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Asford Olszewski Strategies Pty Ltd.



Planning and Environment Act 1987  
**BALLARAT PLANNING SCHEME  
DEVELOPMENT PLAN OVERLAY**

Development Plan Schedule No. 10

Plan 1 of 67

Signed [Signature]

Authorised Officer for and on behalf of the  
**CITY OF BALLARAT**

Date 05/07/2018

BALLARAT WEST  
EMPLOYMENT ZONE

# DEVELOPMENT PLAN

JULY 2018

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Version 6 - October 2014  
Version 7 - July 2018



# 1 INTRODUCTION

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The Ballarat West Employment Zone (BWEZ) is a major employment precinct for Ballarat. It has been identified by both Council and State Government as a strategic site which can deliver significant and diverse employment opportunities for Ballarat. Development Victoria and the City of Ballarat have been working in partnership to facilitate this opportunity.

Background economic assessments, site visioning and masterplanning of the BWEZ has been undertaken over a number of years, culminating in the adoption of the Ballarat West Employment Zone Masterplan by Council in May 2012. The BWEZ Masterplan was subsequently given effect through its introduction into the Ballarat Planning Scheme via Amendment C166 in June 2013.

Following this, Development Victoria (DV) and the City of Ballarat (COB) commissioned a series of technical reports for the BWEZ as required by the Development Plan Overlay. This includes the Environmental Management Plan and the Integrated Infrastructure Plan which have provided a more detailed assessment of site conditions and infrastructure to enable the preparation of the BWEZ Development Plan. In addition Cultural Heritage Management Plans (CHMP's) are being completed by DV and the COB and several CHMP's have now been approved for precincts within the Development Plan area.

This Development Plan Report has been prepared on behalf of Development Victoria and the City of Ballarat, it includes the Planning Report, Landscape Plan and Urban Design Guidelines as required by the Development Plan Overlay which completes the suite of reports required by the DPO.

The report addresses the requirements of the Special Use Zone, and the Development Plan Overlay and responds to the adopted BWEZ Master Plan (May 2012).



## 2 THE DEVELOPMENT PLAN AREA

This section of the report describes the regional context and site characteristics that have influenced the preparation of the Development Plan.

### 2.1 REGIONAL CONTEXT

Ballarat is the third largest city in Victoria which continues to accommodate a growing population. It is centrally located within the western area of Victoria and is the regional hub for a number of other towns and settlements, providing a range of cultural, educational, entertainment and employment uses for the region. The Ballarat West Growth Area will cater for residential growth and provide services and infrastructure for new communities. The Growth Area comprises 1,675 hectares of Greenfield land located to the west of Alfredton, Delacombe and Sebastopol. The Ballarat West Growth Area is expected to provide some 18,000 new houses at full development to accommodate a population of over 40,000 people.

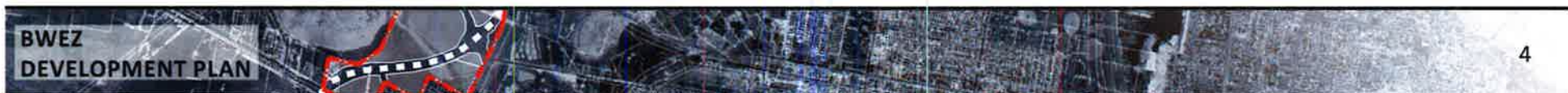
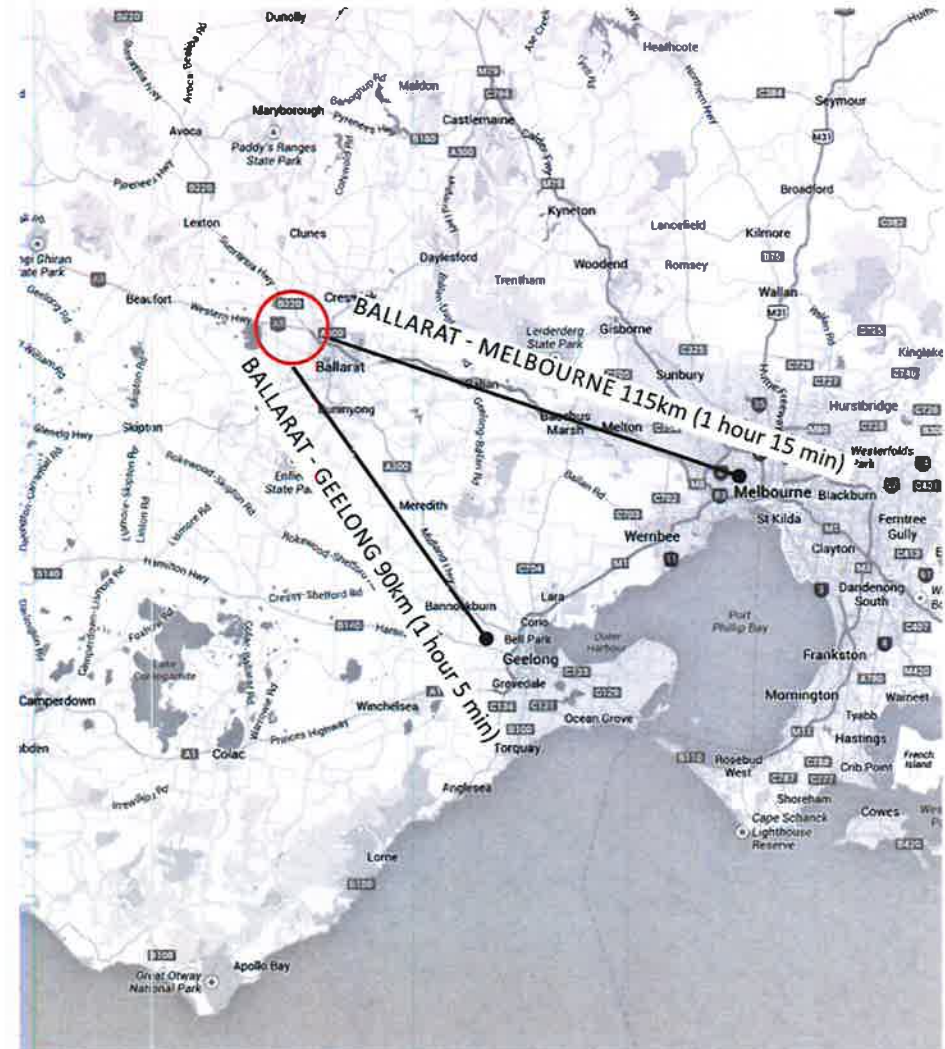
This recent (and projected) increase in population for Ballarat brings with it the need to generate employment and provide a location for new and expanding industries and businesses. Planning for the development of the Ballarat West Employment Zone (BWEZ) and the associated transport infrastructure such as Ballarat West Link Road seeks to provide this opportunity.

The BWEZ Development will significantly bolster Ballarat's industrial land supply and foster opportunities for the Ballarat manufacturing sector to transition to advanced manufacturing and logistics. It is a 20 year vision with the potential to generate up to 9,000 direct jobs and \$5.078 billion in economic output per annum.

The BWEZ is located 7km west of Ballarat CBD with access to the Ballarat-Ararat railway and excellent access to the major arterial and freeway network. Its adjacency with the Ballarat Aerodrome also create opportunities for freight and logistic businesses. Its size and proximity to Ballarat CBD lends the precinct to provide for a range of industries and lot sizes ranging from heavy industries which require large lots through to smaller service based industries.

The recently constructed Ballarat West Link Road (BWLRL) adjoins the BWEZ land. The northern section connects BWEZ to the Western Freeway.

FIGURE 1 REGIONAL CONTEXT PLAN



## 2.2 EXISTING CONDITIONS

The Ballarat West Employment Zone is centrally located within the western growth front of Ballarat. It is 438 hectares in size and is bound by McCartneys Road to the north, the Ring Road and Learmonth Road to the east, the Airport and surrounding farmland to the west and Old Western Highway/Remembrance Drive to the south.

The BWEZ is currently accessed from Learmonth Road and existing east west roads being Sturt Street/Remembrance Drive, Blind Creek Road and Airport Road. The newly constructed Ballarat West Link Road extends to the north and forms the eastern edge of the precinct. Public transport to the precinct is limited to bus services which operate along Learmonth Road and Sturt Street.

The BWEZ is relatively flat, with the high point within the area adjacent to the Winter Swamp, with a slope to the north west of the precinct. Land generally drains south to north, pooling south of the railway before passing under the culverts.

The BWEZ is comprised primarily of open grassland dominated by introduced grasses with tall old windbreaks of mainly Radiata Pine. The Stage 1 industrial subdivision (located centrally within the site and including the central boulevard) has been approved and subdivision works have occurred. Within the Stage 1 area, construction of industrial buildings is underway.

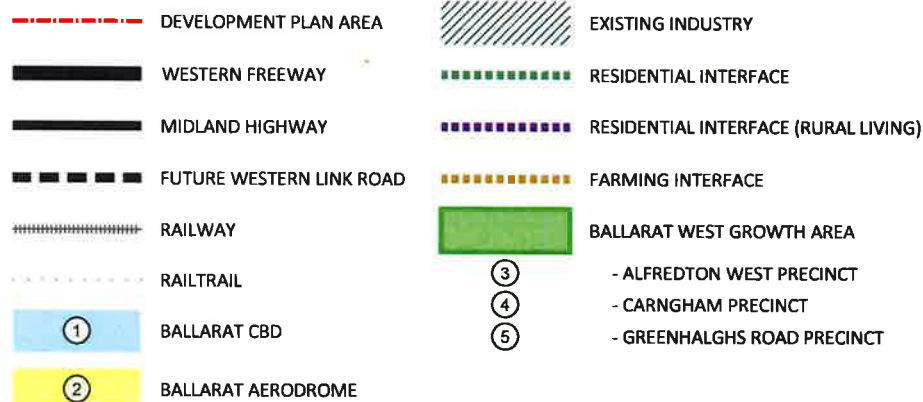
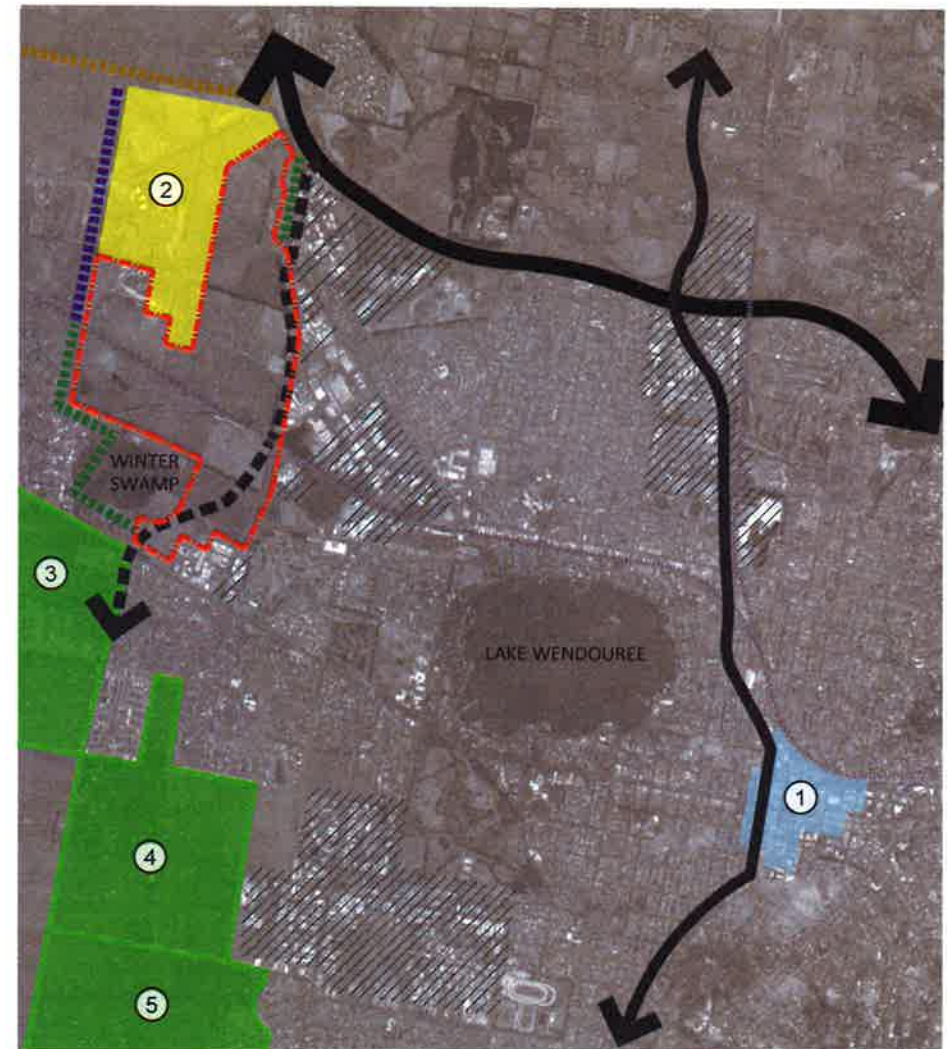


FIGURE 2 EXISTING CONDITIONS PLAN



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The environmental values of the precinct are generally low noting there are no patches of remnant native vegetation remaining. There are a number of remnant scattered trees within the western section of the precinct as well as along adjacent roadsides, along the Ballarat Skipton Rail Trail and along the drainage line between Flax Mill Swamp and Winter Swamp in the south Development Plan area. Given the site is dominated by introduced grasses, vegetation on the site is of limited habitat value. No fauna species of national or state significance have been found within the site.

There are a number of existing site characteristics and interfaces which have influenced the planning and design of the area and which the Development Plan must respond. These are outlined below:

#### ***Ballarat Aerodrome***

The Ballarat Airport/Aerodrome is located to the north west of the Development Plan area. It is approximately 185 hectares and elongated in shape to accommodate the major north-south runway and two shorter runways. This major runway is proposed to be recommissioned to its south to allow for larger aircraft. Development around the aerodrome must not compromise the runway extension or Airport operations.

The airport comprises a number of structures including hangars, terminal buildings and aprons, as well as refuelling stations.

The Ballarat Aerodrome provides important functions in emergency service operations and flight training, noting that there are plans for the role of the aerodrome to expand to provide a freight and logistics role in serving the regional area. Existing height and noise contours are in place to protect the operations of the Ballarat Aerodrome (refer **Section 3.1**). The Ballarat Airport Masterplan was updated and adopted by Council in 2013.

#### ***Heritage***

The Ballarat aerodrome is listed on the Victorian heritage register and is included in a Heritage Overlay under the Ballarat Planning Scheme.

Note: The boundary of both the Heritage Overlay and the State Heritage Register were amended to exclude the BWEZ site.

#### ***Former East-West Runway***

The former East-West runway is located south of the Ballarat Aerodrome boundary. Whilst only partially visible on the ground, this feature has heritage significance and its alignment/footprint could be retained in the future development of the precinct as presented in the BWEZ Masterplan (this feature is not included in either the State Heritage register or the Heritage Overlay).

#### ***Ballarat-Ararat Rail Line***

The Ballarat-Ararat railway runs diagonally through the Development Plan area. This line carries both V/line passenger trains and freight trains, with approximately 8 return passenger services per day. The railway sits within a 35-37 metre reserve which must be maintained with limited road crossings. Land to the north of the rail line (adjacent to the Ballarat West Link Road) has been earmarked as the preferred location for a new inter-modal freight hub, and the site must be preserved for this use.

#### ***Ballarat to Skipton Rail Trail***

Part of the Ballarat Skipton rail trail is located in the Development Plan area. It is a 53km trail which commences at the eastern edge of BWEZ and continues south to Skipton. It is a gravel trail which is suitable for walkers and cyclists and provides a connecting tourism link for the whole Ballarat township or an off-road connection to the adjoining Shire of Corangamite.

#### ***Surrounding Land Uses***

The Development Plan area is large and elongated, extending from Sturt Street/Remembrance Drive to the interchange with the Western Highway to the north. Given its size and configuration it has a range of interfaces with which to respond. The following land uses adjoin the site:

**NORTH** – Land to the north-west of the site is occupied by the Aerodrome. Beyond this, land west of Sunraysia Drive is within the Farming Zone and used for agricultural purposes. Land north-east of the site accommodates conventional residential properties as well as lower density, lifestyle blocks. The residential land is accessed via Howe Street or Sunraysia Drive.



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*EAST* – Land east of the site accommodates a mix of residential, commercial and industrial properties. Land immediately adjoining the precinct (west of Learmonth Road) accommodates a small residential subdivision which is part of Mitchell Park. This land is accessed via Learmonth Road.

Land east of Learmonth Road (and the proposed Link Road) comprises a range of industries and businesses including large employers such as McCain Foods Limited, Mars Chocolate Australia, Hanson Concrete, Bartlett Industrial Textile Fabrications and Laminex Group. A number of smaller warehouses and service industries are located along the western side of Learmonth Road. Overall, the industrial areas are fragmented, with buildings set back from road frontages with no consistent landscaping, built form or access arrangements.

*SOUTH* - The Winter Swamp is located directly south of the precinct. It contains a large wetland which is considered to have regional environmental importance given it is one of a few remaining wetlands within Ballarat. From an ecological perspective, it accommodates native and exotic vegetation and provides habitat for wildlife. It also has a local recreation function providing walkways and viewing platforms.

Land either side of Winter Swamp comprises rural living properties which are accessed via Blind Creek Road or Remembrance Drive/Sturt Street.

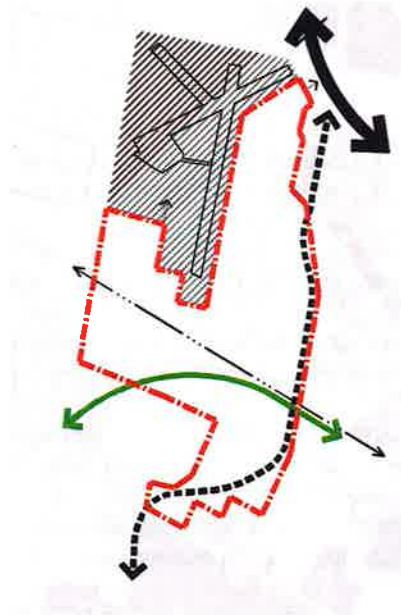
Further South, land in the Ballarat West Growth Area is earmarked for future residential development.

*WEST* – Rural and low density residential land is located west of the Development Plan area. The Ballarat Polocrosse grounds adjoin the airport.



FIGURE 3 ORGANISING ELEMENTS

TRANSPORT INFRASTRUCTURE



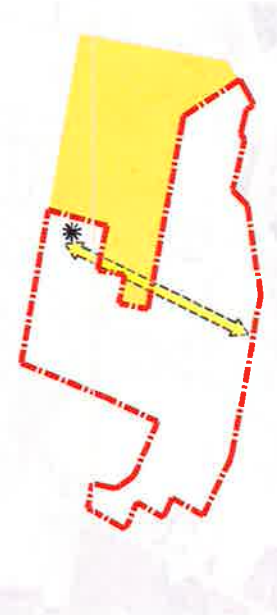
- FREEWAY
- - - FUTURE LINK ROAD
- RAIL
- ▨ AERODROME
- RAIL TRAIL

ENVIRONMENTAL FEATURES



- OPEN SPACE NETWORK
- GREEN LINKS
- WATER BODIES
- - - DRAINAGE LINES
- ⋯ REMNANT WINDROW
- ① WINTER SWAMP
- ② FLAX MILL SWAMP

HERITAGE FEATURES



- - - HERITAGE RUNWAY
- AERODROME
- \* USAAF CAMP AND RADIO/RADAR RUINS

SURROUNDING LAND USE



- ▨ INDUSTRIAL ZONE (SIGNIFICANT INDUSTRY)
- ▨ AERODROME
- PROPOSED RESIDENTIAL
- RESIDENTIAL 1 ZONE
- LOW DENSITY RESIDENTIAL ZONE
- RURAL LIVING ZONE



## 2.3 BWEZ MASTER PLAN MAY 2012

The City of Ballarat commissioned AECOM to prepare the Master Plan, Business Case and Development Strategy for the Ballarat West Employment Zone. The purpose of the Masterplan is to provide a framework for the development of the site for employment generating uses.

The BWEZ Masterplan provides various development and land use scenarios and a series of thematic maps which consider movement, public realm, built form, ecology and environment. The BWEZ Masterplan identifies a preferred development scenario (with associated land budget) referred to as 'the Preferred Masterplan'. This is the Masterplan which was adopted by the Council and is contained within the Special Use Zone.

Section 10 of the BWEZ Masterplan includes a series of Design Principles relating to site planning, access, building configuration, landscaping and environmental management.

The BWEZ Masterplan also provides a series of principles relating to 'innovation planning' which seek to ensure that flexibility and opportunities are built into future plans to accommodate the needs of a range of future tenants and meet the needs of the market.

The BWEZ Masterplan was adopted by Council on 23 May 2012.

The above documents are available on request from Council.

The Ballarat Planning Scheme requires that this Development Plan and associated Urban Design & Landscape Guidelines respond to these general design principles set out in the BWEZ Masterplan.

The Development Plan documents approved pursuant to the Development Plan Overlay (DPO 10) comprise this Development Plan, plus the Urban Design Guidelines, Landscape Concept Plan, Services Infrastructure Plan and Environment Management Plan.

The relationship between the Masterplan, Ballarat Planning Scheme and the Development Plan documents is illustrated in **Figure 5** overleaf.

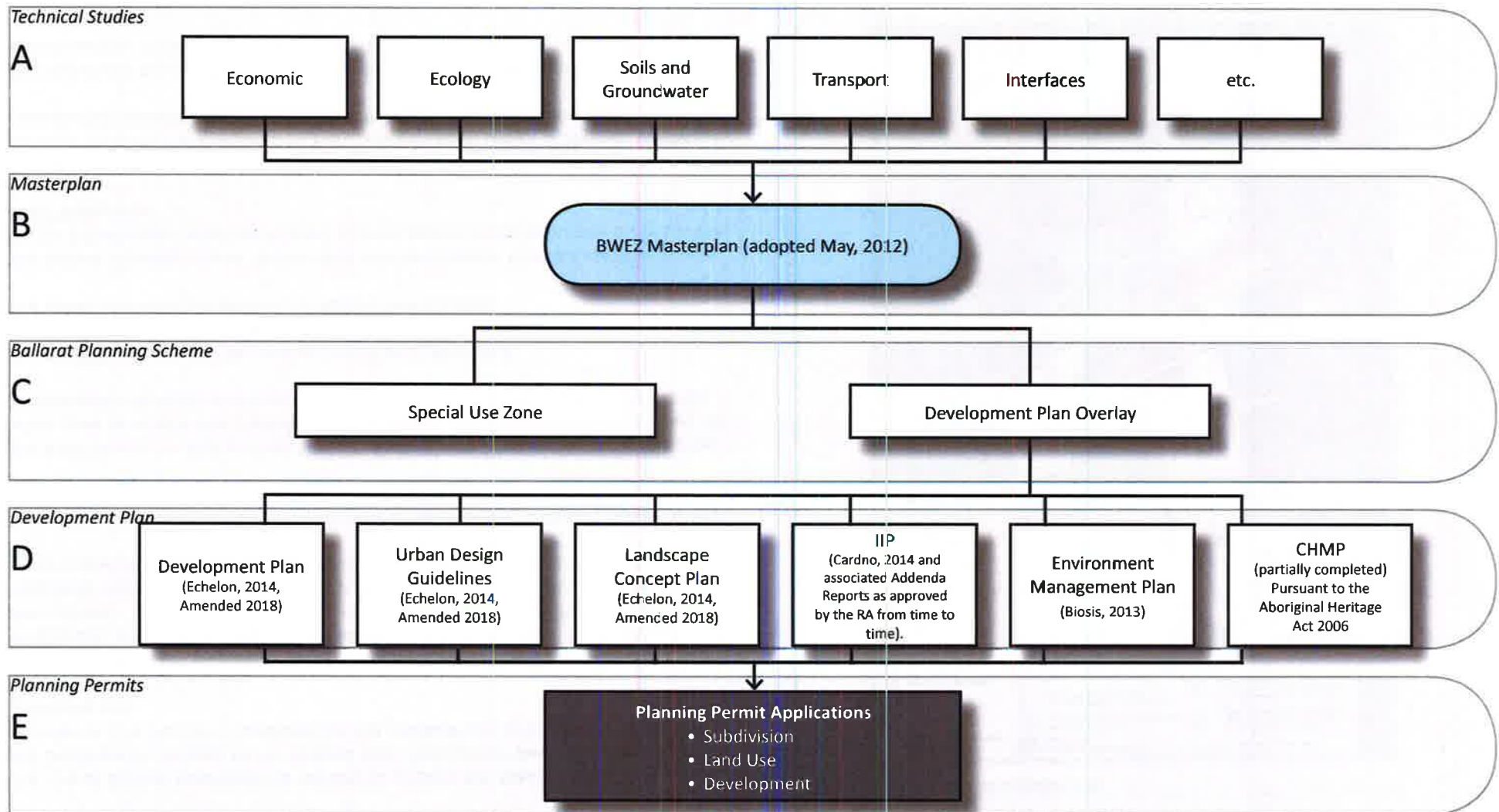
FIGURE 4 ADOPTED MASTER PLAN



Extract: Ballarat Planning Schemes online - Special Use Zone - Schedule 14



**FIGURE 5 RELATIONSHIP BETWEEN THE BWEZ MASTERPLAN, PLANNING SCHEME, DEVELOPMENT PLAN AND PLANNING PERMITS**





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## 3.1 ZONES AND OVERLAYS

### **a) Special Use Zone**

The Ballarat Planning Scheme includes the subject land in Schedule 14 to the Special Use Zone (SUZ14).

