- Comprehensive irrigation system; and
- Dynamic governance structure that includes industry, industry associations, government representatives, universities and training organisations.

## APPENDIX E EMPLOYMENT LAND REQUIREMENTS MODEL

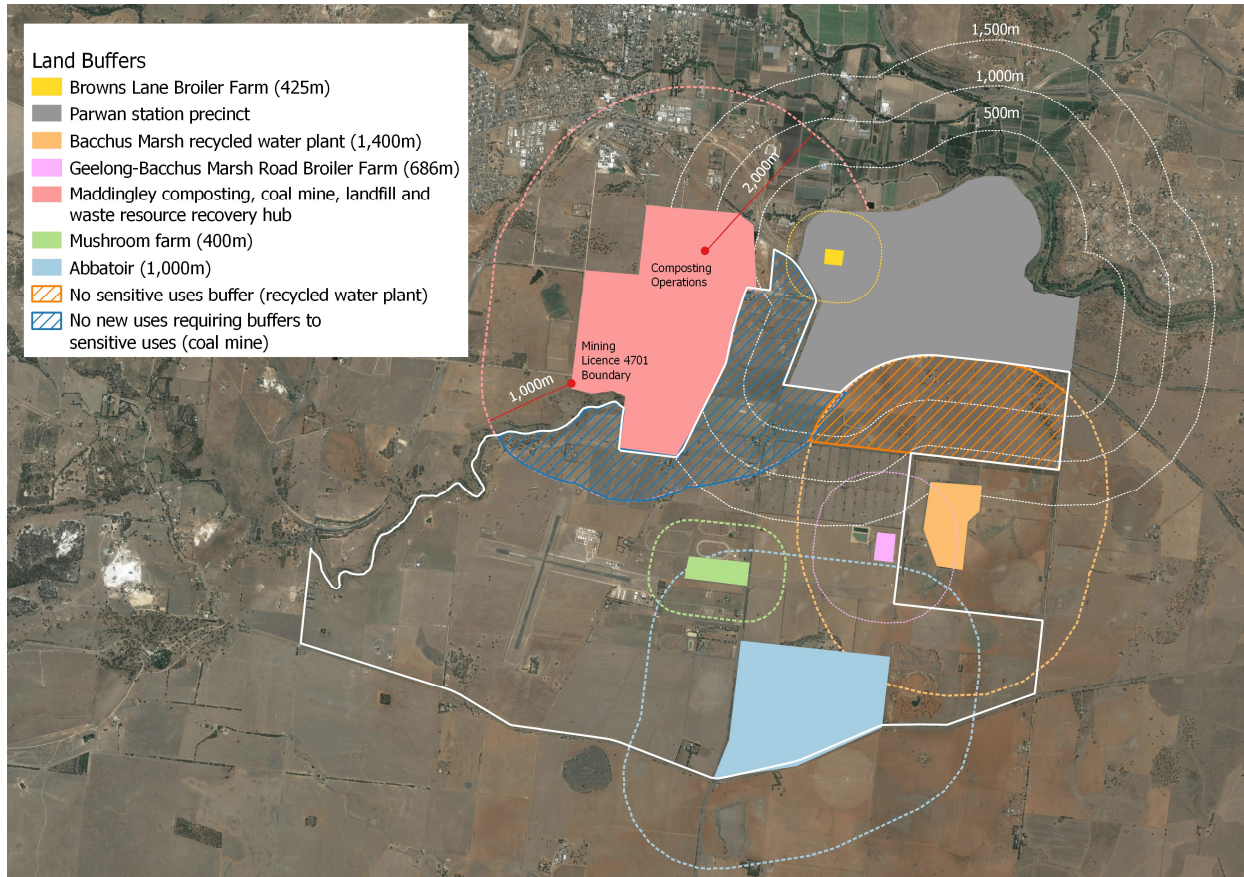
The following model summarises land demand based on projected population growth and associated urban business / employment requirements in Bacchus Marsh and surrounds (Forecast ID projection area).

