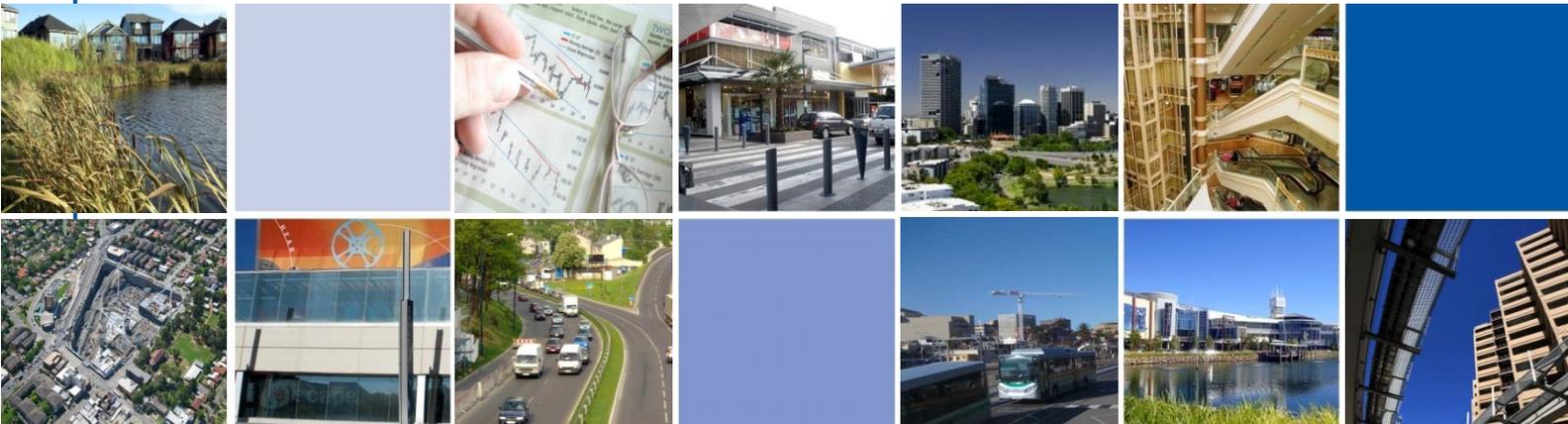


# **Appendix G** - Industrial Demand and Market Analysis

# Bullsbrook Freight and Industrial Market Needs Assessment

GHD

September 2019



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**Approved for release:**

Name	Signature	Date
<b>Stuart McKnight</b>		18 October 2021

## Executive summary

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This assessment considers the long-term market needs for industrial land as part of the investigations to support the preparation of the Bullsbrook Freight and Industrial District Structure Plan, incorporating the proposed Bullsbrook Intermodal Freight Terminal.

GHD commissioned MacroPlan Dimasi to assess the industrial market based on the requirements of the project brief prepared by the client – the Department of Planning, Lands and Heritage.

Bullsbrook is within the City of Swan in Perth's North-East Sub-region, approximately 32km from the Perth CBD. The subject site is referred to as the Bullsbrook Freight and Industrial Area in this report and covers a gross land area of 2,650 hectares across four major precincts:

- Bullsbrook South Extension A: 300 hectares gross (industrial expansion)
- Bullsbrook South Extension B: 100 hectares gross (industrial investigation)
- North Ellenbrook: 900 hectares gross (industrial expansion)
- North Ellenbrook Extension: 1,350 hectares gross (industrial investigation).

The proposed Bullsbrook Freight and Industrial area is a strategic project to meet long to very long-term demand and it has large-scale infrastructure constraints to match.

The developable yield for the across the area has yet to be refined, however, environmental constraints and infrastructure requirements in the area mean that the likely development yield may be around 50-70 per cent of the gross area or between 1,325 and 1,855 hectares.

The most practicable development scenario for the project would likely to be to link with the infrastructure requirements (trunk sewer, water, road connections) for the urban expansion of North Ellenbrook and Bullsbrook South.

## **Market analysis**

The North-East Sub-regional Planning Framework indicates that demand for industrial land in the sub-region is expected to grow to 2,810 ha by 2050, an additional 1,352 ha and an average take up rate of 34.7 ha per annum. This land take-up will be distributed across about a dozen existing industrial areas in the sub-region as well as the new Bullsbrook Freight and Industrial Area.

The Bullsbrook Freight and Industrial Area could have two development fronts catering to different industrial needs (one focusing on freight and logistics and the other providing land for general and light industrial uses) and potentially achieve an average take-up of up to 20 hectares per annum. This would imply a development timeframe of at least 70 years across the whole area, although increases in employment land use intensity over that timeframe are likely to extend the supply beyond 2100.

Competition for the development comes from existing industrial areas that have substantial expansion capacity as well as from new areas. These include Muchea, Meridian Park (Neerabup), Latitude 32 (for intermodal freight) and Hazelmere South.

The Muchea Employment Node and Industrial Park are attracting investment which will meet many of the heavy transport and freight demands. The role of Muchea is likely to be focused on primary production, logistics and freight operations and provide for regional demand.