The Purpose of SUZ14 is as follows:

- *“To facilitate the development of the BWEZ.*
- *To provide for industry, research and development, freight hub and related transport activities, aviation-related uses, and support services in accordance with the Ballarat West Employment Zone Master Plan Document 2012.*
- *To foster employment generating uses primarily through the manufacturing, construction, transport and logistics, wholesale trade and enabling industries sectors, and by limiting the extent of land in the BWEZ used for retailing, offices and warehouse.*
- *To ensure that subdivision of the BWEZ retains sites that will accommodate operators at a range of scale and makes provision for key landmark sites and catalyst developments.*
- *To provide that the development of the BWEZ is staged in an orderly manner, having regard to essential services, transport facilities, environmental and hydrological considerations, and the proximity of Ballarat Airport.*
- *To ensure that development of the BWEZ enhances the environmental values of the surrounding area and the BWEZ site, and respects the identified heritage values of the BWEZ site.*
- *To ensure that any sensitive industrial operations in areas adjacent to the BWEZ are protected from emissions from the BWEZ area.*
- *To ensure that appropriate buffer distances are maintained between the BWEZ and adjacent existing and future residential areas.*
- *To provide for low-density residential development in the BWEZ Precinct C on lots which, in the absence of reticulate sewerage, can treat and retain all wastewater.”*

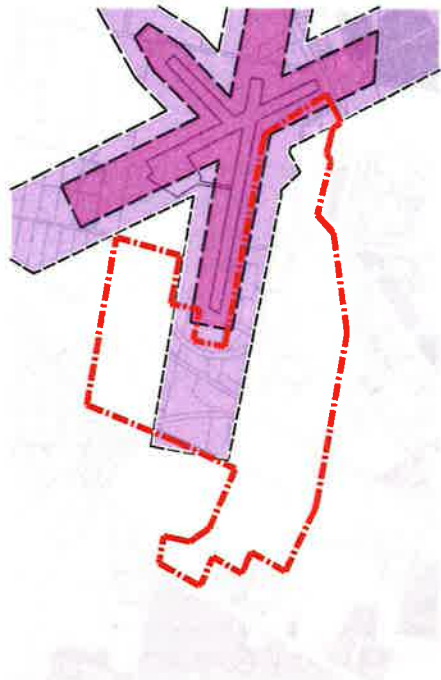
### **b) Development Plan Overlay**

The Scheme includes the subject land in Schedule 10 (Ballarat West Employment Zone) to the Development Plan Overlay. The Objective of this Schedule is to ensure that development of the BWEZ is undertaken in a manner planned in the Ballarat West Employment Zone Master Plan Document 2012, particularly through:

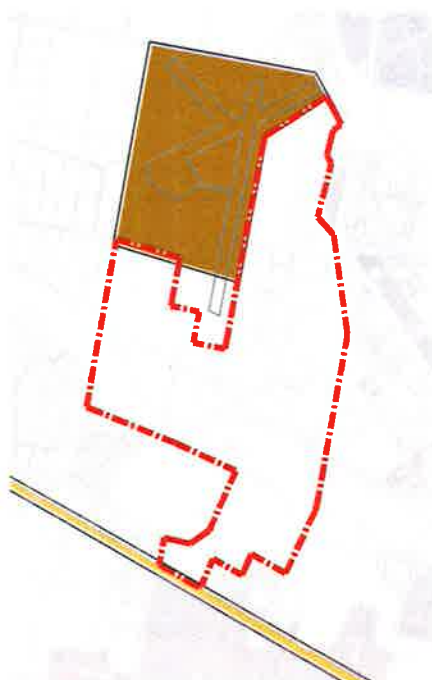
- *“Fostering employment generating uses, primarily in the manufacturing, construction, transport and logistics, wholesale trade and enabling industries sectors, by limiting the use of land in the BWEZ for retailing, offices and warehouses.*
- *Staging of development of the BWEZ in an orderly manner, having regard to essential infrastructure and services, transport facilities, environmental and hydrology considerations, and the proximity of Ballarat Airport.*
- *Making provision for key landmark sites and catalyst development sites in the subdivision of the BWEZ.*
- *Encouraging robust and contemporary architectural form within a high quality landscape setting.*
- *Requiring sustainable design which includes building energy management, water sensitive urban design, construction methods and materials, internal environment.*
- *Safeguarding and providing sufficient buffers and interfaces to minimise adverse amenity impacts and further residential encroachment.*
- *Enhancing the environmental values of the surrounding area and the BWEZ site.*
- *Respecting the visual and landscape attributes of the BWEZ site.*
- *Protecting and managing of the heritage values within the BWEZ site and surrounding areas, including aboriginal cultural heritage.*
- *Integrating with the land uses and road/pedestrian network of the surrounding area and the Ballarat West Growth Area.”*

FIGURE 7 OVERLAY PLANS

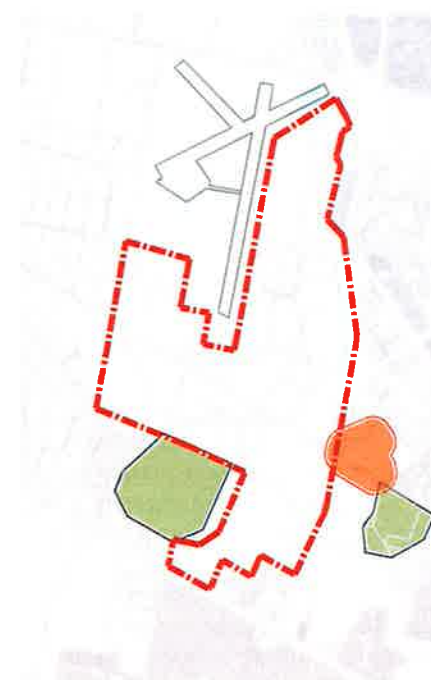
DESIGN AND DEVELOPMENT OVERLAY



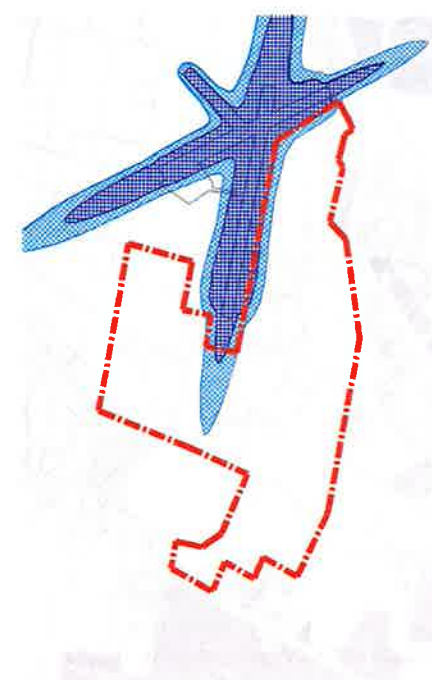
HERITAGE OVERLAY







ENVIRONMENTAL SIGNIFICANCE OVERLAY




AIRPORT AND ENVIRONS OVERLAY



 DDO 17 - 5m PREFERRED MAX HEIGHT LIMIT  
 DDO 18 - 15m PREFERRED MAX HEIGHT LIMIT

 HO 154  
 HO 190

 ESO 2  
 BMO

 AEO 1  
 AEO 2



### **c) Airport and Environs Overlay**

The Scheme includes part of the subject land adjacent to the Ballarat Airport runway and proposed runway extension in the Airport and Environs Overlay – Schedule 1 and 2. The purpose of the Overlay is to ensure that land use and development are compatible with the operation of airports and assist in shielding people from the impact of aircraft noise and limit the number of people residing in the area or likely to be affected by significant levels of aircraft noise. The Schedules to the Overlay specifically prohibits a range of uses and identifies uses which require a permit.

### **d) Design and Development Overlay**

The Scheme includes part of the subject land adjacent to the Ballarat Airport runway and proposed runway extension in a Design and Development Overlay – Schedule 17 and 18. The schedules specify height restrictions and when permits are not required for buildings and works. The objectives of the Schedule 17 and 18 are as follows:

- *“To ensure that flight paths associated with the Ballarat Airfield are protected from the encroachment of inappropriate obstacles to enable the safe and effective operation of the Airfield.*
- *To ensure that all buildings avoid creating a hazard to aircraft in the vicinity of the Ballarat Airfield in order to facilitate safe aircraft operations”*

### **e) Heritage Overlay**

The Heritage Overlay – Schedule 190 applies to the Former Ballarat RAAF Base. The overlay only applies to the Ballarat Airport. It extends 30m south, parallel to Airport Road (west of the north-south runway). The Former Ballarat RAAF Base is included on the Victorian Heritage Register. The purpose of the Heritage Overlay is as follows:

- *“To implement the State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies.*
- *To conserve and enhance heritage places of natural or cultural significance.*
- *To conserve and enhance those elements which contribute to the significance of heritage places.*
- *To ensure that development does not adversely affect the significance of heritage places.*

- *To conserve specifically identified heritage places by allowing a use that would otherwise be prohibited if this will demonstrably assist with the conservation of the significance of the heritage place.”*

The Heritage Overlay – schedule 154 applies to the Ballarat Avenue of Honour and Arch Of Victory. These sites are also included on the Victorian Heritage Register. The Avenue of Honour extends along the southern edge of the BWEZ precinct.

### **f) Environmental Significance Overlay**

Although not directly affecting the site, The Environmental Significance Overlay – Schedule 2 applies to the Winter Swamp which adjoins the site and plays an important role in creating an environmental corridor. The objectives of this overlay include:

- *“To maintain the quality and quantity of water within watercourses.*
- *To maintain the ability of streams and watercourses to carry natural flows.*
- *To prevent erosion of banks, stream beds and adjoining land and the situation of watercourses, drains and other features.*
- *To protect and support the long term future of flora and fauna habitats along watercourses.*
- *To ensure that development does not occur on land liable to flooding.”*

### **g) Bushfire Management Overlay**

A small section of the subject on the eastern boundary is affected by the Bushfire Management Overlay. This is predominately land developed for the Ballarat West Link Road. The purpose of the Bushfire Management Overlay is:

- *“To implement the State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies.*
- *To ensure that the development of land prioritises the protection of human life and strengthens community resilience to bushfire.*
- *To identify areas where the bushfire hazard warrants bushfire protection measures to be implemented.*
- *To ensure development is only permitted where the risk to life and property from bushfire can be reduced to an acceptable level.”*



















### 3.2 BALLARAT AIRPORT MASTER PLAN 2013-2033 (MAY 2013)

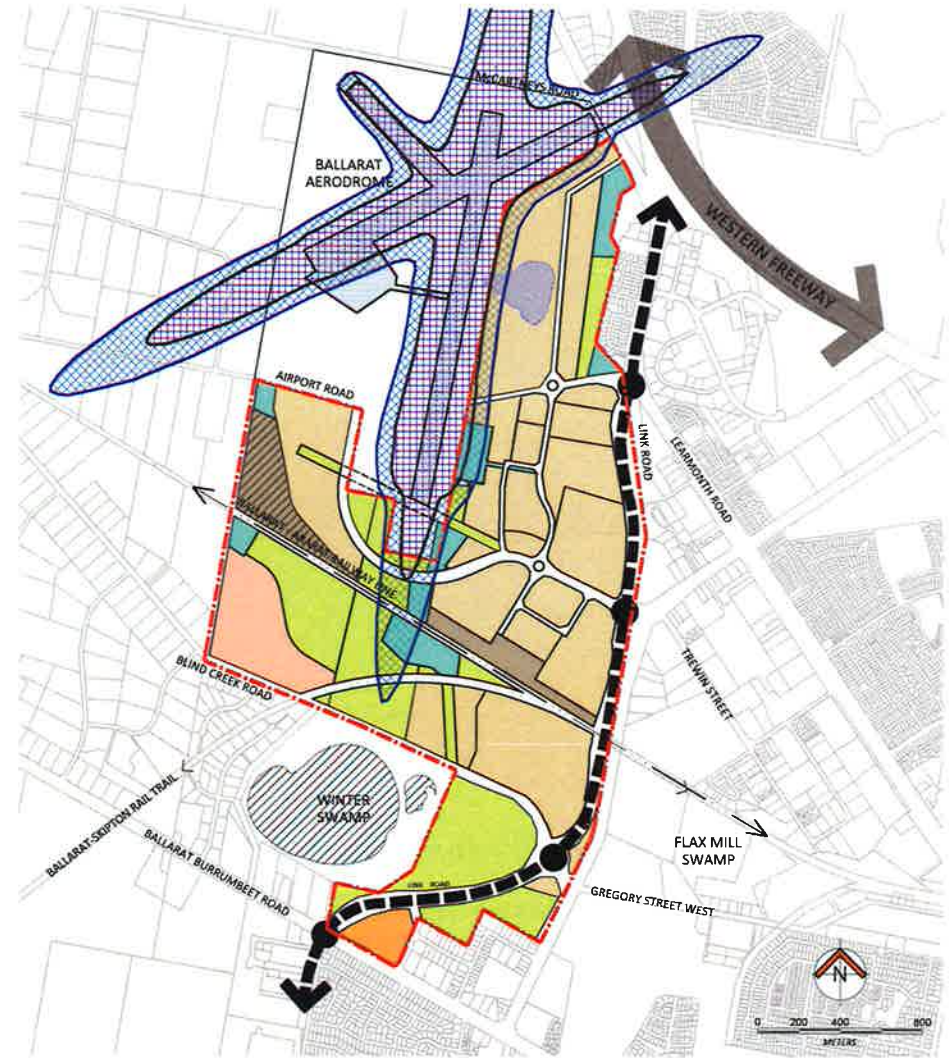
The Aerodrome's history dates back to the 1930's and was historically known as a RAAF Defence establishment during World War 2. The Ballarat Airport Master Plan 2013 -2033 was adopted by Council in May 2013.

The Ballarat Airport Master Plan 2013-2033 seeks to reserve land for an extension of Runway 18/36 critical for the future growth of Ballarat Airport. This is of particular relevance to the Development Plan as the Ballarat West Employment Zone Master Plan has recognised this and has identified parcels of land for future aviation development and preserves other parcels to enable the North-South (18/36) runway extension to 1800m.

FIGURE 8 AIRPORT AND ENVIRONS OVERLAY - WITH DEV. PLAN

#### LEGEND

- |  |  |
|--|--|
|  DEVELOPMENT PLAN AREA              |  FREIGHT HUB                      |
|  LINK ROAD / MAJOR INTERSECTION     |  MIXED USE EMPLOYMENT             |
|  RAILWAY                          |  TRANSPORT TERMINAL             |
|  RAIL TRAIL                       |  RESIDENTIAL                    |
|  RUNWAY                           |  INDUSTRY                       |
|  BLOCK BOUNDARY                   |  AIRPORT AND ENVIRONS OVERLAY 1 |
|  HISTORIC RUNWAY ALIGNMENT        |  AIRPORT AND ENVIRONS OVERLAY 2 |
|  OPEN SPACE                       |  |
|  RETARDING BASIN/DRAINAGE RESERVE |  |



## 4 DEVELOPMENT VISION

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The Ballarat West Employment Zone Masterplan established the following vision:

*The BWEZ is an employment precinct which is coherent and connected with exceptional access, service and infrastructure. BWEZ delivers development opportunities for small and large industry and business. It combines timeless and sustainable design with entrepreneurial spirit. It enhances environmental features to a create a sense of place.*

The BWEZ Masterplan provides a long term framework for this vision to be realised. The principal infrastructure and development opportunities set out in the BWEZ Masterplan include:

- Efficient access to the Western Freeway and Glenelg Highway, via the Ballarat Western Link Road;
- Direct access to the Ballarat Aerodrome;
- An intermodal (road/rail) freight terminal with the potential to services the broader Western Victoria region;
- Access to reliable and competitive development infrastructure including water, sewer, gas, electricity, telecommunications and recycled water.
- An estate design that can accommodate high productivity freight vehicles (HPFV);
- A dedicated research and development precinct, where industry, government and researchers collaborate to create new products and services;
- A high amenity business address, including not only excellent access to a range of local business support services, but also well landscaped streetscapes, signature architecture and quality public open spaces;
- A 'clean and green' business location, where environmentally sustainable design is a feature;
- A flexible development approach, where the land, infrastructure and access requirement of each business can be customised;

This Development Plan sets out how the BWEZ vision and Masterplan should be implemented through the future urban development of the site. It builds on the BWEZ Masterplan but also the technical assessments that followed it, including the Integrated Infrastructure Plan (IIP) and the Environment Management Plan (EMP).

This Development Plan will guide how land use, subdivision and works occur at the BWEZ.



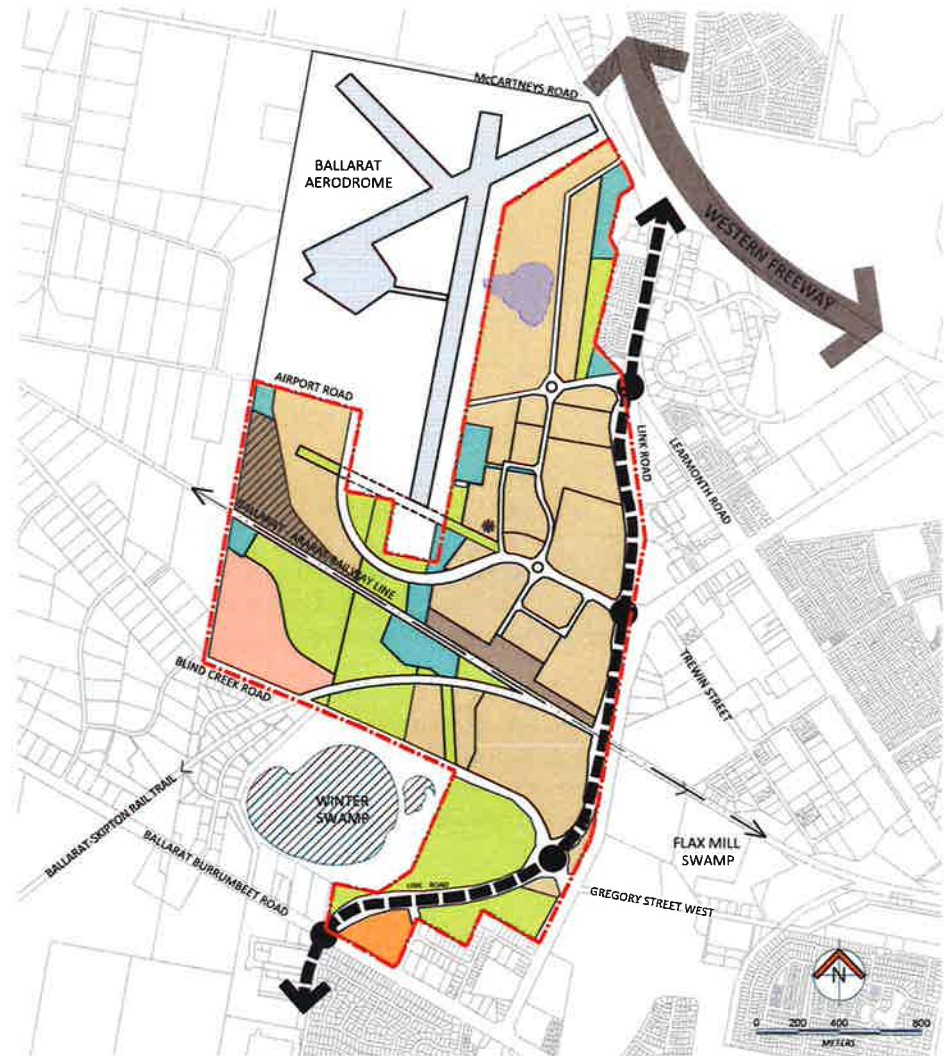
# 5 THE DEVELOPMENT PLAN

The previous chapter established the vision for the Development Plan area, which is an extension of the vision established for the Ballarat West Employment Zone within the Ballarat Masterplan May 2012.

The Development Plan is shown at **Figure 9** and demonstrates the general land use, infrastructure elements and road network of the BWEZ precinct. The Development Plan is supported by a series of thematic plans which demonstrate how the elements of the Development Plan fit together and respond to the key elements of the Masterplan including signature sites, strategic development sites and key frontages.

Land use precincts have also been established within the Development Plan area. The general land use, role and character of each of these precincts is described in this section, with further guidance on their design and development provided within the Urban Design and Landscape Guidelines which are in **Appendix 2** of this Development Plan.

FIGURE 9 DEVELOPMENT PLAN



## LEGEND

- DEVELOPMENT PLAN AREA
- WESTERN HIGHWAY
- LINK ROAD / MAJOR INTERSECTION
- RAILWAY
- RAIL TRAIL
- RUNWAY
- BLOCK BOUNDARY
- HISTORIC RUNWAY ALIGNMENT
- OPEN SPACE
- RETARDING BASIN/DRAINAGE RESERVE
- ARTEFACT SITE NOT TO BE DEVELOPED
- INDUSTRY
- FREIGHT HUB
- MIXED USE EMPLOYMENT
- TRANSPORT TERMINAL
- RESIDENTIAL
- \* OPPORTUNITY FOR RESEARCH AND DEVELOPMENT ACTIVITIES



## 5.1 LAND USE - PRECINCTS

The Development Plan provides for a range of land use precincts, as envisaged in the BWEZ Masterplan and Special Use Zone (Schedule 14). The Land Use Plan within the SUZ provides three precincts as follows:

### ***Precinct A – BWEZ core***

The BWEZ Core Precinct is the preferred location for industrial and warehouse activities. A wide range of manufacturing, construction, wholesale trade, transport and logistics activities are encouraged in this precinct.

Warehouse and industrial activities that have the potential to generate adverse amenity impacts are encouraged to locate on sites within the precinct that have the greatest capacity to accommodate large separation distances (refer to Section 12 for further detail).

Subject to amenity considerations (refer Section 12), warehouse activities may locate anywhere within this Precinct, except for within identified Strategic Development Sites, Signature Sites (Figure 14).

### ***Precinct B – Sturt Street***

The Sturt Street precinct is a mixed use employment precinct which has a high profile given it is located at the southern entrance to the precinct. It is well suited to an integrated development that supports and is complementary to both the BWEZ as well as the Ballarat West growth area. A range of activities could be located in this precinct including small scale offices, small scale retail premises (other than gambling premises, markets or shops), education centres (excluding primary and secondary schools), industry (other than those that have the potential to generate adverse amenity impacts), warehouses or a mix of these above.

Any such activities must be of an exceptionally high design standard and must meet at least the following matters:

- Have a minimum impact on residential development to the south;
- Respect the heritage values of the Ballarat Avenue of Honour;

- Respect the environmental and cultural heritage values of adjoining land;
- Be complementary to the activities proposed elsewhere within the BWEZ Development Plan.