Item	Result	Source
Population 2021	23,855	Forecast ID (Bacchus Marsh and Surrounds)
Population 2041	46,187	Forecast ID (Bacchus Marsh and Surrounds)
Population (full UGF occupation)	64,412	UE, based on UGF capacity for 36,400 residents (@2.8 per dwelling) minus infill development between 2021 and 2041 (20% of all growth, leaving 80% in greenfield areas, consistent with UGF range of 70% - 86% greenfield).
Population increase from 2021 to UGF completion	40,557	Derived
<b>Industrial 1 Zone</b>		
2016 industrial jobs	1,275	ABS Census, UE.
2016 population	20,992	ABS Census, UE.
Industrial jobs per resident	0.06	Derived
Additional industrial jobs to UGF completion	2,463	Derived
Average Job Density (sqm per job)	150	2014 Moorabool average of 174sqm per job in Industrial Zones, reduced to account for focus on urban land.
Floorspace required (sqm)	369,500	Derived
Proportion directed to Parwan	80%	UE, accounting for some demand to be met in other Bacchus Marsh, Maddingley or growth area locations.
Floorspace required in Parwan (sqm)	295,600	Derived
Site coverage	30%	UE
Lot area (sqm)	985,300	Derived
Lot area % of developable area	70%	UE
Developable Land required (sqm)	1,407,600	Derived
Developable Land required (ha)	141	Derived
Contingency for increased demand and vacancies	20%	UE
Total Developable Land Required in Parwan (ha)	169	Derived
<b>Commercial 2 Zone</b>		
Additional Residents	40,557	Derived from above.
Bulky Goods Spend Per Resident	\$3,026	MarketInfo, Bacchus Marsh SA2.
Additional Spend	\$122.72m	Derived
% captured locally	50%	UE
Additional Local Turnover	\$61.36m	Derived
Turnover Density	\$3,000	UE based on industry performance benchmarks.
Additional Floorspace Supportable	20,500	Derived
Average site coverage	30%	UE
Lot area (sqm)	68,200	Derived
Lot area % of land	60%	UE
Developable Land area (sqm)	113,600	Derived
Land area contingency and vacancies	20%	UE
Developable Land Required (sqm)	136,400	Derived
Developable Land Required (ha)	13.6	Derived
Add land for non-retail	50%	UE, based on typical mix of retail and non-retail uses in larger format retail / commercial areas in regional towns. Non-retail uses commonly found in these precincts include offices, gyms and other recreation uses, showrooms, trades, self storage and so on.
Total C2Z	27.3	Derived
Proportion located in Parwan	75%	UE, allowing for some C2Z land in other growth areas and existing employment land in Bacchus Marsh. Ultimate land use mix in Parwan Station precinct could ultimately include some Commercial 2 Zone land, however this is yet to be determined.
Total Developable Land Required in Parwan (ha)	20.5	Derived

Source: Urban Enterprise.