### ***Precinct C – Buffer and Residential***

The buffer and residential precinct is intended to provide a separation buffer between low density residential areas and industrial and transport uses in the BWEZ. This precinct includes land identified for low density residential development along the south-western edge of the BWEZ in accordance with the provision of *Clause 3.0* of the *Special Use Zone (Schedule 14)*.

The Land Use Plan in this Development Plan (**Figure 10**) reflects the uses envisaged in the zone for Precinct C for residential and open space/buffer. The buffer also provides separation of residential uses from the noise impacts associated with the Ballarat Aerodrome.

## 5.2 LAND USE SUB-PRECINCTS

Within each land use precinct, the Development plan identifies a series of sub-precincts which are summarised below and identified on **Figure 10**.

### **Precinct A - BWEZ Core Precinct**

The Development Plan reflects the land uses as permitted in the zone and also identifies a series of specialised land use sub-precincts within the BWEZ Core Precinct A, as follows:

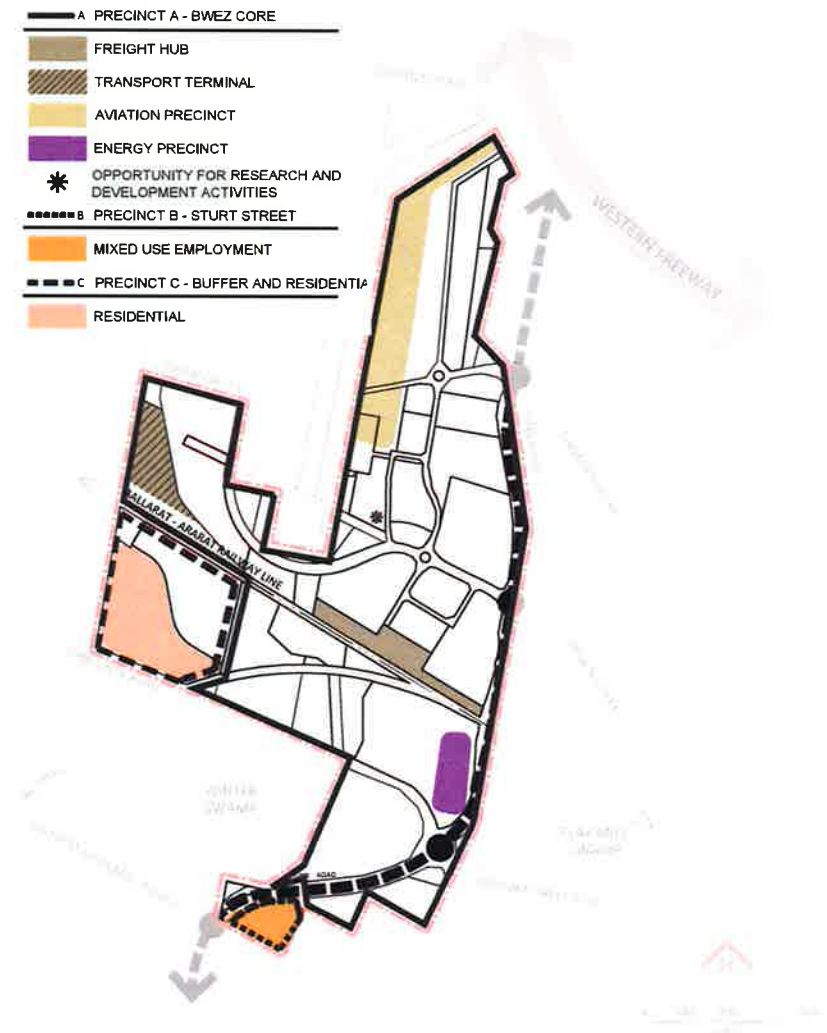
**FREIGHT HUB** – A precinct for an inter-modal transport terminal and associated warehousing activities is located north of the Ararat-Ballarat rail line, adjacent to the entrance to the BWEZ, precinct. The transport terminal has access to the Ballarat Western Link road via the primary boulevard road into the precinct.

**TRANSPORT TERMINAL** – This precinct will allow for uses associated with rail operations.

**AVIATION PRECINCT** – A preferred location for businesses that require direct access to the adjacent Ballarat Airport. This precinct is ideally located for aviation services industries, as well as passenger and freight aviation related businesses.

**ENERGY PRECINCT** – This precinct is the preferred location for alternative energy production facilities to support industry at BWEZ and in the broader region. The principal energy generation options under consideration in this precinct include natural gas-fired co-generation, biogas fired co-generation with anaerobic digestion, and bio-mass fuel stock for co-generation. Industrial activities with a high energy demand are encouraged in this precinct. An energy production facility, dependant on the source of the energy, could be defined as a utility instillation or a renewable energy facility.

**FIGURE 10 LAND USE PRECINCTS**



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In addition to the range of land use precincts across the site, it is noted that development which incorporate research and development activities are encouraged to locate in the area identified on Figure 10. This area has the potential to provide for a range of industry, research and development activities, together with supporting activities such as education and training facilities, commercial display areas, service businesses, and food and drink premises.

This central location has the potential to foster a range of research and development activities, together with a range of supporting activities such as:

- Education Centre (other than Primary School or Secondary School)
- Commercial display areas (aor but can't be on a signature site, and must satisfy 52.10)
- Manufacturing sales (aor if <500sqm)
- Food and drink premises (other than convenience restaurants). (aor<100sqm)
- Offices (permit required) and ancillary conference/meeting space.

Exhibition and conference facilities are permitted but only where they are ancillary to another permitted use in this precinct.

#### ***Precinct B - Sturt Street Precinct***

***STURT STREET MIXED USE EMPLOYMENT*** – this precinct is a high profile 'gateway' site for the Ballarat West growth area. It is well suited to an integrated development comprising a mix of activities such as small scale offices, small scale retail premises, education centres, service industries and warehousing.

#### ***Precinct C - Buffer and Residential Precinct***

***LOW DENSITY RESIDENTIAL*** - this precinct provides for low density residential development in accordance with the provision of *Clause 3.0* of the *Special Use Zone (Schedule 14)*.

### 5.3 MOVEMENT

The internal road network shown in the Development Plan generally accords with the network set out in the BWEZ Masterplan. It consists of a central boulevard and main access from the link road, supported by three secondary access points and potential direct access to the Sturt Street precinct.

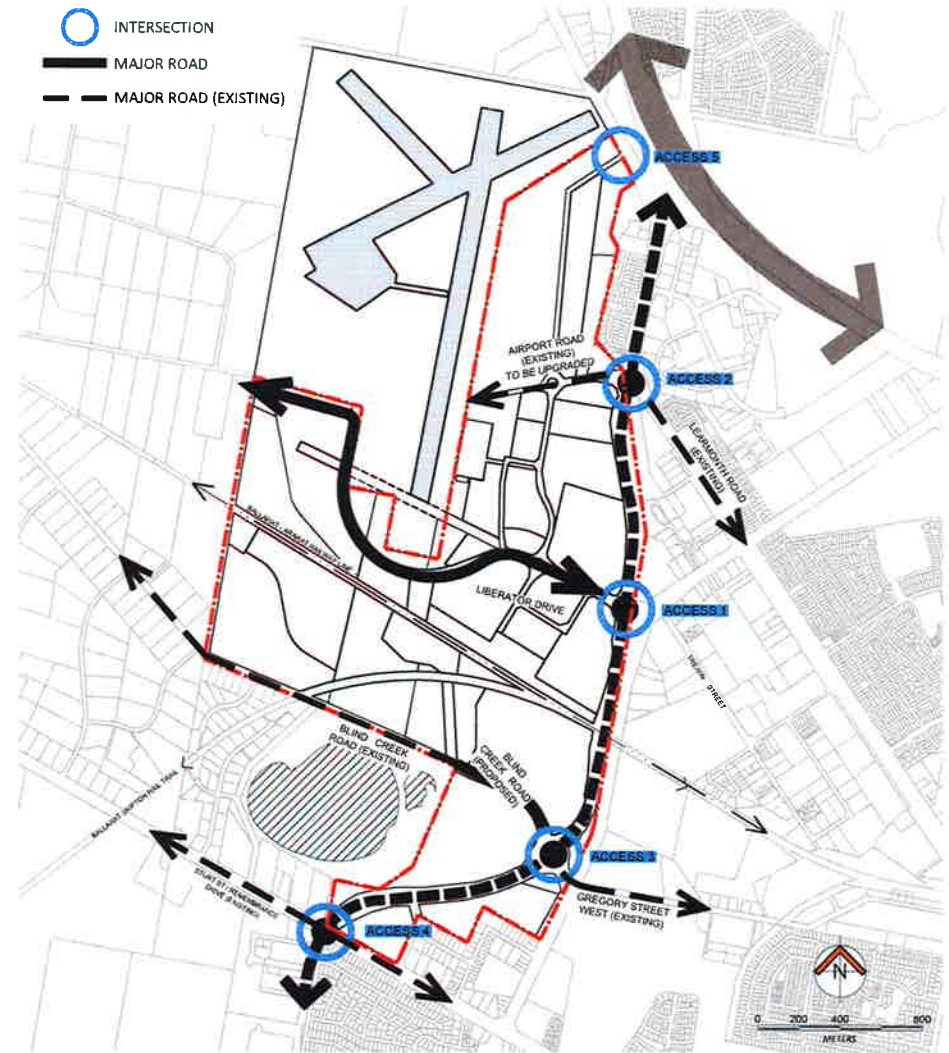
The road network identified within the Development Plan will 'plug in' to the existing arterial road network consisting of Learmonth Road, the Ring Road and Remembrance Drive (Old Western Highway). The Ballarat Western Link Road (BWLR) is aligned north-south along the eastern boundary of the precinct and provides a connection between the Western Freeway and the Midland Highway.

Airport Road and Blind Creek Road currently operate as local roads providing limited connectivity to residential land uses to the west of the precinct, in the case of Airport Road, providing a connection to the Ballarat Airport. The Development Plan provides for the ongoing use of these roads as local roads but does not seek to elevate their status as key access points into the precinct.

An additional road link to open space will be provided by an approved residential development on the west of BWEZ. This will provide a connection to the BWEZ residential area and allow neighbouring property to access the open space links.

The BWEZ Integrated Infrastructure Plan (Cardno 2014) proposes an internal road network which caters for the full development of the precinct. It caters for overall traffic volumes and provides for access by high productivity freight vehicles (e.g. b-triple freight vehicles) across most of the precinct to provide flexibility in the location of industrial uses across the precinct. An Addendum to the IIP has been prepared by Wood & Grieve (2018) and the Development Plan has adopted the internal road network as referenced in that report.

FIGURE 11 ROADS AND ACCESS



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## 5.4 OPEN SPACE

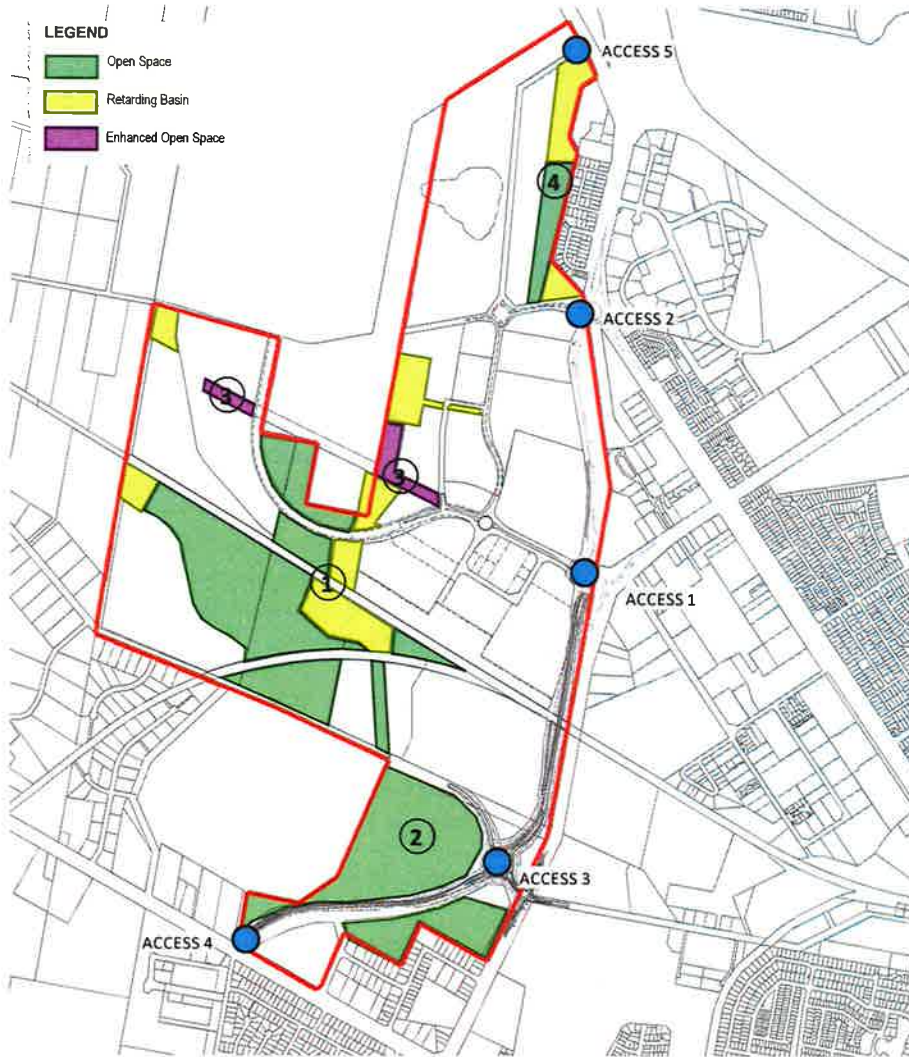
The distribution of open space across the Development Plan has been influenced by the existing natural characteristics as well as the anticipated future businesses. The major open space areas identified within the Development Plan are consistent with the approved masterplan. However, in planning for the future workers, a number of additional open spaces have been identified for in the Development Plan. Open space is distributed across the precinct to provide local amenity for workers and visitors to the precinct.

Where possible, open space has been provided in locations which:

- Have existing natural features;
- Provide a gateway into the precinct;
- Can also accommodate drainage functions and thus being land efficient;
- Provide 'green relief' in areas where there are limited natural features.

The open space areas within the Development Plan area are shown on **Figure 12**. These open spaces have varying importance/significance to the function and amenity of the Development Plan area. The particular landscape theme and function of the spaces is detailed within the Landscape Plan prepared for the Development Plan area which is included in **Appendix 2**.

**FIGURE 12 OPEN SPACE**



The key open space areas within the Development Plan are as follows:

- ① Natural Open Space – this is located to the north and south of the rail line and interfaces with the Winter Swamp. It also includes land which has the dual function of drainage reserve and open space (encumbered). It also serves to protect the aerodromes north-south runway extension and flight path.
- ② Southern Open Space - this large area of open space is located between the Winter Swamp and the BLWR and extends to the southern boundary of the Development Plan area. The extent of open space in this location reflects agreements with the Wathaurong Tribe.
- ③ Heritage Runway Linear Park - This park runs along the east-west axis in the Development Plan area, providing a view through the precinct and includes dedicated open space connecting the retarding basins.
- ④ Northern Open Space - this north south park provides a landscape buffer between the existing residential land to east and is co located with drainage assets.
- ACCESS TREATMENTS– Each of the 5 access points include an open space or landscape feature which will signify the entry.

Refer to the Landscape Concept Plan in **Appendix 3** for further detail.



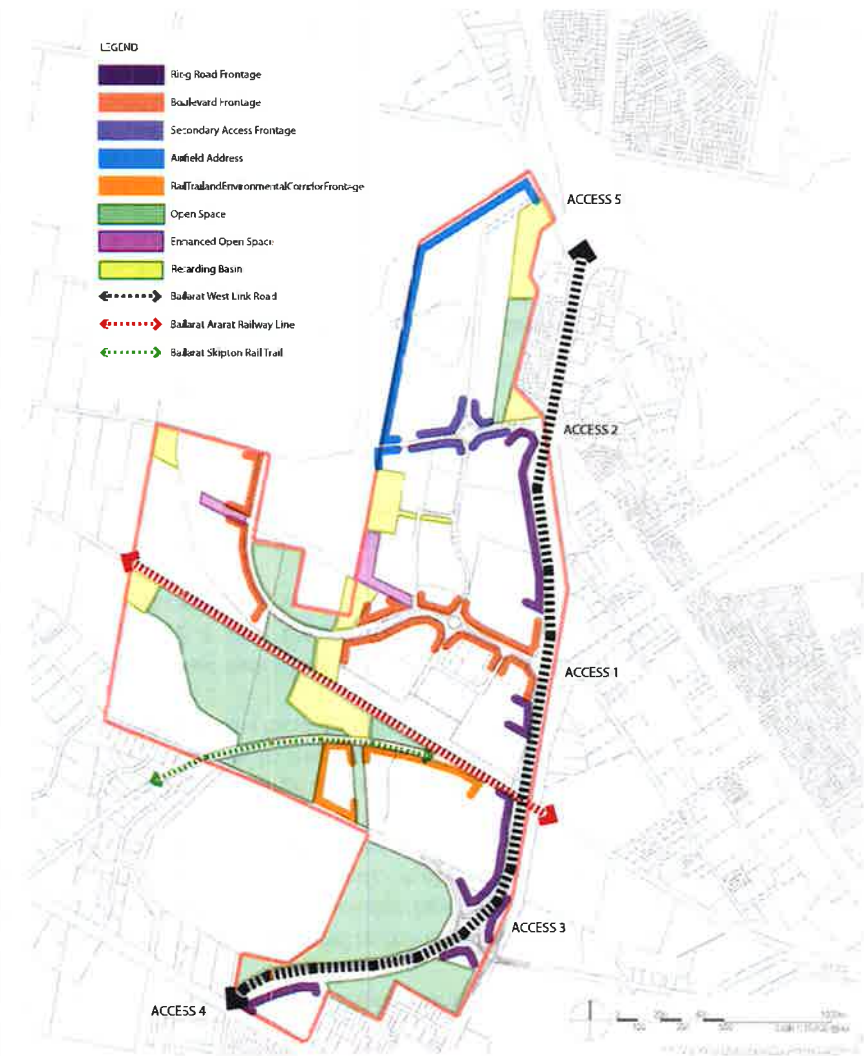
## 5.5 KEY FRONTAGES

The Development Plan includes a series of key frontages, where buildings which address the street is important for the amenity of the precinct. The Urban Design and Landscape Guidelines outlines the preferred design response specific to each key frontage category.

The key frontage locations identified in **Figure 13** are as follows:

- Link road – this extends from the southern entrance at Sturt Street (access 4) to (access 2) and covers both sides of the road (where there is developable land).
- Boulevard – The Boulevard is the primary access (access 1) into the Development Plan area. The Boulevard frontage follows the western extension of the boulevard to the new Airport Road access. The Boulevard frontage also picks up the interface with the ecological open space areas.
- Secondary Access – This frontage covers the two secondary access points (access 2 and access 3) into the precinct.
- Airfield – This covers the interface with the Ballarat Aerodrome, extending along the western boundary to the northern access point (access 5).
- Rail trail – This frontage relates to the Skipton Rail Trail. It also deals with the interface with the ecological open space within the Development Plan area as well as the Winter Swamp which sits outside of the Development Plan.

FIGURE 13 KEY FRONTAGES





## 5.6 SIGNATURE SITES

The purpose of the signature sites is to indicate sites/areas which require a higher standard of architectural design and 'address' to signify their location at a gateway (access point), at the termination of a vista or in a high amenity location. Further guidance on the design and treatment for signature sites is provided within the Urban Design and Landscape Guidelines which form part of the Development Plan.

The Development Plan identifies the following signature sites:

1. "Southern Gateway"
2. "Winter Swamp Intersection" (2a, 2b, 2c)
3. "Boulevard Entry"
4. "Boulevard Showcase"
5. "Boulevard Central"
6. "Northern Gateway"

## 5.7 STRATEGIC DEVELOPMENT SITES

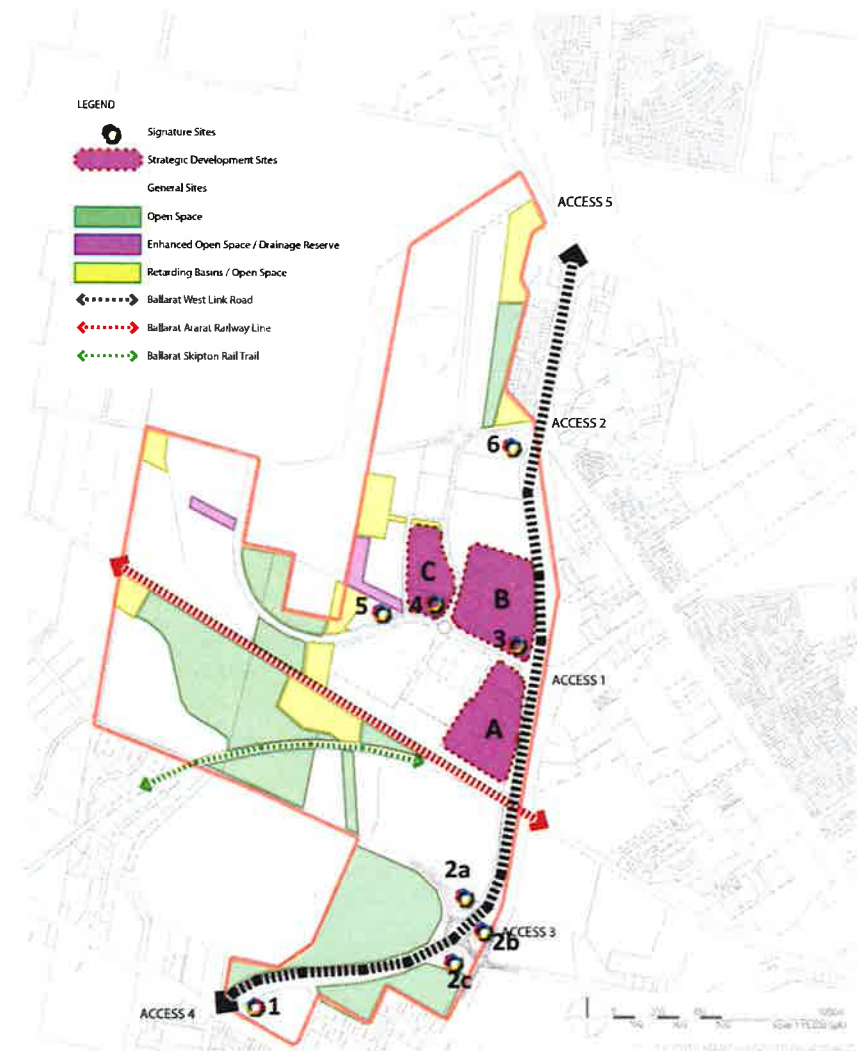
The Development Plan identifies a series of strategic development sites which accord with the BWEZ Masterplan. Some additional sites have also been identified on the Development Plan. The strategic development sites are the preferred location for larger tenants or an integrated development which would benefit from the exposure to the link road and being at a major precinct entry.

The Development Plan identifies the following strategic development sites:

- A. "Boulevard Entry, South"
- B. "Boulevard Entry, North"
- C. "Boulevard Showcase"

Further guidance on the design and treatment for strategic development sites is provided within the Urban Design and Landscape Guidelines which form part of the Development Plan.