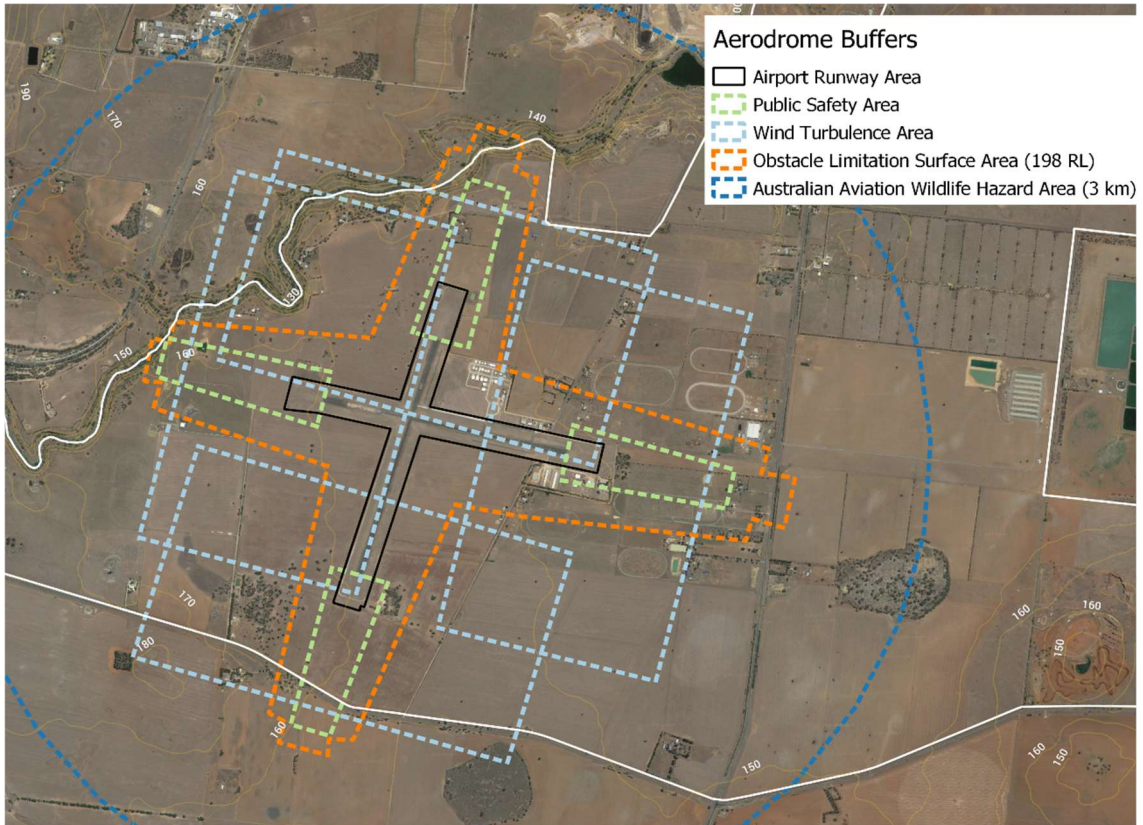
# APPENDIX F PLANS OF BUFFERS AND POTENTIAL DEVELOPMENT CONSTRAINTS

## LAND USE BUFFERS



Source: Urban Enterprise.

## AERODROME BUFFER



Source: Urban Enterprise.

## LAND CONSTRAINTS



Source: Urban Enterprise.

## PARWAN EMPLOYMENT PRECINCT SCOPING STUDY

## APPENDIX G INFRASTRUCTURE REQUIREMENTS

Infrastructure Type	Major infrastructure requirements	Estimated cost (indicative)	Precinct and staging considerations	Priority actions
<b>Roads</b>				
Catalyst / enabling works	To be determined based on traffic studies. Arterial road access intersections will be key to enabling development.		Sites with access to existing arterial road network more readily developable given extent of unmade roads and upgrade costs.	Precinct scale traffic assessment
Trunk Works Precinct A Collector Roads (2 Lanes) Geelong – Bacchus Marsh Rd (4 Lanes)	Upgrade of Existing Roads Road Length – 4870m Road Length – 2110m	\$14,605,000 \$15,825,000 TOTAL – \$30,430,000		
Precinct B Collector Roads (2 Lanes) Geelong – Bacchus Marsh Rd (4 Lanes)	Road Length – 6115m Road Length – 2475m	\$18,340,000 \$18,580,000 TOTAL – \$36,920,000		
Precinct C Collector Roads (2 Lanes) Geelong – Bacchus Marsh Rd (4 Lanes)	Road Length – 3375m Road Length – 1340m	\$10,115,000 \$10,060,000 TOTAL – \$20,175,000		
Precinct D Collector Roads (2 Lanes)	Road Length – 1270m	\$3,815,000		
		TOTAL - \$91,335,000		
<b>Drainage</b>				
Catalyst / enabling works	To be determined based on Melbourne Water Drainage Scheme which is yet to be prepared. Expect to include retardation and water quality infrastructure		Each precinct will need to address stormwater drainage infrastructure requirements.	Melbourne Water Drainage Scheme.
Trunk Works	Trunk & Local Drainage along Enabling Works Road Upgrades. Inclusive of pits & pipes.	Precinct A - \$10,150,000 Precinct B - \$12,360,000 Precinct C - \$6,770,000 Precinct D - \$4,000,000 TOTAL - \$30,800,000	WSUD requirements, such as constructed wetlands or retarding basins, have not been allowed for in these works. Parwan Creek is assumed to be precinct drainage outfall. Therefore, development near Parwan Creek is more readily serviced with drainage infrastructure, especially northwest of precinct.	
<b>Sewer</b>				

Infrastructure Type	Major infrastructure requirements	Estimated cost (indicative)	Precinct and staging considerations	Priority actions
Catalyst / enabling works	Upgrade of Wastewater Treatment Plant.	\$10,000,000 per primary lagoon \$20,000,000 per anaerobic pot TOTAL - \$60,000,000	Initial precincts are likely able to be developed prior to requirement to upgrade WTP (subject to further investigation)	Greater Western Water Servicing Study
Trunk Works	Trunk Sewer Network along Enabling Works Road Upgrades.		Any further aerodrome development requires sewer reticulation.	
Precinct A	225mm Gravity Sewer, 300mm Rising Main, 1 No Sewer Pump Station	Precinct A - \$5,910,000	Development near WTP is more readily serviced with sewer infrastructure, especially north-eastern section of precinct.	
Precinct B	225mm Gravity Sewer, 300mm Rising Main, 1 No Sewer Pump Station	Precinct B - \$5,940,000		
Precinct C	225mm Gravity Sewer	Precinct C - \$2,490,000		
Precinct D	225mm Gravity Sewer	Precinct D - \$2,990,000  TOTAL - \$15,540,000		
<b>Water supply</b>				
Catalyst / enabling works	Upgrade of Merrimu WFP 600mm dia Main Upgrade (11.8km) 450mm dia Main Upgrade (3.7km)	\$TBC \$13,000,000 \$3,330,000 TOTAL - \$TBC	Initial precincts are likely able to be developed prior to requirement to upgrade WFP (subject to further investigation)	Greater Western Water Servicing Study
Trunk works	Trunk Potable Water Network along Enabling Works Road Upgrades.	Precinct A - \$2,130,000 Precinct B - \$1,990,000 Precinct C - \$2,570,000 Precinct D - \$1,090,000 TOTAL - \$5,650,000		
<b>Gas</b>				
Catalyst / enabling works	City Gate construction	City Gate - \$5,000,000	City Gate due for completion in mid-2022.	-

Infrastructure Type	Major infrastructure requirements	Estimated cost (indicative)	Precinct and staging considerations	Priority actions
Trunk Works	Trunk Gas Network along Enabling Works Road Upgrades.	Precinct A - \$1,240,000 Precinct B - \$450,000 Precinct C - \$780,000 Precinct D - \$260,000 TOTAL - \$7,730,000		
<b>Power</b>				
Catalyst / enabling works	New substation in south of precinct.  66kV sub-transmission line to provide connection from existing 66kV sub-transmission network to new substation	Sub-station construction – \$10,000,000 66kV OH Line – \$1,750,000 Sub-station upgrade – \$5,000,000 per upgrade (x3) TOTAL - \$26,750,000	Sub-station development can be staged, with an initial cost of \$11.75m, and subsequent cost of \$5m for each bus upgrade required (assumed one upgrade required per precinct)	Powercor Servicing Plan
Trunk works	22kV feeders from new substation along enabling works road upgrades.	Precinct A - \$1,240,000 Precinct B - \$1,160,000 Precinct C - \$0 Precinct D - \$1,570,000 TOTAL - \$3,970,000		

Source: CardnoTGM, Urban Enterprise.