FIGURE 14 SIGNATURE SITES, STRATEGIC DEVELOPMENT SITES



## 5.8 STAGING

**Figure 15** identifies the broad staging strategy for BWEZ.

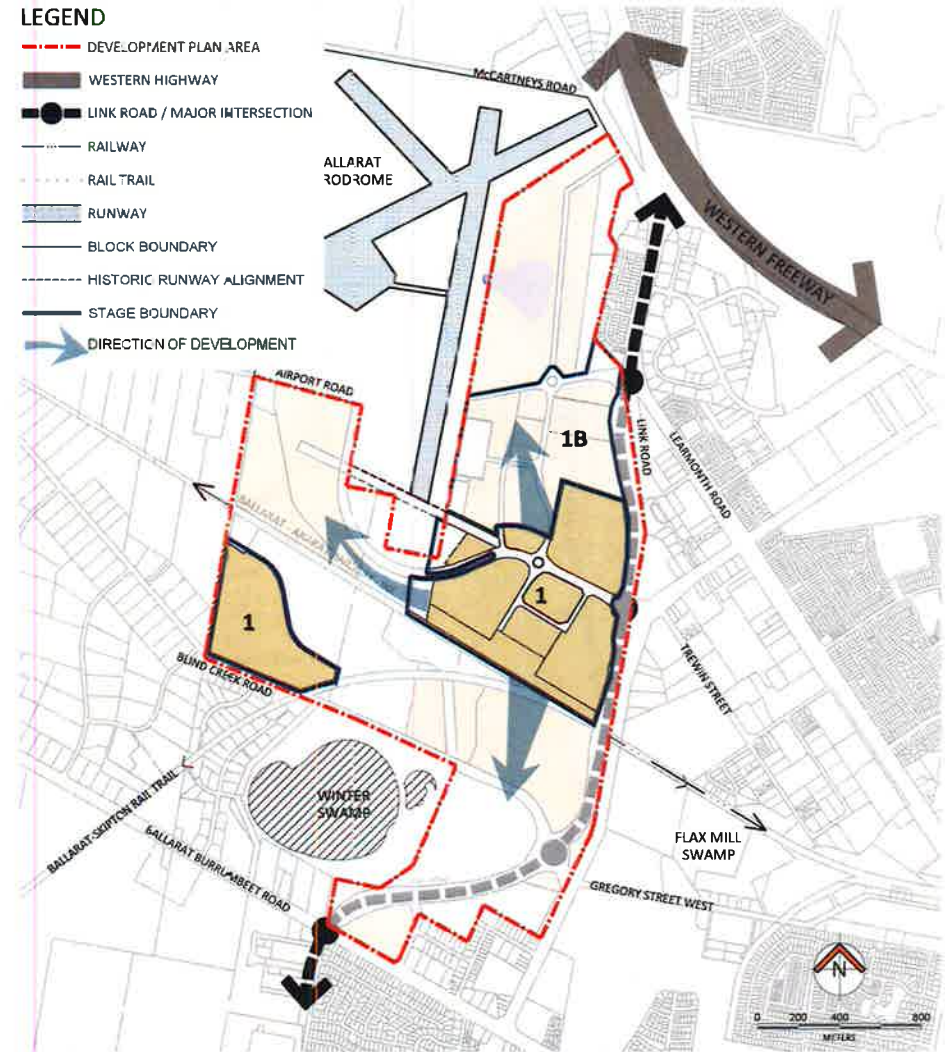
Stage 1 and 1B of BWEZ precinct development are located centrally within the site and comprise of the subdivision and construction of land for employment purposes (approximately 125 hectares). Stage 1 and 1B adjoin the Ballarat West Link Road. Stage 1 also including approximately 23 hectares of land for low density residential purposes in the western section of the site.

The Stage 1 industrial subdivision (located centrally and including the central boulevard) has been approved and subdivision works have occurred.

The extent of Stage 1 and 1B and the general direction of future staging of the BWEZ precinct is shown in **Figure 15**.

Refer Section 10 of the Development Plan for further detail in relation to the staging principles.

**FIGURE 15 STAGING PLAN**



# 6 TRANSPORT MANAGEMENT

The BWEZ IIP Report (Cardno/Echelon, 2014) provides a detailed assessment of existing transport conditions, the proposed road hierarchy, public transport, pedestrian and cycle network, freight hub and b-triple access. The recommendations of this report have formed the basis of this element in the Development Plan. An Addendum to the IIP (BWEZ Stage 1B IIP Departures Report, Wood & Grieve, 2018) and a Traffic/Transport Assessment Report have been prepared by Wood & Grieve (2018) and the Development Plan has adopted the internal road network referenced in these reports.

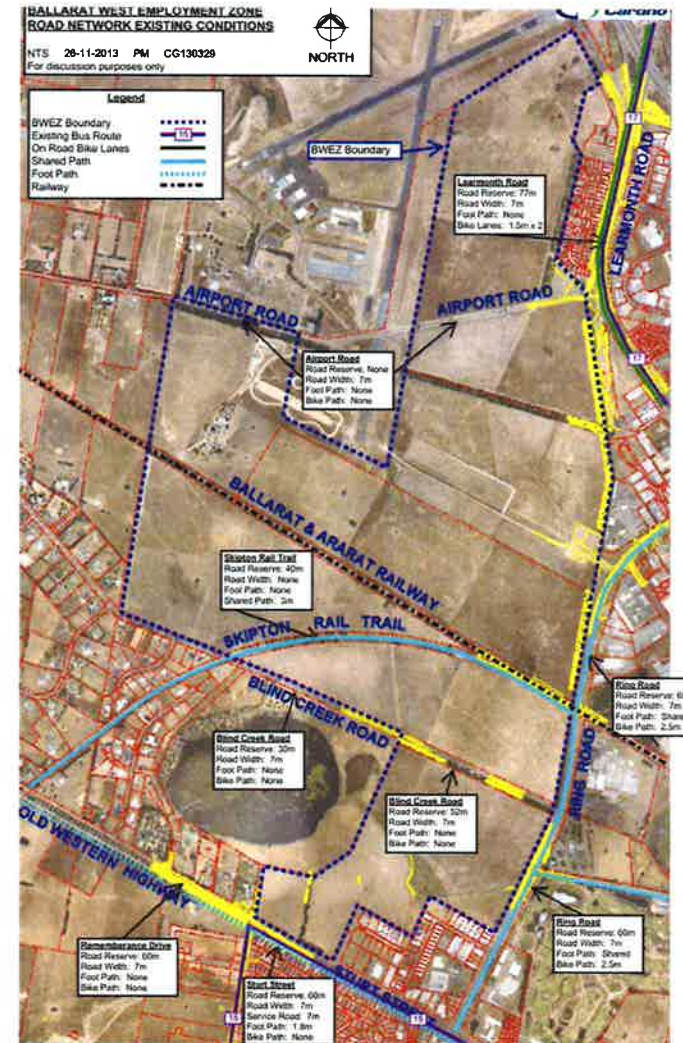
## 6.1 EXISTING CONDITIONS

BWEZ is located in an area which is well serviced by the arterial road network and can connect readily to the Western Freeway as well as the Old Western Freeway via the newly constructed Ballarat West Link Road (BWLR). The BWLR is aligned north-south along the eastern boundary of the BWEZ and provides a connection between the Western Freeway and the Midland Highway.

Learmonth Road and Remembrance Drive (Old Western Highway) operate as arterial roads, and the BWLR will connect these, so as to provide an improved connection to the Western Freeway. Airport Road and Blind Creek Road currently operate as local roads providing limited connectivity to residential land uses to the west of the BWEZ and, in the case of Airport Road, providing a connection to the Ballarat Airport. The following road cross sections are found in the surrounding network:

- Learmonth Road – 7-metre-wide road within a 77-metre-wide road reserve, with two 1.5- metre-wide bike lanes;
- Ring Road – 7-metre-wide road within a 50-60- metre-wide road reserve with shared footpath/ bike path;
- Sturt Street – 7-metre-wide side road within a 60- metre-wide road reserve with a service road and footpath;
- Remembrance Drive – 7-wide-metre road within a 60-metre-wide road reserve with a 2.5-metre- wide bike path;
- Blink Drive – 7-metre-wide road within a 30 – 52- metre-wide road reserve; and
- Airport Road – 7-metre-wide roadway with no formal road reserve.

FIGURE 16 EXISTING ROAD NETWORK



Extract: BWEZ Integrated Infrastructure Plan



## 6.2 TRAFFIC GENERATION AND DISTRIBUTION

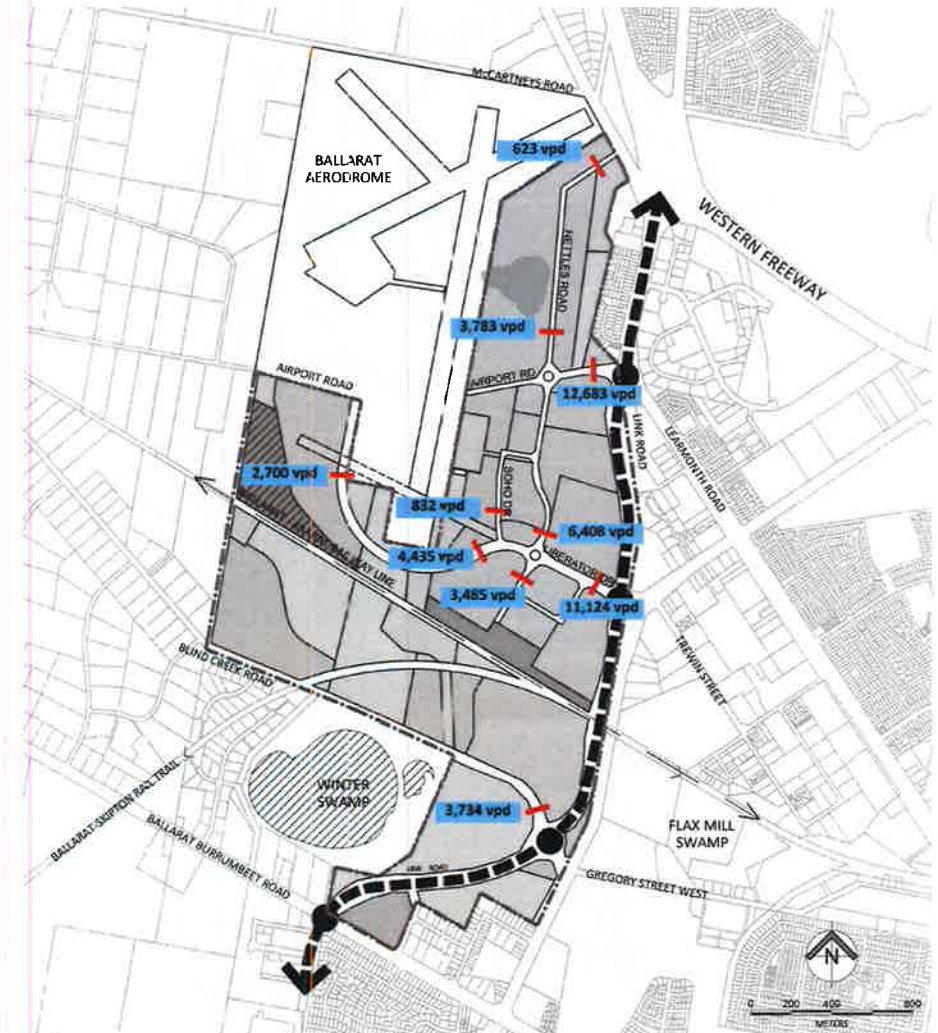
The Traffic/Transport Assessment Report (Wood & Grieve, 2018) includes an assessment of the forecast traffic generation rates associated with the ultimate development of the BWEZ area having regard to the previously adopted traffic generation (as per the BWEZ IIP), the internal daily traffic volumes and the likely distribution of these traffic volumes. The forecast daily traffic volumes derived from this assessment are shown on **Figure 17**.

The Traffic/Transport Assessment Report states that the BWEZ development is expected to generate approximately 31,614 trips per day. This is a reduction in traffic volumes from what was estimated in the BWEZ IIP (38,731 trips per day). This is as a result of changes in developable land areas and modifications to land uses, particularly with regards to the removal of the service station and restricted retail uses, which accounted for 10,700vpd.

## 6.3 PROPOSED BWEZ ROAD NETWORK

The proposed BWEZ internal road network generally accords with the network set out in the BWEZ Masterplan. The proposed road hierarchy shown on **Figure 18** will cater for the forecast traffic volumes shown on **Figure 17** and will also future proof much of the site by providing for access by high productivity freight vehicles e.g. HPFV, b-triple freight vehicles. Due to the nature of vehicles using BWEZ, hammerhead and dead end roads will not be permitted. The main features of the proposed road network are set out overleaf.

FIGURE 17 ANTICIPATED DAILY TRAFFIC NETWORK



Traffic Volumes as per IIP Departures Report (Wood & Grieve, 2018)

**FIGURE 18 ROAD HIERARCHY**

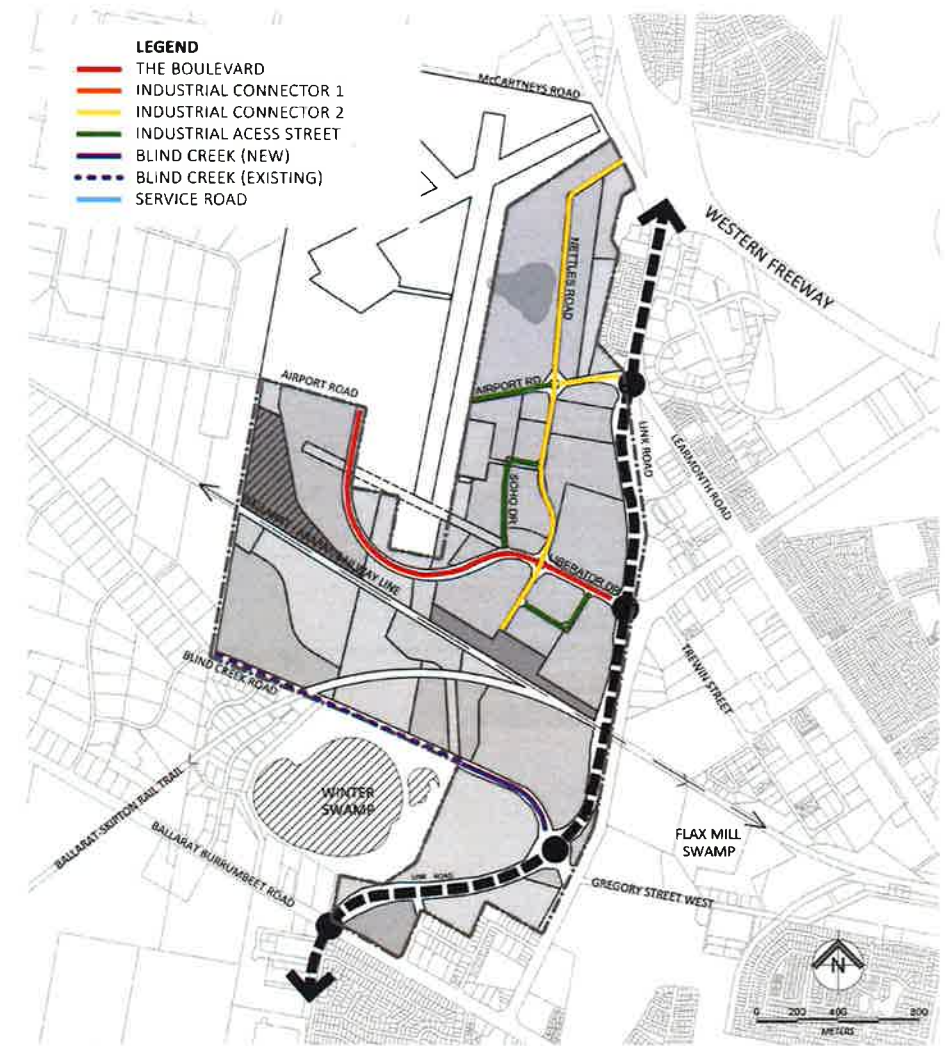
**BWEZ Internal Road Network Hierarchy**

The BWEZ road network has been designed to cater for a wide range of industrial, freight and warehousing activities. Access to the proposed freight hub adjacent to the railway line and the surrounding transport and logistics land uses has been designed to cater for HPFV access. Other parts of the BWEZ precinct road network have also been designed to be accessible by HPFV. The Traffic/Transport Assessment (Wood & Grieve, 2018) assesses the planned road hierarchy in the Development Plan area, particularly within the northern sections to ensure that the proposed road network has sufficient capacity to accommodate development traffic.

It is proposed to have one north/ south road which will adequately service the northern half of the precinct and also avoid an area of cultural significance in the north west section. Nettles Road provides for a two-way carriageway from Sunraysia Drive through to Liberator Drive, at the intersections of Nettles Road/ Liberator Drive and Nettles Road/ Airport Road two controlled roundabouts will be provided. The Development Plan identifies Airport Road as a single lane in each direction at the Nettles Road roundabout, which will widen to a four lane divided road at the BWLR roundabout. The cross section for Airport Road provides for a 3.5-metre-wide traffic lane in each direction, with a 2.0-metre-wide shoulder and 1.0- metre-wide verge. The Traffic/Transport Assesment (Wood & Grieve, 2018) states that this will accommodate the level of vehicle movements anticipated by the completed development and provides for efficient use of land and no excess road construction.

More detailed traffic analysis has been undertaken for Stage 1 and Stage 1B. Stage 1B is anticipated to generate in the order of 4,461 trips per day, this is in addition to the anticipated 8,900 vehicles per day associated with Stage 1. This level of vehicle movements can be accommodated by the proposed road network with the intersections of Nettles Road/ Airport Road and Nettles Road/ Liberator Drive anticipated to operate under 'excellent' conditions post development of Stages 1 and 1B. A SIDRA assessment of the roundabouts at Nettles Road/ Airport Road and Nettles Road/ Liberator Drive indicate that both intersections will operate under excellent conditions during the AM and PM peak periods post completion of Stage 1B.

Typical cross sections are provided at **Figures 19-23**. Variations to cross sections can be assessed at the subdivision permit application stage.



Road Hierarchy as per IIP Departures Report (Wood & Grieve, 2018)



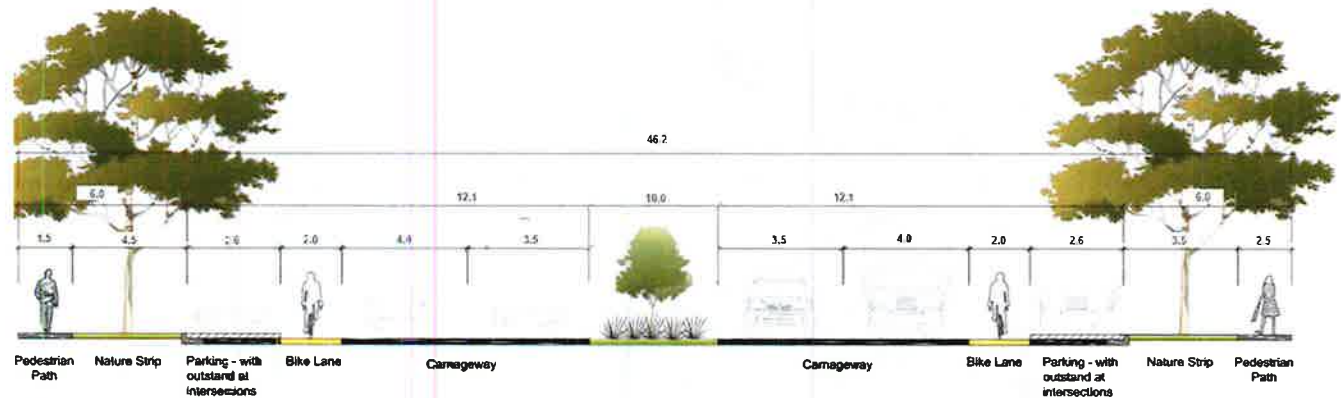
**CROSS SECTION  
BOULEVARD**

The Boulevard (Liberator Drive) forms the gateway to the BWEZ and has a 46.2m cross section. Part of the traffic volume anticipated is the traffic associated with the freight hub and transport/logistics land uses which comprise a significant number of heavy vehicles including B-triples.

A section of Liberator Drive has been constructed which generally accords with **Figure 19** but with a 2.5 shared use path in lieu of the separate pedestrian/bike paths.

The road cross section caters for high productivity freight vehicles.

**FIGURE 19 BOULEVARD CROSS SECTION**



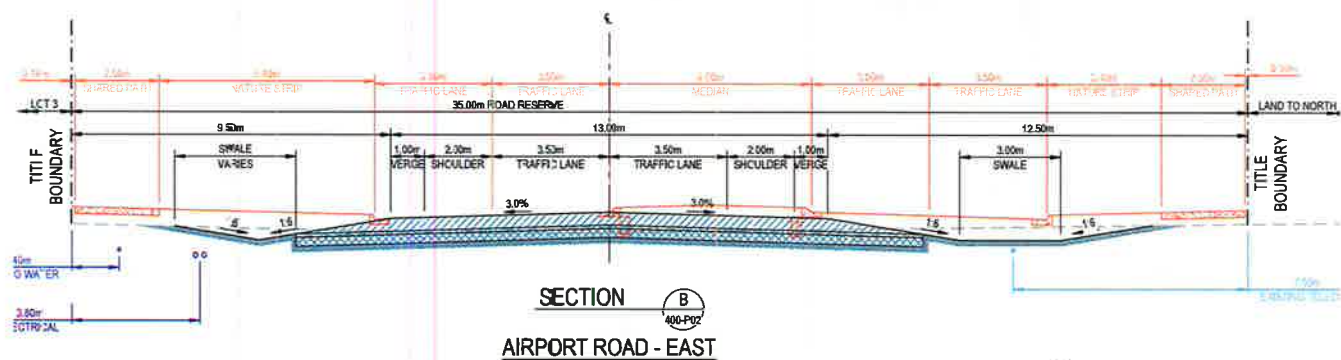
*Extract: BWEZ Integrated Infrastructure Plan*

**CROSS SECTION  
INDUSTRIAL CONNECTOR (1)**

Airport Road is the second main access to BWEZ. The Ultimate Cross section for Airport Road is 35m, which provides for shared paths on both sides of the road reserve. The interim arrangement for Airport Road is shown in **Figure 20**. The Ultimate Cross Section is shown in Orange on **Figure 20**.

It is proposed to upgrade Airport Road to the Ultimate cross section when traffic volumes warrant it and it is anticipated to occur in conjunction with the development of the northern section of the BWEZ Land.

**FIGURE 20 INDUSTRIAL CONNECTOR (1) CROSS SECTION**



*Extract: Traffic/Transport Assessment Report (Wood & Grieve, 2018)*

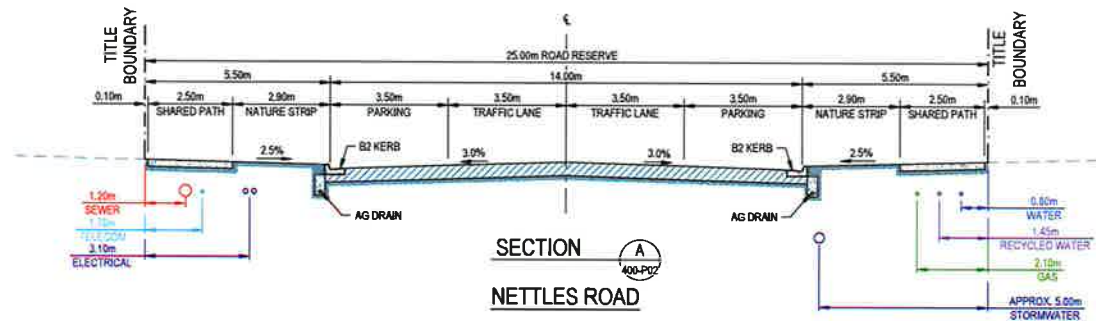
**CROSS SECTION  
INDUSTRIAL CONNECTOR (2)**

Whilst Liberator Drive and Airport Road provide primary access to the BWEZ, a series of connector streets are required to distribute traffic.

The Industrial Connector 2 Cross Section is provided at Figure 22 and provides for:

- A 3.5 metre wide carriageway in each direction with 2.5 metre wide shared paths on each side.
- On-street parking width of 3.5m. This ensures that the road could be expanded to cater for two lane undivided road in the future if traffic demand warrants.

**FIGURE 21 INDUSTRIAL CONNECTOR (2) CROSS SECTION - UPDATED CROSS SECTION**



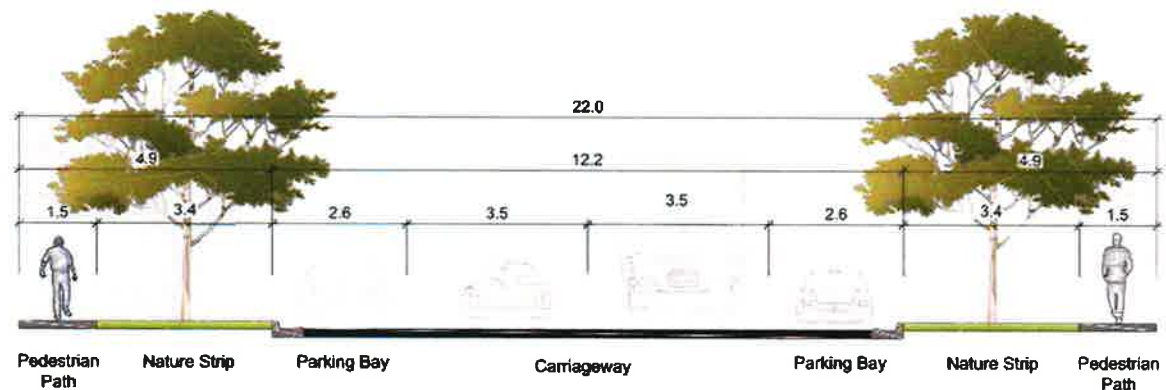
Extract: Traffic/Transport Assessment Report (Wood & Grieve, 2018)

**CROSS SECTION  
INDUSTRIAL ACCESS STREET**

This road cross section caters for high productivity freight vehicles (HPFV).

A finer grain of lower order streets will provide direct access to lots and seek to provide a connection to the main road network. These access streets will carry lower volumes, with a proposed 22m cross section made up of pedestrian paths, nature strips, parking bay and single carriageways.

**FIGURE 22 INDUSTRIAL ACCESS CROSS SECTION**



Extract: BWEZ Integrated Infrastructure Plan

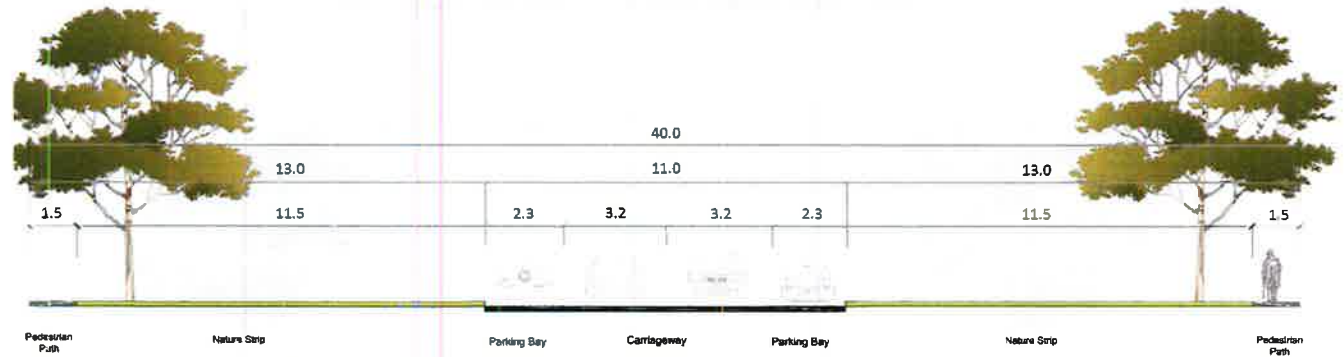


**CROSS SECTION  
BLIND CREEK ROAD (NEW)**

As part of the BWLR it is proposed to deviate the western approach of Blind Creek Road where it intersects the BWLR approximately 300m south so that a cross intersection treated by a roundabout is formed with Gregory Street West. This deviated section of Blind Creek Road comprises an 11m pavement within a 40m road reserve as illustrated in the cross section.

From the eastern edge of the Winter Swamp to the western boundary of the BWEZ Blind Creek Road will retain its existing cross section being a 30m road reserve housing a 7m sealed carriageway.

**FIGURE 23 BLIND CREEK ROAD (NEW) CROSS SECTION**



*Extract: BWEZ Integrated Infrastructure Plan*



### HPFV Access and Intersection Treatments

The BWEZ Development Plan seeks to provide maximum flexibility for the provision of access for high performance freight vehicles (HPFVs). Because of the turning circle of these vehicles, they require oversized intersections to facilitate their movement. Priority has been given to providing HPFV access to those parts of the precinct that are most likely to accommodate large-scale freight and logistics activities and therefore most likely to benefit from HPFV access. Furthermore hammerhead and dead end streets will not be permitted.

Access for HPFVs will be provided in the following location

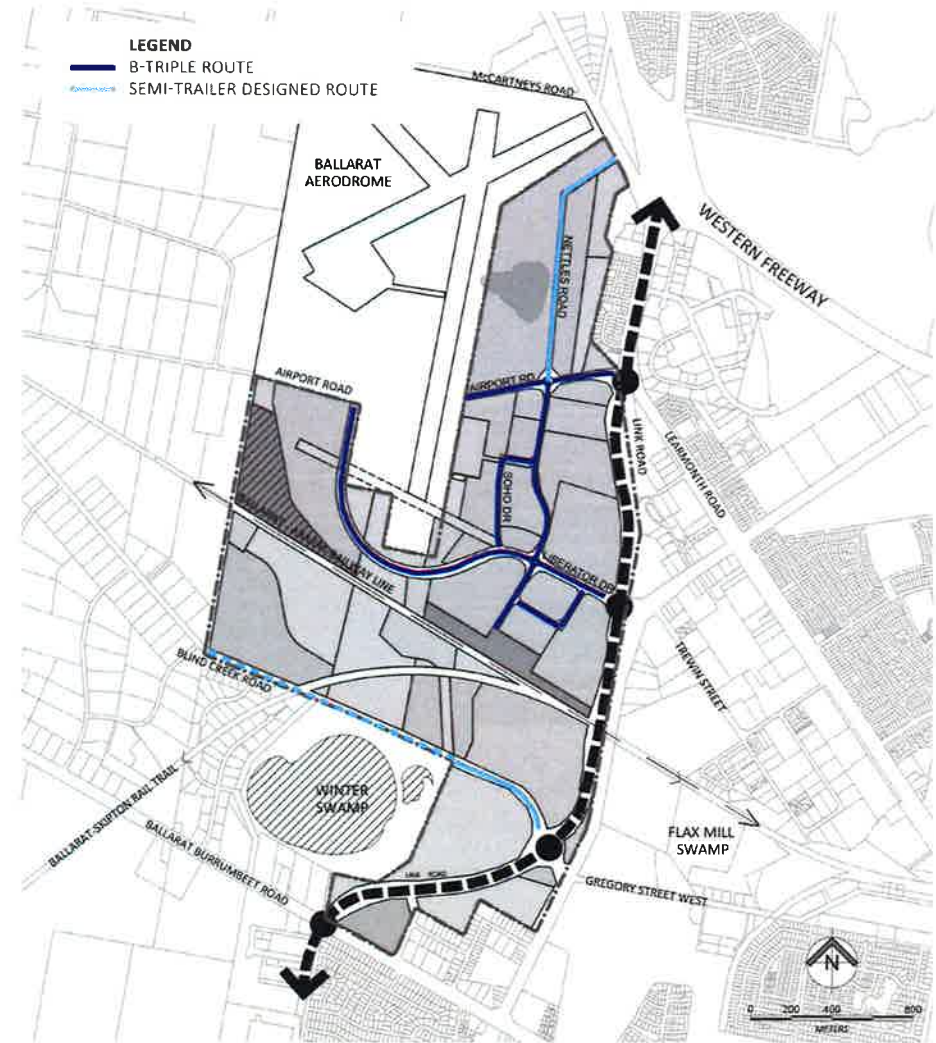
- The freight hub;
- land parcels to the immediate north of the Boulevard (Liberator Drive);
- Lots facing the Airport Road, and the connector roads between this road and the BWEZ Boulevard.
- Roads to provide internal access to convenience and service centre.

Land parcels to the north of Airport Road are expected to have little need for HPFV access because the lot types in this area are typically smaller than those to the south and as such the northern road network has been designed to accommodate 19m semi-trailers.

Roundabouts are proposed on Liberator Drive and Airport Road to facilitate HPFV movements throughout the site.

The proposed HPFV access arrangements is illustrated in **Figure 24**.

FIGURE 24 HPFV ACCESS



HPFV as per IIP Departures Report (Wood & Grieve, 2018)



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### ***Access to the Surrounding Road Network***

The BWLR forms the eastern boundary of the BWEZ and provides the principal means of access to the precinct. The BWLR generally comprises a single carriageway with one through lane in each direction flaring out to two lanes in each direction at the roundabouts noted below:

- Learmonth Road/Airport Road;
- Ring Road/BWEZ Boulevard; and
- Blind Creek Road.

The minor roads at the above intersections comprise single lane approaches with the exception of Learmonth Road (designed with 2 approach lanes) and the Boulevard (Liberator Drive), designed with 2 departure lanes.

The Development Plan provides for a Service Road along the BWEZ frontage to the BWLR between Airport Road and BWEZ Boulevard. This provides main road frontage to these BWLR fronting lots and minimises points of access to arterial roads in line with the VicRoads Access Management Policy. The southern leg of the Service Road has been constructed as part of the Stage 1 subdivision. The northern leg of the Service Road is proposed to be constructed as part of Stage 1B.

A secondary access is provided to the north via Sunraysia Road although this access is considered to be ancillary to the BWEZ access strategy.

## 6.4 CAR PARKING

The Development Plan provides for a range of industrial and commercial uses permissible under the zone. An application for use or buildings and works within the Development Plan area will need to accord with the car parking provisions within Clause 52.06 of the Ballarat Planning Scheme.

Further guidance on the design of the car park areas is provided within the Urban Design and Landscape Guidelines included in Appendix 3 to this Development Plan. Provisions have been made for on-street parking on Boulevard, Connector and Access Streets throughout the precinct.

## 6.5 PEDESTRIAN AND BICYCLES MOVEMENTS

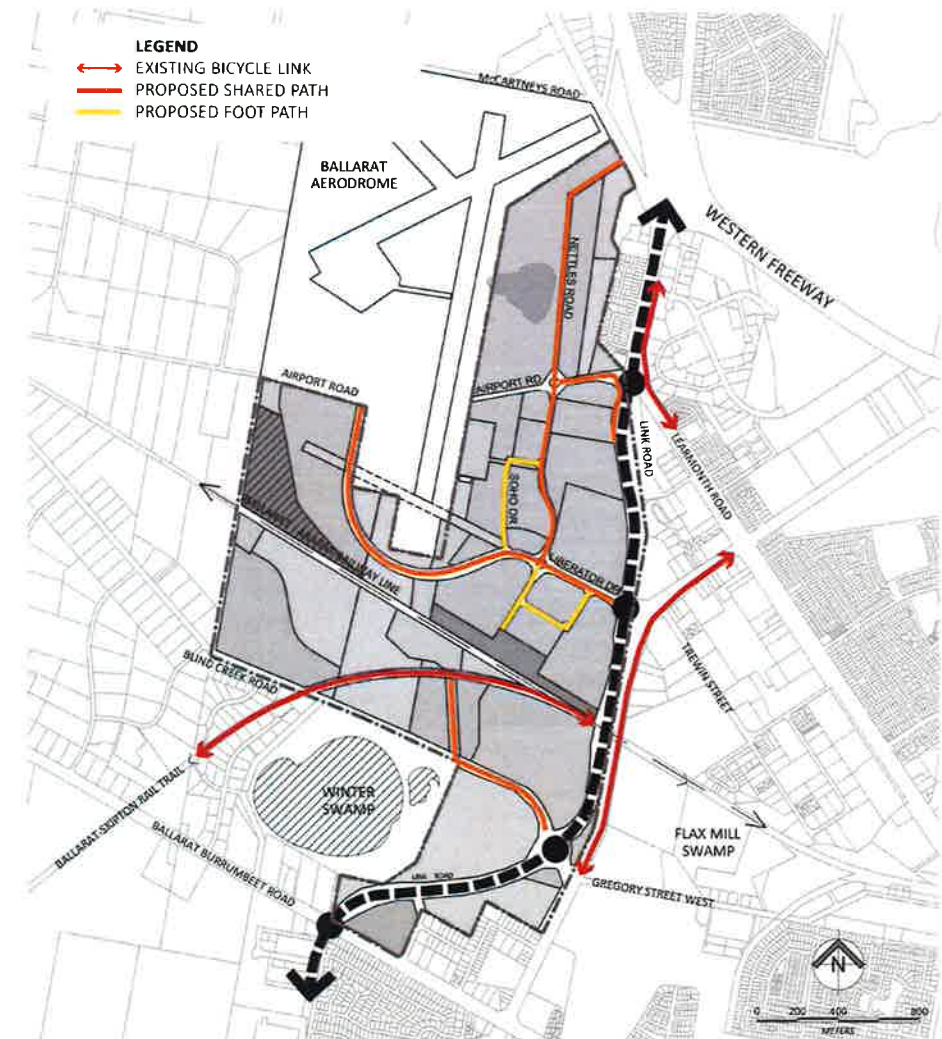
The Bicycle links currently exist along Learmonth Road, Ring Road and the Skipton Rail Trail. Further, the BWLR (Stage 1) includes a pedestrian/cycle link along its southern length, to the BWEZ Boulevard intersection, the BWEZ precinct will link to these cycle routes via:

- A shared path network running along Nettles Road (north), Nettles Road (south), Liberator Drive and a section of the Ballarat West Link Road.
- A proposed pedestrian/cycle link along the drainage line south of the rail line.

Additionally, the BWEZ Boulevard, Airport road, connector and access streets provide for pedestrian paths.

The proposed pedestrian and bicycle movement network based on the adopted road cross sections is illustrated in **Figure 25**.

FIGURE 25 PEDESTRIAN AND CYCLE MOVEMENT NETWORK



*Pedestrian and Cycle network as per IIP Departures Report (Wood & Grieve, 2018)*



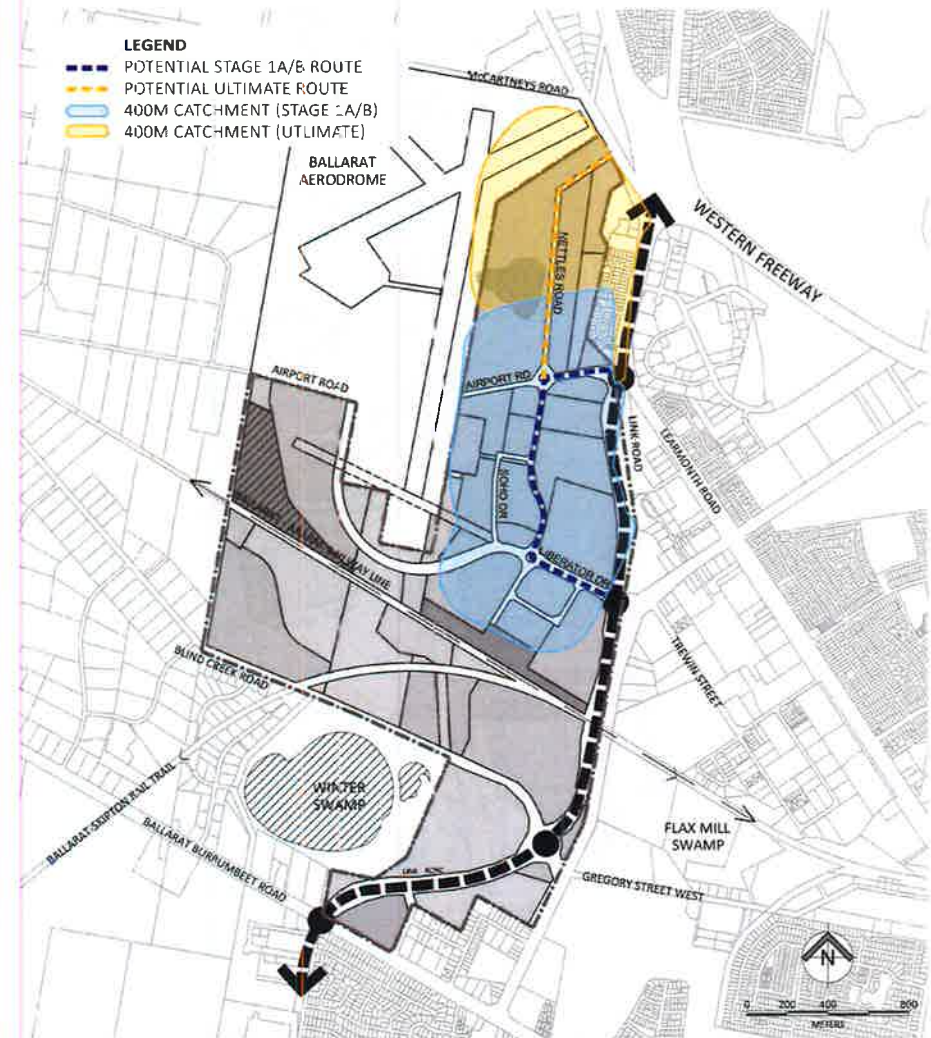
## 6.6 PUBLIC TRANSPORT

The BWEZ road network design can readily accommodate bus routes. Public transport surrounding the site is currently limited to bus services that operate along Learmonth Road and Sturt Street (Old Western Highway). At this stage bus operators have no plans to provide additional bus routes through the BWEZ area.

Considering that the majority of development within BWEZ is proposed east of the Ballarat Airport, it is likely that a future bus route would access the northern section of the BWEZ from Airport Road or Liberator Drive and travel along Nettles Road. The 400m catchment of the Bus Route is shown on **Figure 26**. As there is limited ability to provide a return route along Blind Creek Road it is unlikely such a route would be proposed in this location.

**Figure 26** suggests a potential future bus route through the BWEZ precinct. However this is indicative only, and the final network and bus stops locations will require further discussion with Transport for Victoria and bus operators over time.

FIGURE 26 POTENTIAL BUS ROUTE



Potential Bus Route as per IIP Departures Report (Wood & Grieve, 2018)

## 6.7 FREIGHT HUB

The BWEZ Development Plan includes a freight hub precinct which has considered the freight hub concept layout prepared by SD+D in their 2009 report; *Feasibility Study To determine the best location for existing and future freight services for the Ballarat Region*.

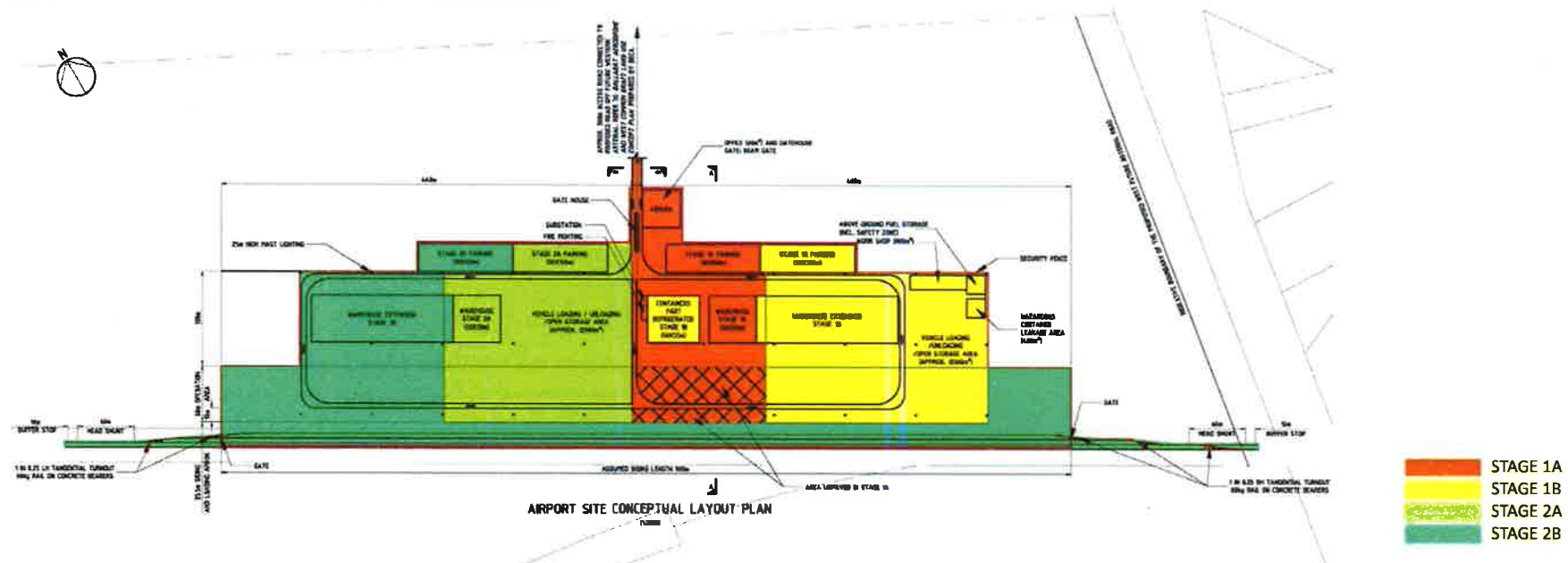
The entry/exit point has been located to the western part of the hub length, so as to maximise flexibility for the internal operation of the freight hub, as well as provide for safe ingress/egress for large freight vehicles from the BWLR via BWEZ boulevard. This layout allows a secure entry/exit for the hub and flexibility of internal circulation, storage and handling within the facility.

From a traffic engineering perspective access from the BWEZ Boulevard to the freight hub

needs to be controlled such that clear right of way is provided together with sufficient capacity at the intersection to allow vehicles, including HPFVs, appropriate commercial access.

Furthermore to allow efficient land use and maximise use of roads within the BWEZ, the freight hub access was positioned at a cross-intersection with another BWEZ north south road. To control this intersection signals and a roundabout were considered. Taking into account cost and level of service the roundabout is a viable solution that has been designed to accommodate all turning movements envisaged by the HPFVs in/out of the freight hub and also north of The Boulevard in consideration of future tenants.

FIGURE 27 CONCEPTUAL FREIGHT HUB LAYOUT



Extract: *Feasibility Study to determine the best location for existing and future freight services for the Ballarat Region (November 2009)*



## 6.8 THE SERVICE ROAD

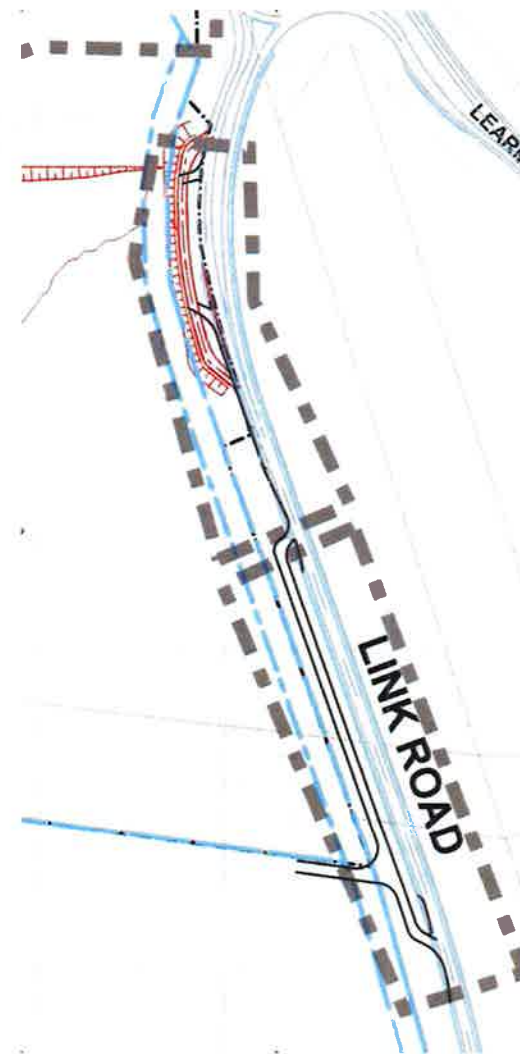
A one-way service road is proposed along the BWEZ frontage to the BWLR between Airport Road and Liberator Drive. This is to provide main road access to the lots fronting the BWLR and minimise points of access to arterial roads in line with V cRoads Access Management Policy the provision of a service road is appropriate.

The southern section of the service road is constructed. The northern section of the service road is to be provided as part of the Stage 1B works. The service road has the following design features:

- 2.5m parking lane
- 3.5 traffic lane (1 direction)
- Localised widening to facilitate turning movements for HPFVs
- Provision of access to adjoining lots.

Ingress and egress from BLWR is proposed, with clear separation from the roundabout to allow existing vehicles to depart the service road and undertake any movement at the roundabout, without negatively impacting on the operation of the BWLR.

FIGURE 28 SERVICE ROAD



Extract: Traffic/Transport Assessment Report (Wood & Grieve, 2018)

# 7 SERVICING AND INFRASTRUCTURE PROVISIONS

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The BWEZ IIP Report (Cardno/Echelon 2014) provides a detailed assessment of the service and infrastructure options for facilitating the future development of the BWEZ. The recommendations of this report have formed the basis of this element in the Development Plan. The IIP Departures Report (Wood & Grieve, 2018) provides details of the servicing provision for Stage 1B.

## 7.1 WATER

The existing trunk water supply infrastructure has some spare capacity to cater for the initial stage of development of BWEZ. However significant augmentation of this infrastructure will be required to cater for full development based on the forecast water supply demands.

Extension of a 450mm diameter trunk water from Gregory Street West to the site is required as the primary source of supply for the development.

Water supply for the low density residential precinct at the south west corner of the site and the southern industrial site will be provided from the existing adjacent water reticulation mains.

An additional water storage tank of a minimum capacity of 2 ML will be required (to supply the water demands of the ultimate development).

In relation Stage 1B, Water Supply will include dual potable and recycle water mains that will connect to existing water mains at the south end of Nettles Road that were constructed as part of the Stage 1 works.

Following recent Central Highlands Water advice, the proposed trunk watermain anticipated for Stage 1 has been delayed until future stages to coincide with the introduction of a water storage tank in later stages of the development.

## 7.2 SEWER

A central sewage pumping station (SPS) is located within BWEZ which will collect all sewage flows from the precinct, and discharge to the BNWRP via a dedicated rising main.

The BWEZ IIP (2014) proposed to locate the central SPS where Airport Road meets the eastern airport boundary, with the rising main outfall along Airport Road.

The sewage pump station location was shifted further south to suit the existing low point of the site. This has been constructed.

The rising main outfall path runs along the Boulevard to ensure the footprint of development is minimized, and allows the rising main to share a common trench with other services.

A central gravity branch sewer is proposed to extend south from the central SPS, which will service the central catchments south of Airport Road and the southern catchment to the south of the railway line. The catchments to the north of Airport Road and to the west of the airport are proposed to be serviced by secondary SPS located at the low corners of these catchments, with rising mains discharging flows back to the central SPS.

The low density residential precinct at the south west corner of the site, and the southern industrial site will be serviced via the existing adjacent sewerage reticulation systems.

## 7.3 GAS

Existing 150 mm diameter gas mains run along the Ring Road and Learmonth Road to the east of the precinct, and along Ballarat Burrumbeet Road to the south. The low density residential development to the south west of the site is serviced by smaller reticulation mains.

Gas supply to BWEZ Stage 1B will include new SP Ausnet gas mains that will connect to the existing gas mains at the south end of Nettles Road that were constructed as part of Stage 1 works. The new gas main will extend the full length of Nettles Road and down Soho Road to provide coverage to all Stage 1B development lots.



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## 7.4 ELECTRICITY

The area is currently serviced from the Ballarat North (BAN) zone substation and specifically the BAN 2 feeder. The land immediately to the south of the site is currently serviced from the Ballarat South (BAS) zone substation.

As demand nears the existing capacity, augmentation of the existing network will be required. The provision of electricity supply infrastructure will be staged in response to demand growth from BWEZ and the broader development of Ballarat West.

The BWEZ Stage 1B electricity supply will be extended from the electricity supply networks completed as part of the Stage 1 works.

## 7.5 TELECOMMUNICATIONS

The existing fibre network terminated in Learmonth Road opposite Airport Road. As part of Stage 1 works, the NBN service was extended to Nettles Road.

BWEZ Stage 1B communications and data services will be achieved by NBN network installation that will be extended from the NBN service provided in Nettles Road. From this point fibre would be reticulated throughout the development via telecommunication pit and pipe installed in conjunction with the subdivision road construction.

Under the NBN co Cost model, developers are responsible for the installation of pits and pipe within the development, with NBN Co. funding the fibre cabling, external backhaul works and exchange works.

## 7.6 DRAINAGE

A number of hydrological assessments have been undertaken in the BWEZ and its environs over recent years. The BWEZ IIP project reviewed all recent hydrology assessments as well as new survey data of the BWEZ site (in particular the location and levels of the railway culverts in particular). This review was used to establish a new hydrological model which assessed the following:

- Existing drainage conditions (topography, location of channels, culverts, etc.);
- Existing Q100 flood extents;
- Draft drainage masterplan;
- Developed conditions Q100 flood events.

### *Existing Conditions (pre-development)*

An 'existing conditions Q100 flood extents' model was generated as part of the BWEZ IIP. This hydraulic model was based on a review of previous models, as well as more recent topography and field survey data.

The existing conditions Q100 model demonstrated that the existing culverts under the Railway and Bike Path act as hydraulic restrictions in the peak flood event and causes ponding (retardation) of flows from Winter Swamp upstream.

Winter Swamp itself also plays a key a role in southern hydrology and hence additional survey was undertaken of key levels to verify the existing conditions south of the rail line.

### *Proposed Ultimate Network*

The hydraulic model prepared as part of the BWEZ IIP was updated to take account of the BWEZ master plan land uses and indicatively sized retarding basins to ascertain the exact sizes required to reduce developed flows to pre-development flows. The proposed retarding basins were then sized for land take based on topography and required retarding volume and the model iterated to confirm that the required site retardation is being achieved to mimic existing conditions.





**FIGURE 29 PRE-DEVELOPMENT EXISTING CONDITIONS FLOOD EXTENTS**

The Development Plan proposes the following drainage assets/retarding basins which take into account the proposed land uses, staging of the Development Plan area and the roads proposed in the precinct:

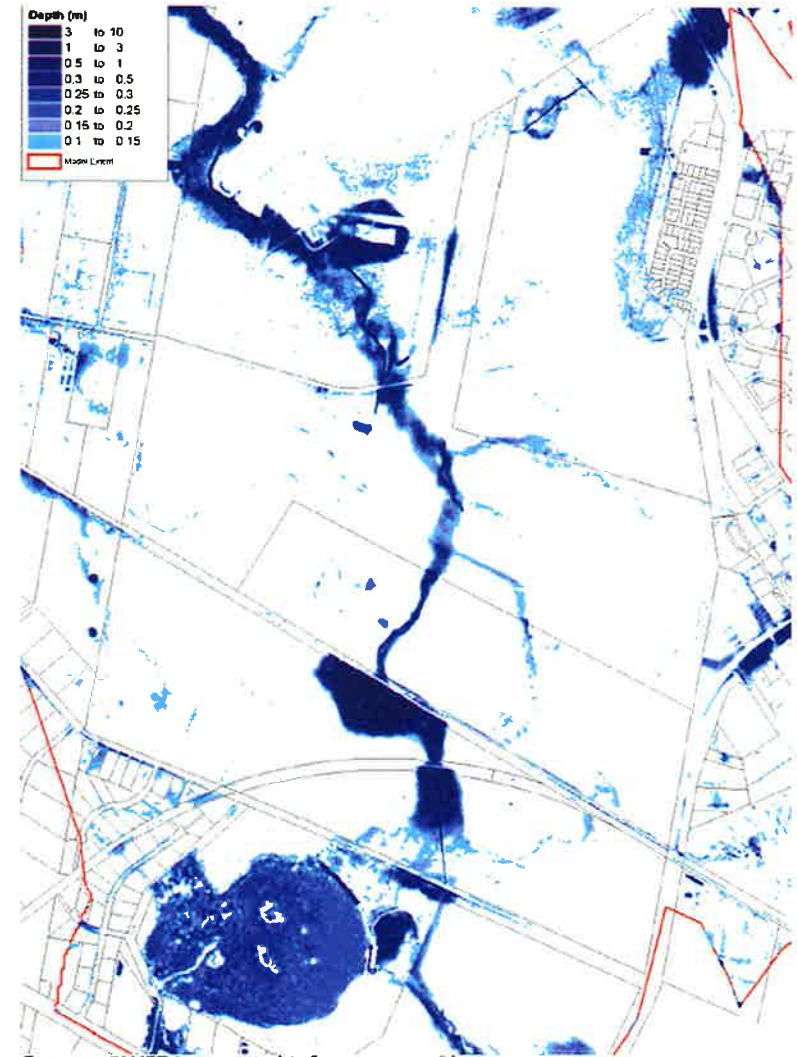
- D01-A1 - Retarding basin sized for the Stage 1 subdivision, located centrally within the site, south of the runway.
- D01-A2 - Retarding basin to service the residential area south of the railway line.
- D01-B - Retarding basin to service the industrial area north of the railway line.
- D02 - Retarding basin in the northern section of the site.
- D03 - Retarding basin intended to service the commercial area south of the railway line.
- D04 - Retarding basin south of the railway line. The natural drainage line between Blind Creek Road and the Ballarat Skipton Rail Trail was enlarged to accommodate more drainage.
- Winter Swamp - It is envisaged that Winter Swamp will be a reserve and no works are planned for the area.

The Stage 1B, IIP Departures Report (Wood & Grieve, 2018) outlines the drainage in more detail with a focus on Stage 1B and includes changes to the shape/size of Retarding Basin D02 as well as two additional retarding basins from what is shown in the IIP:

- Retarding Basin 1 - proposed to be positioned on the western side of the Stage 1B site on the boundary with the Ballarat Airport.
- Retarding Basin 2 - proposed to be positioned on the western side of the Stage 1B site in the designated drainage reserve on the north side of Airport Drive.

**Figure 29** shows the pre-development existing conditions flood extents (extracted from the BWEZ IIP prepared by Cardno). **Figure 30** shows the drainage master plan for the BWEZ Development Plan. Detailed design of retarding basins will be required as part of future subdivision applications.

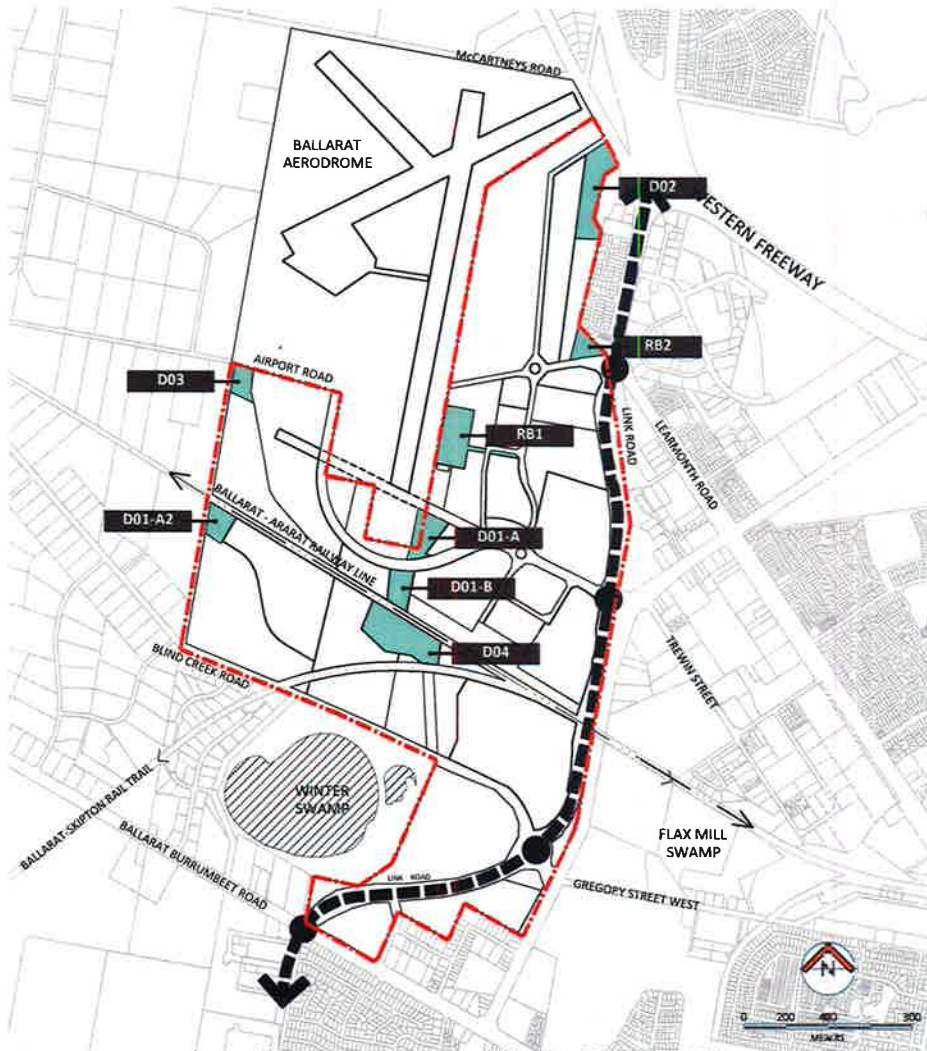
Due to the site's proximity to the adjoining airfield, it is necessary to design stormwater treatment facilities that do not attract waterbirds. For this reason, bioretention systems will be used instead of wetlands for water quality treatment. Bioretention systems do not hold permanent water and will not attract birds. An additional benefit of bioretention systems is that they take up less space than a conventional wetland while providing the same water quality treatment outcomes.



Extract: BWEZ Integrated Infrastructure Plan



**FIGURE 30 PROPOSED DRAINAGE BASIN LOCATIONS**



*Retarding Basins as per IIP Departures Report (Wood & Grieve, 2018)*

**Water Quality Treatment**

Bioretention systems will be installed for water quality treatment. Such systems do not hold permanent water and will not attract birds. These systems take up less space than a conventional wetland while providing the same water quality treatment outcomes.

Sediment basins will be installed in-conjunction with the bioretention systems

Both the sediment basins and bioretention basins will be sized to meet the following best practice reduction outcomes:

- Total Suspended Solids (TSS) – 80%
- Total Nitrogen (TN) – 45%
- Total Phosphorus (TP) – 45%

**Aquifer Recharge Opportunities**

A large managed aquifer recharge and recovery scheme is being considered as a joint project between Central Highlands Water, Council and the Office of Living Victoria.

Any WSUD adopted on-lot should work in conjunction with the overall Whole of Water Management System for the entire BWEZ.

Techniques that should be considered include:

- Utilise localised bioretention systems to improve the quality of stormwater that is discharged from the site;
- Attenuate the velocity

Treated stormwater could be directly harvested from the outlets of the bioretention systems proposed within the retarding basins. The non-developable open space areas including the environmental corridor and open spaces designated for retarding basins/stormwater quality treatment represent possible opportunities to co-locate the storage facility required for an aquifer injection scheme. Any above ground storage of harvested water would need to address with the airport the attraction of birdlife and the potential increase in risk of bird strikes.

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### ***Additional Water Sensitive Urban Design Opportunities***

Water sensitive urban design (WSUD) provides an alternative to the traditional conveyance approach to water, stormwater and wastewater management.

There are a range of possible WSUD solutions for industrial areas such as BWEZ, both 'on-lot' and within the public domain (streets, parks and reserves). The BWEZ Design Guidelines identify opportunities for achieving on-lot WSUD solutions.

The following WSUD initiatives are also to be further considered for the design of the public realm across the BWEZ precinct:

- The BWEZ Development Plan provides for the treatment of stormwater within larger drainage reserve via bioretention systems. Further detailed design and feasibility work is required to confirm the capacity for such systems to meet or even exceed the best practice water quality outcomes described earlier in this section;
- Further investigations will also be undertaken in respect to the potential to use aquifer storage and recharge of stormwater within the Precinct;
- Further investigations will also be undertaken into the potential to the use of localised bioretention systems within streets and local parks across the development. These might take the form of localised stormwater harvesting for street tree and landscape watering, the use of bioswales designed within road reserves or other localised bioretention systems.



## 8 ENVIRONMENTAL MANAGEMENT

FIGURE 31 ENVIRONMENTAL MANAGEMENT PLAN

An Environment Management Plan (EMP) has been prepared for the BWEZ site (Biosis, December 2013). This plan has informed the preparation of the BWEZ Development Plan, and in particular the hydraulic design of drainage and stormwater systems, and the layout of the Landscape Masterplan. The Development Plan responds to the drainage and stormwater conditions, as well as the general locations of open space, with some minor departures which still meet the drainage needs of the site as follows:

- Increasing the number and changing the shapes of retarding basins centrally within the site.
- Reconfiguring the northern retarding basin.
- Provision of an additional retarding basin in the northern area.
- A larger area of open space to the east of the Winter Swamp to provide a greater buffer.
- Additional area of open space south of the runway.

The BWEZ site comprises primarily of flat open grassland dominated by introduced grasses. These grasses provide only marginal habitat for a limited number of native species. The environmental values of the BWEZ site were assessed as being generally low. There are no areas of remnant native vegetation within the site, however there are a number of scattered native plants along adjacent road sides, along the drainage line between Flax Mill Swamp and Winter Swamp in the South of BWEZ and along the Ballarat Skipton Rail Trail.

The EMP identifies the major issues to be managed, the aims for management of each issue as well as the actions required to achieve each aim. The City of Ballarat is responsible for implementation of the EMP, and the plan is current for a period of 10 years from the date of its approval.

The Development Plan and future planning permit applications are required to respond to the actions outlined by the EMP.



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### ***Delineation of the Open Space environmental corridor***

The area designated as Open Space within the Development Plan provides an environmental corridor through the BWEZ. The primary purposes of the Open Space environmental corridor are to:

- Protect the primary drainage lines within the BWEZ;
- Provide a clear flight path for aircraft;
- Protect the environs of Winter Swamp, and;
- Provide habitat and movement corridors for a variety of smaller wildlife including birds, frogs, reptiles and potentially small mammals.

The Development Plan clearly delineates the boundary of this corridor. Fences and other actions required under the EMP will be approved on condition of subdivisions and development approvals.

### ***Restoration of Native Vegetation***

No areas of ecological vegetation class (EVC) or species of national, state or regional significance have been recorded within the BWEZ (Biosis Research, 2010a). The management aims are:

- EMP management aims are to restore the overstorey components of the former Plains Grassy Woodland EVC vegetation to designated sections of the Open Space environmental corridor within the BWEZ\* and to enhance the amenity and habitat value of the Retarding Basins and drainage lines.

*(\* The open space area between the rail line and the interface with the aerodrome will not be revegetated with trees due to aviation safety concerns.)*

The Development Plan (Landscape Master Plan) reflect these outcomes, and the EMP outcomes (relating to revegetation) have been reflected in the Landscape Master Plan.

### ***Native Fauna***

No fauna species of national or state significance have been found within the BWEZ although a colony of the Critically Endangered Golden Sun Moth (Listed under the Environment Protection and Biodiversity Conservation Act 1999) has been recorded in the open grassland to the immediate east of the aerodrome north-south runway on the airport site. There is also potential for the nationally listed Growling Grass Frog (GGF) to occur within Winter Swamp and nearby drainage lines (Including drainage lines within the BWEZ sites) but no evidence of GGF has been recorded within the BWEZ precinct to date.

Fauna within the BWEZ precinct will be managed through the provision and maintenance of suitable habitat and by ensuring appropriate setback of Development Areas from Open Space and design of infrastructure. The EMP management aims are:

- To provide and maintain suitable habitat within the Open Space environmental corridors for a range of native species.
- To ensure impacts on native fauna by industry and infrastructure within the Development Areas is minimised.

The layout shown on the Development Plan is generally consistent with the EMP and the Design Guidelines and Landscape Master Plan are consistent with it.

### ***Management of threatening processes***

The EMP identifies a number of threatening processes that require active management within the BWEZ precinct. These processes and the associated management actions related to fire, pest plants and animals, erosion, motor vehicle access, stock grazing, fencing and power-lines.

The Management actions required under the EMP will be addressed on conditions of subdivision and development approvals.



# 9 CULTURAL HERITAGE MANAGEMENT

## 9.1 ABORIGINAL CULTURAL HERITAGE

Biosis undertook a Cultural Heritage Assessment for the City of Ballarat in 2010 to inform future planning processes for BWEZ and the Ballarat Airport. Four Aboriginal Places (Ballarat Aerodrome 1-4, [VAHR 7622-0105; 7622-0106; 7622-0107; 7622-0108] were recorded during the field surveys at that time. Following the survey, and after consultation with the Wathaurung representatives, it was agreed that there was a high likelihood of additional Aboriginal places within the boundary of the study area. In particular, stony rises and land within 100m of creek lines and swamps were considered likely to contain Aboriginal cultural material, as these areas were higher drier points on the landscape on which people would carry out their daily activities. Previous studies in the Ballarat region have demonstrated that rises overlooking creek lines frequently contain Aboriginal cultural material.

Therefore, Biosis concluded that it was likely that any future activity involving ground disturbance on these areas could disturb Aboriginal cultural heritage if such sites are present. The Biosis report confirms that a mandatory Cultural Heritage Management Plan (CHMP) will be required for activities on some parts of the BWEZ, whereas a voluntary CHMP is recommended in relation to activities over other parts of the BWEZ.

Development Victoria has undertaken a staged approach to undertaking CHMP's, noting that several CHMP's have now been approved for various precincts within the Development Plan area.

Where it is determined that a CHMP is required to be prepared, a CHMP must be approved prior to a planning permits being issued.

(Refer to section 53 of the Aboriginal Heritage Act 1996 for further details)

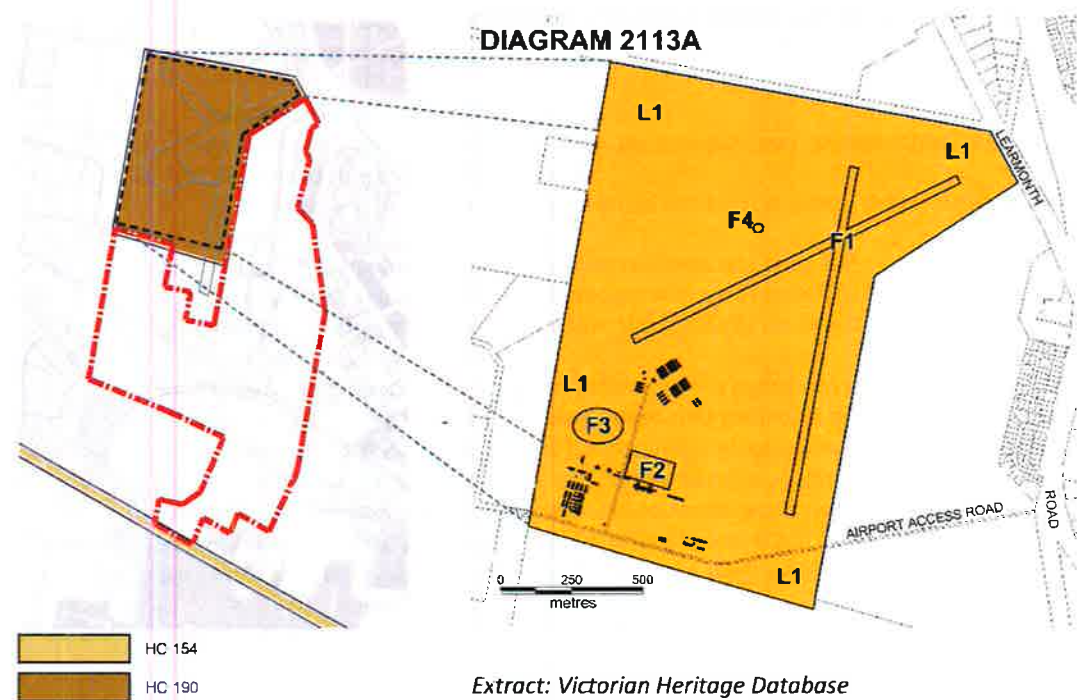
## 9.2 POST CONTACT HERITAGE

The BWEZ adjoins the historically significant Ballarat Aerodrome. The Ballarat Aerodrome is of cultural value to Ballarat and the State of Victoria, and accordingly the site is both listed on the Victorian Heritage Register (registration reference H2113) and within a Heritage Overlay under the Ballarat Planning Scheme.

The Ballarat Aerodrome was built in 1940 as the first of only three Wireless Air Gunnery Schools established nationally, and it is the only such school in Victoria. It is also the most intact of the surviving Victorian Empire Air Training Scheme training schools.

FIGURE 32 HERITAGE OVERLAY

FIGURE 33 HERITAGE REGISTER PLAN



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The boundaries of both the Heritage Overlay and the State heritage registration for the Ballarat Aerodrome were amended at the time that the BWEZ Masterplan was gazetted under the Ballarat Planning Scheme (via Amendment C166 to the Ballarat Planning Scheme, June 2013). The effect of these boundary changes is that the BWEZ is not included in either the State heritage registration area or a Heritage Overlay (HO) under the Ballarat Planning Scheme. This change was based on the Post Contact Heritage assessment undertaken.

Notwithstanding, the updated Ballarat Aerodrome Conservation Management Plan (CMP) prepared for the Ballarat Aerodrome (Ivar Nelson, June 2012) provides a useful overview of the post contact heritage value in the BWEZ site, and recommendations for how these values could be addressed.

The purpose of the Ballarat Aerodrome CMP is to assist in the future planning and day-to-day management of the heritage values associated with the Ballarat Aerodrome. Section 6 of the CMP outlines the Conservation Guidelines for the future maintenance and development of the Ballarat Aerodrome site. These guidelines identify two sites of heritage interest at BWEZ – namely the former East-West Runway and the USAAF Camp and Radio/Radar Ruins – and the CMP makes some suggestions for how these sites might be treated in the future development of the BWEZ:

Site 1 – The East-West Runway:

*‘The E-W runway is now defunct and only partially discernible on the ground. Portions of the paving remain but the majority has been lost. The reference to the E-W Runway as the ‘Liberator Air Strip’ is a misnomer and its construction by the USAAF is undocumented.*

*It is encouraged that the nominal alignment and/or ‘footprint’ of the E-W runway be retained (at least in part) in the proposed employment zone in this area. This retention could be expressed as a void in the and/or as part of proposed vehicular access. Some creativity should be demonstrated in the retention/expression of this feature.’*

Site 2 - USAAF CAMP and Radio/Radar Ruins (south of the Cyprus Pine Plantation.)

*The USAAF (United States Army Air Force) Camp is an open paddock with no building nor obvious remains from its temporary occupation by USAAF troops in March to April 1942. The extent of the camp is clear in the AWM aerial photograph PO 1734 007, although the camp was already vacated at the time of the photo.*

*An archaeological investigation by BIOSIS Research in 2010 indicated there are no remains of the Camp except for an E-W concrete footpath which serviced long gone troop amenity structures.*

Adjacent to, and almost co-existent with, the USAAF Camp are six concrete foundations in an east-west alignment. These foundations were constructed to house equipment as part of the WAGs radio and radar function

*It is encouraged that the remnant foundations and footpath are retained and incorporated, with interpretation, into the future planning of this area – currently proposed as part of the Ballarat Employment Zone. They could become part of any open space requirement and complement the amenity of the area. The CMP recommends that the remnant foundations and footpaths are recorded, retained and incorporated where possible, with interpretation into the future planning of the BWEZ.*

(refer Ballarat Aerodrome CMP, Ivar Nelson June 2012)

The Development Plan adopts the design recommendations of the CMP in relation to the East-West Runway. Further details regarding the proposed landscape design response are set out in the Landscape Masterplan (refer **Appendix 3**). The Development Plan provides some flexibility for the potential retention and incorporation of the USAAF CAMP and Radio/Radar Ruins.

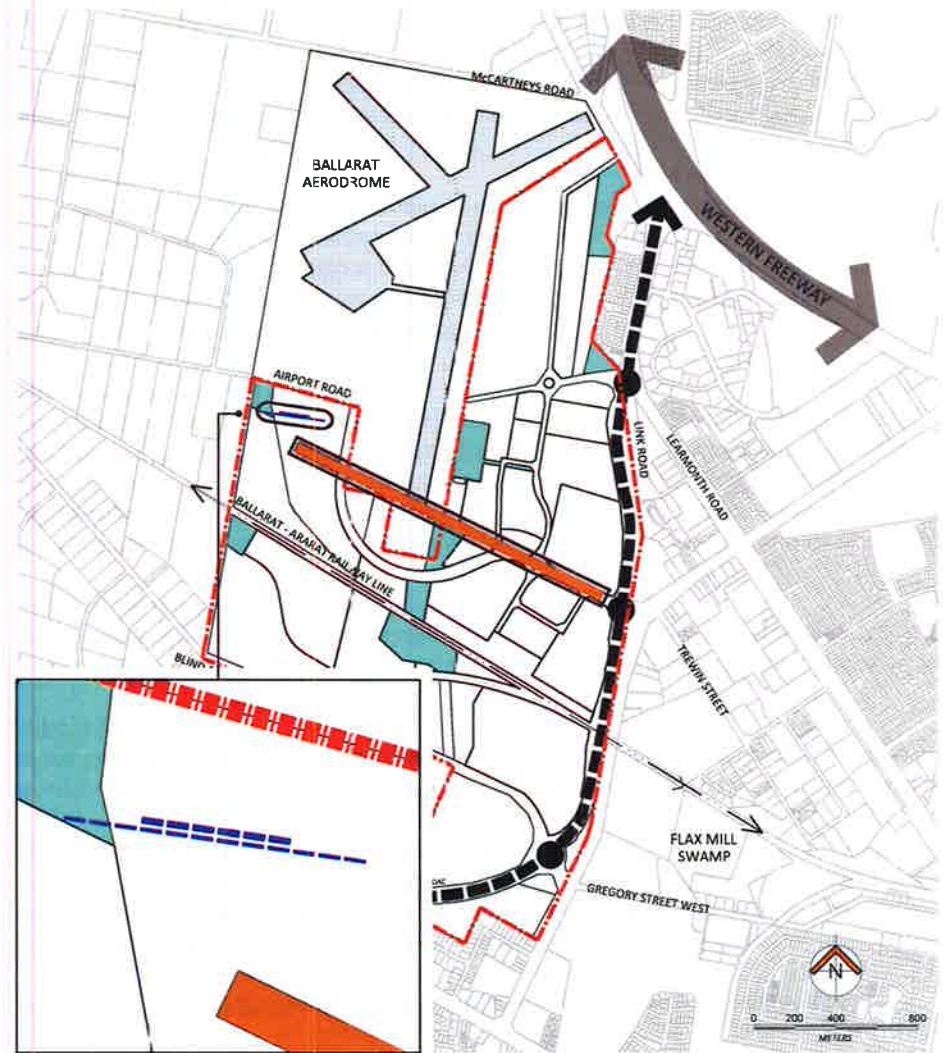
A significant drainage and stormwater treatment basin will be constructed to the west of this location. Further investigations and detailed design will be required to determine whether the ruins can be retained as part of any open space in this area in accordance with the Ballarat Aerodrome, CMP. It is proposed that this would occur as part of future subdivision of this area. If they cannot be retained, then the relevant remnant foundations and footings will be recorded.



**FIGURE 34 HERITAGE PLAN**

The four options relating to USAAF Camp and Radio/radar ruins are:

- Retain remnant ruins in an open space area as part of future subdivision.
- Retain part of the remnant ruins in an open space area as part of future subdivision.
- Incorporate the relevant remnant foundations and footings into the design open space
- If retention is not possible, record the relevant remnant foundations and footings.



**LEGEND**

- - - - DEVELOPMENT PLAN AREA
- █ WESTERN HIGHWAY
- LINK ROAD / MAJOR INTERSECTION (PROPOSED)
- · — · RAILWAY
- · · · · RAIL TRAIL
- █ RUNWAY
- BLOCK BOUNDARY
- - - - HISTORIC RUNWAY ALIGNMENT
- █ RETARDING BASIN/DRAINAGE RESERVE

- USAAF CAMP AND RADIO/ RADAR RUINS (VERIFICATION OF LOCATIONS TO BE UNDERTAKEN AT THE TIME OF SUBDIVISION)
- █ EAST WEST HISTORIC RUNWAY



# 10 DEVELOPMENT STRATEGY

## 10.1 STAGING

State Planning Policy (clause 11) requires that the sequence of development in growth areas is managed so that the delivery of services and development in new development areas is well co-ordinated.

The following principles will guide the staging of development at the BWEZ precinct:

- Development will form logical and contiguous extensions of existing urban areas, where existing infrastructure capacity can either be utilised or enhanced as needed;
- Land identified for development will be free of major physical constraints or uncertainties that could either delay or substantially increase the cost of providing infrastructure;
- Extension of urban infrastructure will be staged in an orderly manner, where the cost of providing new infrastructure is minimised.

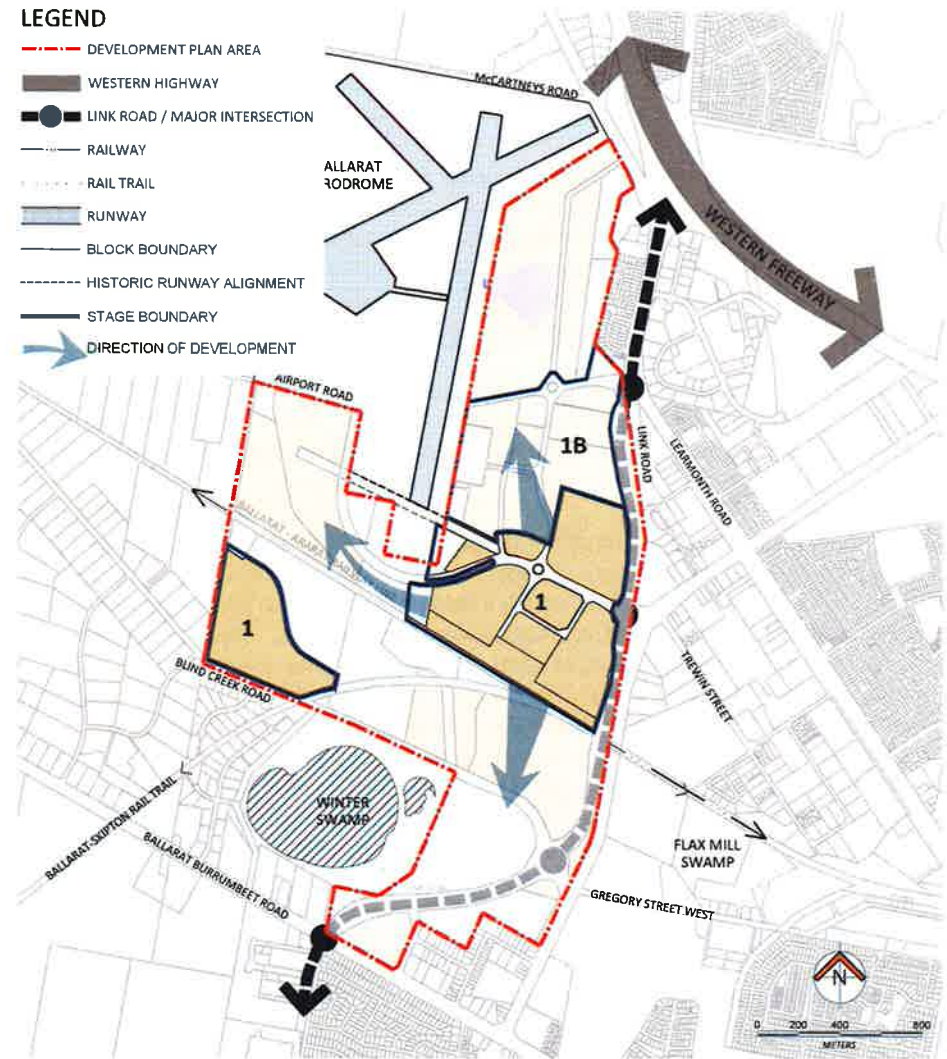
Stage 1 and 1B of BWEZ precinct development comprises of the subdivision and construction of land for employment purposes (approximately 125 hectares), with Stage 1 also including approximately 23 hectares of land for low density residential purposes. The proposed first stage of the BWEZ development addresses the first two principles as follows:

- Stage 1 is an extension of the urban area being; the existing residential to the south, the existing industrial to the east and commercial/highway uses to the south. The contiguous nature of stage 1 allows the development to extend existing infrastructure and stage the delivery of new infrastructure such as the link road.
- Stage 1 is not subject to any major development constraints, noting that the required infrastructure and site works are generally known and do not create major impediments to development commencing.
- The area identified for stage 1 development can be readily and efficient serviced.

The extent of Stage 1 and 1B and the general direction of future staging of the BWEZ precinct is shown in **Figure 35**.

The BWEZ precinct will be developed in stages so as to facilitate a diverse range of industrial and employment generating activities whilst at the same time enabling the efficient and cost-effective extension of infrastructure to support development. The BWEZ Integrated Infrastructure Plan recommended an approach to development staging which best achieves these objectives.

**FIGURE 35 STAGING PLAN**



# 11 MANAGING AMENITY IMPACTS

The BWEZ adjoins a number of land uses which have the potential to impact or be impacted on by future industrial activity. The following land uses adjacent to the BWEZ precinct give rise to considering different types of amenity and separation distance considerations:

- The residential precinct on the north-east, west and south-west edges of the BWEZ precinct;
- The Ballarat Airport;
- Large food manufacturing operations (Mars Confectionery and McCains Foods) east of the BWEZ precinct.
- The principal amenity issues to be addressed at the BWEZ are as follows:
  - » Managing the potential adverse amenity impacts of activities at the BWEZ precinct on nearby residential areas;
  - » Considering the potential adverse amenity impacts of activities at the BWEZ precinct on nearby food manufacturing operations;
  - » Ensuring that consideration is given to the impact of Aircraft Noise associated with the operation of Ballarat Airport on the amenity of industrial and other uses within the BWEZ precinct;

Consideration of the potential need for separation between industrial uses within the BWEZ precinct itself.

## 11.1 MANAGEMENT OF RESIDENTIAL INTERFACES

### *Context*

The BWEZ precinct has the following residential precincts on its borders:

- A small pocket of residential land in the northeast corner (facing the Ballarat/Maryborough Road). This land is included within the General Residential Zone - Schedule 1.
- A large-lot residential subdivision south-west of the BWEZ precinct. This land is included within the Low Density Residential Zone. In addition to the existing development in this area, an application has been approved to subdivide land in the north-east section of this area, adjoining the BWEZ boundary.
- A Rural Living Zone on the western boundary of the BWEZ precinct and the Ballarat Airport.

Additionally, a 20ha parcel of land in the south-west corner of the BWEZ precinct itself is identified for residential development.

### *Planning scheme requirements.*

The Special Use Zone (schedule 14 – Ballarat West Employment Zone) identifies industrial and warehouse uses as ‘as of right’ in Precinct A (the BWEZ Core precinct) so long as the threshold distances and requirements of Clause 52.10 are satisfied (the threshold distance referred to in the table to clause 52.10 are the minimum distance from any part of the land of the proposed use or buildings and works to land (not a road) in a residential zone, as well as land used for a hospital or an education centre.) Industrial and warehouse uses within the BWEZ precinct will therefore need to be located so as to be at least the specified distance from the land zoned for residential purposes. Where the threshold distance is not satisfied then the use requires planning approval, and an assessment of the potential amenity impacts is required. Such proposals will need to demonstrate how the siting, design and management of the proposed operations will minimise its impacts on nearby residential uses.

The Rural Living Zone on the western boundary of the BWEZ is not a ‘residential zone’ under the Victoria Planning Provisions. Therefore Clause 52.10 does not require that the threshold distances apply between industry/warehousing and land Rural Living Zone.

However, the EPA publication ‘Recommended Separation Distances for Industrial Residual Air Emissions Guideline’ is relevant to dealing with separation distances between industry/warehouses and dwellings in this Rural Living Zone. This Guideline recommends that the separation distance is measured from the ‘activity boundary’ of the industrial use and the activity boundary of the sensitive use (ie the dwellings and its outbuildings, not the property boundary. Reference should be made to these guidelines for further explanation of this principle.



**Strategic application of separation distances at the BWEZ**

The BWEZ is of sufficient size to be able to accommodate a wide range of industrial activities, including those requiring large separation distances as defined under Clause 52.10 of the Ballarat Planning Scheme. Whilst industrial activities with no or only limited separation distance requirements can be located anywhere within the BWEZ precinct, industry that has a larger buffer requirement will be located more centrally within the precinct, so as to minimise their potential impact on adjoining residential uses.

The following table and plan provide a guide to where the BWEZ industry with large buffer distances should be best located.

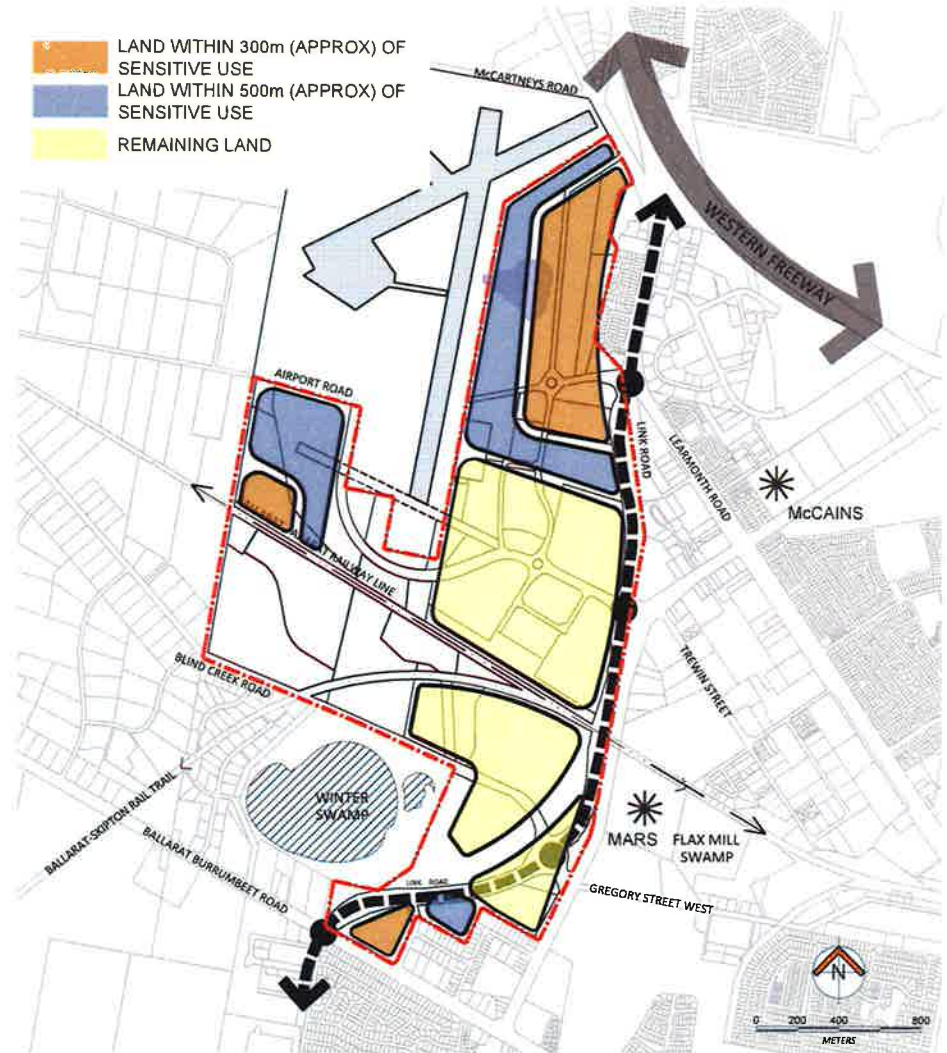
**GUIDELINE –** The following table and plan should be used as a guide to determining where within the BWEZ precinct activities with different separation distances should be located. This table has been prepared to assist in the application of Clause 52.10 to the BWEZ Core precinct:

Location	Suitability for uses with large separation distance requirements
Land within 500m of a sensitive use	High
Land within 300m of a sensitive use	Medium
Remaining land	Low

(\* ie activities that have a threshold distance within this range are likely to be able to locate within this precinct.)

The previous table and plan is a guideline only and does not mean that individual proposals cannot be considered on its own merits, having regard to the decision making criteria set out in the Ballarat Planning Scheme.

**FIGURE 36 SENSITIVITY USE INTERFACE PLAN**



## 11.2 MANAGEMENT OF INTERFACES WITH FOOD MANUFACTURING

Land to the east of the BWEZ precinct is generally zoned Industrial 1 and comprises a wide mix of industrial and warehouse activities. Major food manufacturing operations within proximity to the BWEZ precinct include:

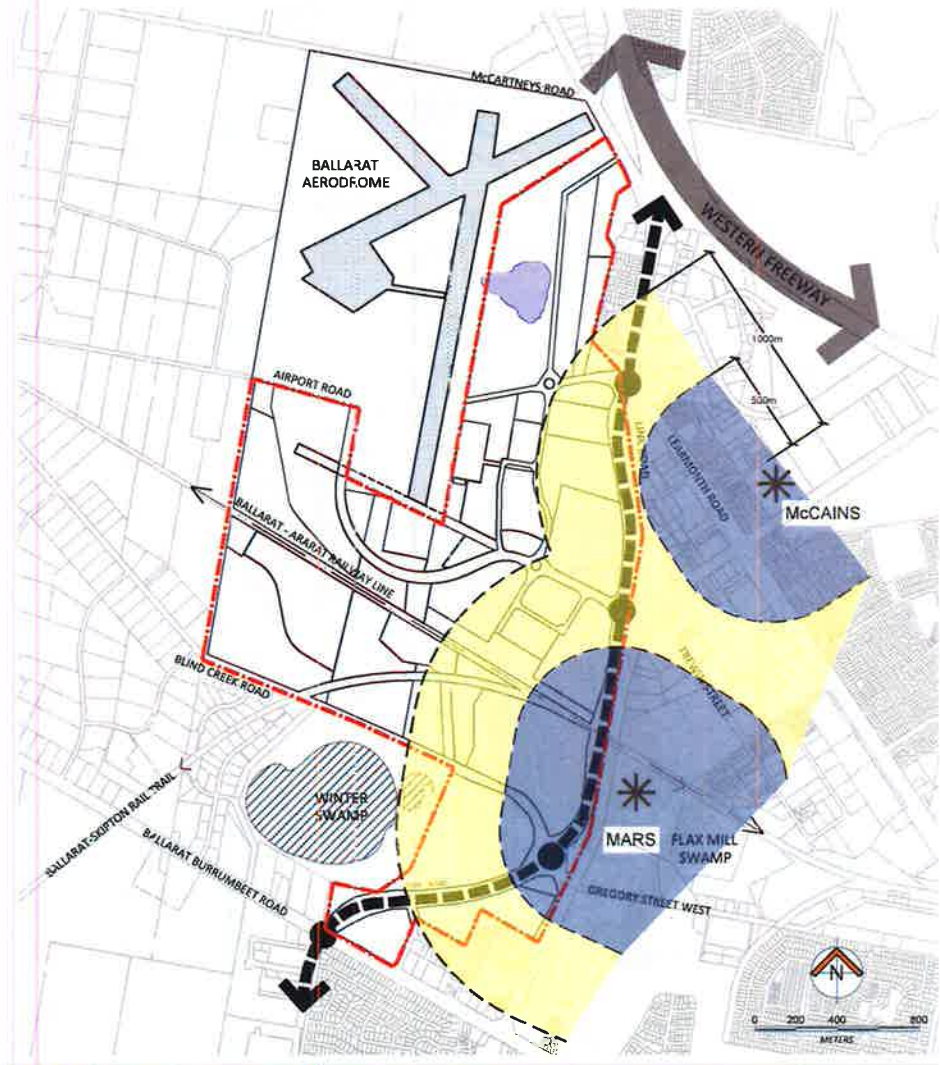
- The Mars food manufacturing facility, south-east of the BWEZ precinct, south of the rail line.
- The McCains food manufacturing facility located approximately 500 metres east of the BWEZ precinct.

Both of these are large industrial employers for the Ballarat region and their operations need to be protected from dust and odour emissions associated with certain types of industrial activities within the BWEZ precinct.

The majority of the eastern side of the BWEZ precinct (i.e. east of the airport and environmental corridor) is located within 1 kilometre of both the Mars and McCains food manufacturing operations. Within these precincts it will be necessary to consider the impacts of activities with large separation distance requirements on the operations of Mars and McCains. The following requirement is to be used to address this:

**APPLICATION REQUIREMENT** - Any applicants for activities listed in Clause 52.10 on land within 1km of Mars or McCains (refer **Figure 37**) should be accompanied by an environmental assessment of whether its operations have any potential impacts on Mars and McCains operations.

FIGURE 37 MARS/MCCAINS INTERFACE PLAN



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### 11.3 MANAGING INTERFACES WITH THE BALLARAT AIRPORT

The BWEZ is included within the Airport Environs Overlay (AEO) under the Ballarat Planning Scheme. The purpose of the Overlay is to 'ensure that land use and development are compatible with the operation of airports in accordance with the appropriate airport strategy or master plan and with safe air navigation for aircraft approaching and departing the airfield.' It requires that any new building must be constructed so as to comply with any noise attenuation measures required by Section 3 of Australian Standard AS 2021-2015, Acoustics - Aircraft Noise Intrusion - Building Siting and Construction, issued by Standards Australia Limited.

Under the Overlay, the Responsible Authority must consider the following matters in determining permit applications:

- Whether the proposal will result in an increase in the number of dwellings and people affected by aircraft noise;
- Whether the proposal is compatible with the present and future operation of the airport in accordance with the appropriate airport strategy or master plan;
- Whether the design of the building incorporates appropriate noise attenuation measures;
- The views of the airport owner.

A masterplan for the Ballarat Airport was approved in May 2013, and this plan is an important guide for understanding the current and future operations of the airport when addressing development proposal in the BWEZ precinct.

Future residential subdivision permits on the BWEZ precinct will be required to include a section 173 agreement under the Planning and Environmental Act 1987 which acknowledges the proximity of such land to both the Ballarat Airport and the BWEZ precinct. The purpose of this agreement is to ensure that future purchases are aware of the proximity of these lots to the airport and BWEZ precinct.

### 11.4 MANAGING INTERFACES WITHIN BWEZ

The primary land use precincts within the BWEZ are:

- Industry;
- Freight Hub;
- Transport Terminal;
- Aviation;
- Energy;
- Sturt Street Mixed Use Employment.

The level of amenity will vary between each precinct across the BWEZ. For instance, the Freight Hub is expected to be a 24 hour facility that will generate significant truck and rail activity. It is likely to generate moderately significant noise levels, and other amenity issues such as odour and dust will need to be managed (particularly in the context of its proximity to the Mars Confectionery operations).

The area where research and development businesses are encouraged to locate, is expected to have a high level of amenity and will include a range of activities such as offices, meeting facilities, cafes, etc. Activities in the adjacent Industrial and Freight Hub precincts will need to take into account of their potential impacts on these precincts.

Within the Industrial precincts, the 'agent of change' principle will apply in relation to managing the impact of new operations on existing operations. For instance, where a new industrial use has the potential to impact on the operations of an existing industrial use, the new use will be expected to demonstrate that such potential impacts can be appropriately mitigated via the siting, design or operation of the new activity.



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# APPENDICES

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## APPENDIX 1 - ASSESSMENT OF THE DEVELOPMENT PLAN AGAINST THE SPPF MSS, ZONE AND RELEVANT OVERLAYS



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## APPENDIX 2 - URBAN & LANDSCAPE DESIGN GUIDELINES





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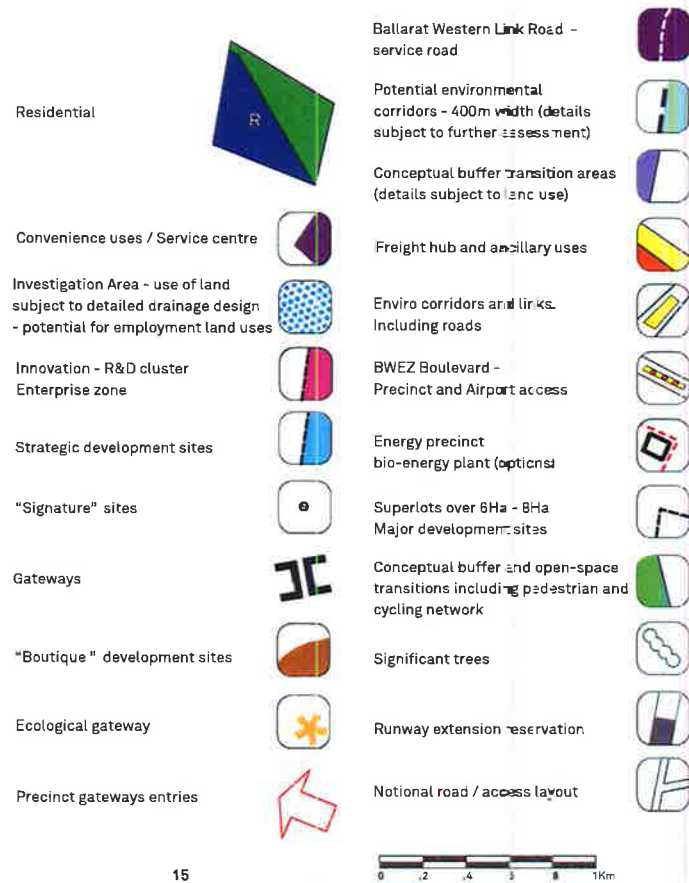
**APPENDIX 3 - LANDSCAPE CONCEPT PLAN**



## APPENDIX 4 - MASTER PLAN EXTRACT

### 4.0 Preferred Master Plan Scenario

This plan sets out the preferred masterplan.  
This plan sets out the layout and strategic location of preferred land uses that make up the masterplan.





## 7.5 Urban Composition and Built Form

The Urban Composition and Built Form within BWEZ defines the overarching form composition, lot sizes and orientation of the Employment land in comparison to internal land uses such as the airport and environmental link as well as the business services area and nearby industrial and activity generating uses.

25

BWEZ Boulevard streetscape

Ballarat Western Link Road -  
Animated frontages

Airport interface

Secondary streetscapes

Signature corner buildings

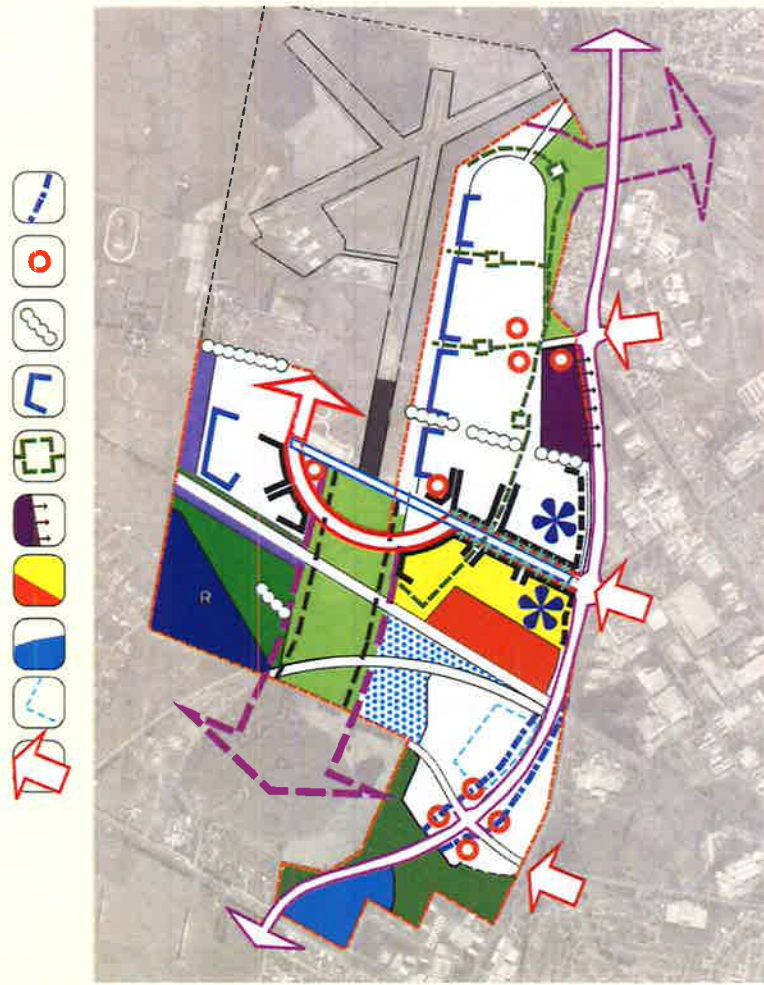
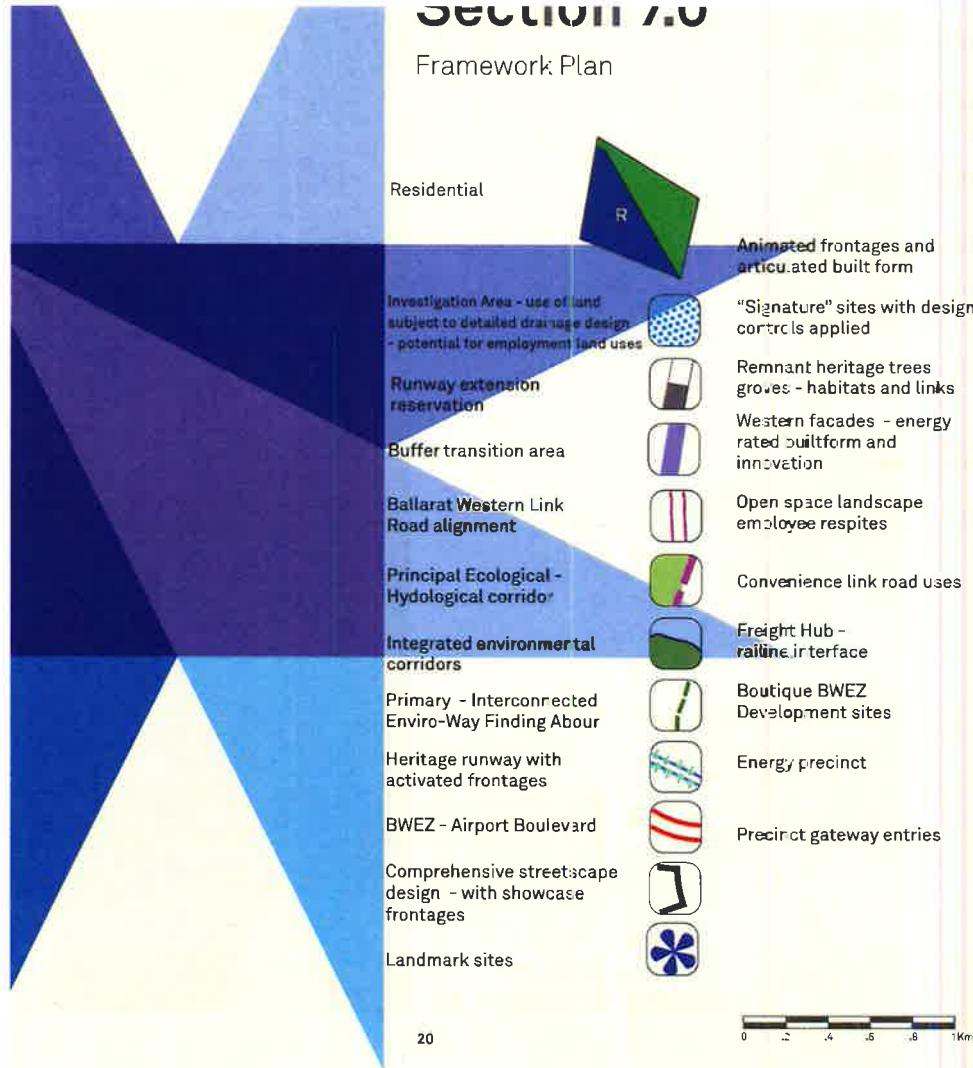
Articulated 'feathered' edge  
to development

Runway extension reservation



# SECTION 7.0

## Framework Plan



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**APPENDIX 5 - HOW THE DEVELOPMENT PLAN RESPONDS TO THE BWEZ MASTERPLAN**



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## **HOW THE DEVELOPMENT PLAN RESPONDS TO THE BWEZ MASTERPLAN**

As outlined in chapter 3, the BWEZ is within a Special Use Zone which incorporates an adopted Masterplan for the Ballarat West Employment Zone. This Masterplan provides the overarching framework by which the Development Plan needs to address.

Following the incorporation of the Masterplan into the Planning Scheme in 2013, a series of technical consultant reports have been prepared as required under the DPO. These reports included the Environmental Management Plan (EMP) and the Integrated Infrastructure Plan (IIP). The IIP covers transport management, utility and services and civil infrastructure elements of the Development Plan. The preparation of the IIP allowed for the detailed consideration of a number of technical infrastructure and implementation issues with a number of elements of the adopted BWEZ Masterplan were reviewed in detail as part of this project.

The development includes a number of design elements that vary from the Masterplan, These changes have arisen from the technical and environmental assessments undertaken as part of the IIP, EMP and DP process. The changes arise from functional design issues in relation to lot layout, road layouts, laneway vehicle access, drainage etc. An Addendum to the IIP has been prepared which provides further technical justifications for the proposed transport management, utility and services and civil infrastructure items of the Development Plan.

Through the more detailed consideration of issues as outlined above, the Development Plan results in a number of differences to the Masterplan in the Special Use Zone and the BWEZ Masterplan document (May 2012). However, the modifications in the Development Plan do not impact the land use and development intent or the urban structure of the precinct and as such generally accords with the Master Plan; noting:

- The road hierarchy is generally adopted.
- The overall structure and access hierarchy is adopted.
- The majority of the signature sites have been adopted, with additional signature sites identified where they mirror the intent of the BWEZ Masterplan.
- The strategic development sites have been adopted, noting that the realignment of the newly constructed BWLR which has resulted in smaller lots between the link road and the site's boundary to the east.

- The land uses identified within the development retain the flexibility, inherent in the masterplan and respond to the land use precincts within the SUZ.

A summary of the differences between the Development Plan and Masterplan, and the reasons for the changes, is outlined over the following pages.



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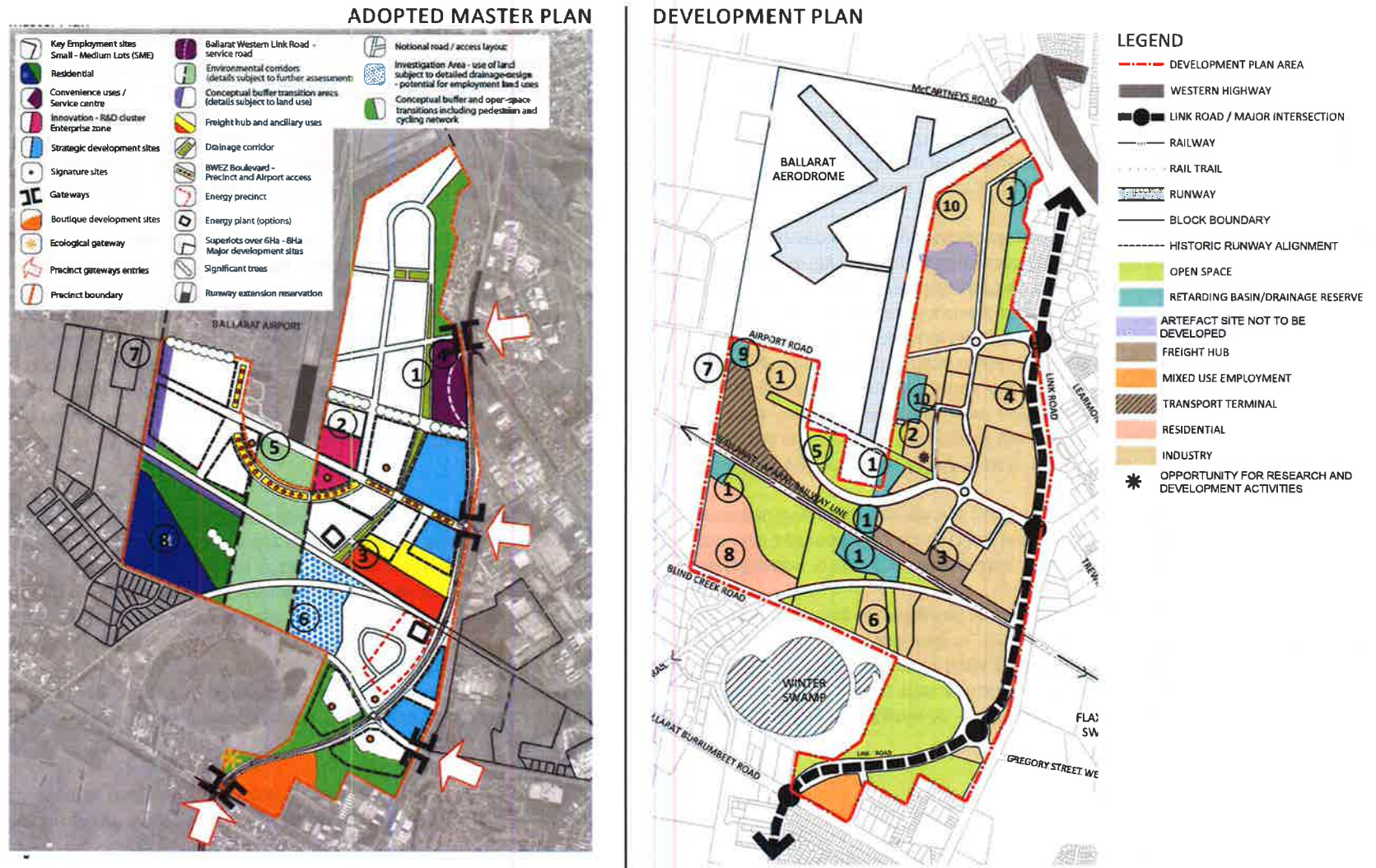
## INFRASTRUCTURE / LAYOUT

The following is a summary of the differences between the Masterplan in the Special Use Zone and Development Plan as result of more detailed consideration of implementation issues:

1. Drainage – The overall approach to drainage in the BWEZ project has been altered as a result of the drainage modelling undertaken as part of the BWEZ Integrated Infrastructure Plan (IIP) assessment and subsequent flood modelling work undertaken by Wood & Grieve. The north-south drainage reserve running along the back of the service centre is not required, whilst some large retarding basins are required in the north-west corner of the site and in the environmental corridor south of the airport. Major retarding basins are also shown south of the runway, south of Liberator Drive, south of the rail line and on the western border of the precinct. Additional retarding basins are required within Stage 1B. The master plan has been updated to account for these requirements.
2. Innovation centre layout – the central part of this precinct has been shown as an open space reserve rather than a road access as implied in the previous master plan. This area will need to provide for overland flow of stormwater between developed areas and the proposed retarding basin south of the Airport. Internal road layouts have been shown on the updated master plan. This road layout provides for an efficient distribution of traffic across this part of the precinct, as well as a pattern of industrial lots which satisfy the likely future industrial lot requirements. The proposed use has been identified as industry to allow for greater flexibility, noting that the area has been identified as ‘opportunity for research and development activities.’
3. The freight hub/ancillary uses – The layout of this precinct has been updated to facilitate efficient ingress/egress by large freight vehicles, including high productivity freight vehicles (HPFVs) (up to B-triple) trucks.
4. Business support precinct - The service centre lot was set back further into the site to account for the layout of the Ballarat Western Link Road (BWLR), and to provide a functional service road along its frontage. The general depth and configuration of this land parcel was amended as part of this review. The proposed use has been identified as industry to allow for greater flexibility.
5. BWEZ Boulevard alignment – the boulevard (Liberator Drive) alignment was straightened to ensure that a minimum 200m radius was provided to allow for the safe, efficient movement of large commercial vehicles. The alignment also ensures that Liberator Drive will read to road users as the primary route, with the adjoining intersection being reconfigured so that it operates as a T-intersection arrangement.
6. Investigation area – the developable land of this area has been resolved as part of the drainage modelling undertaken in this study. The master plan now provides for an overland flow path through this precinct, as well as two industrial land parcels.
7. Land use buffers – the BWEZ master plan identified ‘conceptual land use buffers’ along the rail line and west edge of the precinct. The requirements to provide a buffer between industrial buildings from adjoining sensitive uses can be dealt with in the design guidelines required under the Special Use Zone (schedule 10) of the Ballarat Planning Scheme. Such buffers might take the form of road reserves, building setbacks, parking areas, strips and the like. However, the land within these buffer areas can be treated as part of the development precinct for the purpose of the infrastructure plan. In the case of the rail line, these buffers are not expected to be required, as there is no specific amenity issue to be addressed for the industrial uses and such industrial uses are already separated from sensitive uses to the south by a large open space corridor.
8. Residential – the general shape of the residential land parcel shown on the master plan has been modified to more closely reflect the manner in which this land might be developed in future. The layout shown provides the option of creating a more sensitive interface between residential uses and parkland, either in the form of road frontages or other urban design interfaces which provide for passive surveillance of the parkland.



FIGURE 38 MASTER PLAN AND THE DEVELOPMENT PLAN





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## OPEN SPACE & URBAN FORM

In addition to the technical analysis undertaken in preparing the IIP, further consideration has also been given to open space, built form and the public realm in the preparation of the Development Plan.

Provided below is a summary of the differences between the Development Plan and the Masterplan contained within the Special Use Zone. The thematic plans contained within the BWEZ Masterplan (May 2012) have also been considered in undertaking this assessment. The differences between the Masterplan and the Development Plan have arisen as a result of more detailed consideration of the open space and public realm. The differences are as follows:

### 9. Changes to open spaces as follows:

- Southern Open Space - this large area of open space is located between the Winter Swamp and the BLWR and extends to the southern boundary. The extent of open space in this location reflects agreements with the Watharuns and the updates to the BWLR alignment.
- Heritage Runway Linear Park - This park runs along the east-west axis in the Development Plan area, providing a view through the precinct.
- Northern Open Space - this north south park provides a landscape buffer between the existing residential land to east and is co located with drainage assets.
- Additional open space to the south and to the east of the runway.

The above changes are shown on **Figure 38**.

### Signature sites

The BWEZ Masterplan identified 6 signature sites as well as a series of thematic plans which identify additional 'boutique sites', 'gateways' and landmark sites. These sites are principally located at the precinct entries.

The Development Plan picks up on all of the signature sites in the Masterplan (except for

the signature site that is now within the open space area to the east of Winter swamp) and translates the intent of the 'landmark sites', 'gateways' and 'boutique sites' through the identification of additional signature sites or the extension of key frontages. The Development Plan essentially removes the 'landmarks sites', 'gateways' and 'boutique sites' categories on the basis that the signature sites and key frontages can provide the desired design outcomes.

The additional signature sites shown on the Development Plan are:

- At the southern entrance to the site (access 4) – this is shown as a 'boutique site' on the framework plan within the BWEZ Masterplan document. This is the southern gateway to the precinct and as such a signature building and design response is required.
- The northern side of the boulevard entry (access 1) – this is shown as a 'landmark site' on the framework plan in the BWEZ Masterplan document.
- At the northern extent of the Stage 1B area (access 2) – this is shown as a 'gateway' on the Masterplan.
- At the north east corner of the Gregory Street access (access 3) which is shown on the framework plan in the masterplan as a 'signature site'.

See **Appendix 4** which includes the relevant plans from the BWEZ Masterplan 2012 which identify the 'signature sites', 'gateway sites', 'landmark sites' and 'boutique sites'.

### Frontages

The adopted Masterplan identifies 4 types of frontages within the precinct being; the Link Road, airport interface, secondary streetscapes, the boulevard and an edge treatment to transition/open space areas.

The key frontages plan (**Figure 13**) picks up on the frontage types as shown in the BWEZ masterplan (**section 7.5**) and applies them more consistently across the precinct. This results in some variances/additions to frontages from what shown in the Masterplan, as follows:

- The boulevard frontage is extended west through the precinct to meet with Airport Road. This provides a cohesive boulevard treatment through the precinct.



- 
- The Airport frontage is extended to the edge of the Development Plan area to follow the extent of the existing runways.
  - The southern leg of the link road which connects with Sturt Street is included. This is the southern gateway to the precinct and as such an appropriate address to the link road is important in signifying the entry to the precinct.
  - The land adjoining the Skipton rail trail and ecological open space is identified as a key interface which requires specific design responses. The Development Plan includes these frontages.
  - The northern road access (access 2) is included as a secondary access frontage, consistent with the treatment of the southern access (access 3).



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