The Bullsbrook location will need to differentiate its unique advantages, including:

- Proximity to the metropolitan region and Perth Airport
- Nexus point between interstate, intrastate and metropolitan transport
- Major road and rail infrastructure
- Longer term potential for rail intermodal terminal
- High urban growth to provide large potential workforce

The timing of the potential rail intermodal will depend on many factors beyond the scope of this assessment. The planning and commitment to the Fremantle Outer

Harbour (West Port) and Latitude 32 will have the major influence when the Bullsbrook facility is required, however it is likely to be beyond 2050.

Given the lack of servicing (particularly water, sewer, telecommunications), the initial stages of the development could target tenants involved in transport and logistics, heavy haulage. These would rely on the existing road networks at present and service interstate and intrastate transport connecting with the Perth metro Central and North-East sub-regions.

As the metropolitan road networks develop further (particularly the east-west metro road connections), this would improve the ability to also service the North-West Sub-region from this location.

### **Jobs balance sheet**

Based on the demand schedule and the employment land mix identified an average employment density of 30 jobs per net developable hectare is likely to be achieved at the proposed development. The estimated 1,395 ha of developable land would therefore accommodate more than 40,000 jobs once fully developed (albeit in the very long term).

MacroPlan has prepared employment projections by ROM zone as part of this assessment which are attached as Appendix 4 of this report.

**Table 1.** Summary of development constraints, proposed uses, staging and planning requirements

Bullsbrook Freight and Industrial Area	Area		Constraints and catalyst infrastructure	Proposed uses	Staging	Planning and other requirements
	Gross (ha)	Est. net (ha)				
<b>Bullsbrook South Extension A</b>	300	210	<ul style="list-style-type: none"> <li>Requires infrastructure commitment to stimulate investor interest.</li> <li>East-west road connections (Neaves, Cooper, Stock) to access North-West Sub-region.</li> </ul>	<p>Catchment:</p> <ul style="list-style-type: none"> <li>Perth metro North-East, North-West &amp; Central sub-regions; Intrastate and interstate demand. Some local industry would service the catchment of Bullsbrook South urban expansion.</li> </ul> <p>Uses:</p> <ul style="list-style-type: none"> <li>Freight and logistics meeting intrastate, interstate &amp; metropolitan demand.</li> </ul>	<p>2020-2040</p> <p>Land is zoned MRS industrial and Sirona Capital's 200 ha Northern Gateway Industrial Park is on the market). Catalyst investor/tenant could stimulate take-up.</p>	<p>Zoned MRS industrial. Planning framework and developer contributions plan (DCP) in place for major enabling infrastructure. Comprehensive infrastructure commitment would be needed to unlock development potential.</p>
<b>Bullsbrook South Extension B</b>	100	60	<ul style="list-style-type: none"> <li>Requires land capability investigation</li> <li>Similar servicing and infrastructure constraints as per Bullsbrook South Extension A.</li> </ul>	<p>Catchment:</p> <ul style="list-style-type: none"> <li>Perth metro: North-East, North-West &amp; Central sub-regions; Intrastate/interstate demand.</li> </ul> <p>Uses:</p> <ul style="list-style-type: none"> <li>Freight and logistics with a focus on intrastate/interstate &amp; metro demand.</li> <li>Potential for an intermodal facility.</li> </ul>	<p>2030-2050</p> <p>Staging is subject to land use investigation and rezoning.</p>	<p>Land use investigation required, followed by MRS and LPS rezoning. Will likely require an amendment to the DSP covering neighbouring land areas as it will share much of the same trunk and transport infrastructure.</p>
<b>North Ellenbrook (Industrial Expansion)</b>	900	450	<ul style="list-style-type: none"> <li>Requires extension of trunk infrastructure (potential for coordinated solution with urban expansion).</li> </ul>	<p>Catchment:</p> <ul style="list-style-type: none"> <li>Surrounding urban areas within the North-East Sub-region.</li> </ul> <p>Uses:</p> <ul style="list-style-type: none"> <li>General industrial / enterprise park</li> <li>Service commercial and light industrial</li> <li>Large format retail</li> <li>Office park (industry-related/dependent)</li> </ul>	<p>2030-2075</p> <p>Initial development may include relocation of mining equipment and servicing currently located in South Guildford, Hazelmere &amp; Midland.</p>	<p>Local structure planning required which should ideally be integrated with the urban expansion of North Ellenbrook. Infrastructure funding (DCP/pre-funding).</p>
<b>North Ellenbrook Investigation</b>	1,350	675	<ul style="list-style-type: none"> <li>Very long-term requirement and existing rural uses should be protected in the meantime.</li> </ul>	<p>Catchment:</p> <ul style="list-style-type: none"> <li>Perth metro North-East, North-West &amp; Central sub-regions; Intrastate and interstate demand.</li> </ul> <p>Uses:</p> <ul style="list-style-type: none"> <li>Freight and logistics with a focus on intrastate and interstate movements by road</li> <li>Intermodal freight including import/export handling via Fremantle Port (inner and/or outer harbour)</li> <li>Mining equipment and services</li> <li>Construction materials (brickworks, manufacturing)</li> </ul>	<p>2050 – 2100+</p> <p>Development of the freight intermodal terminal will dictate the staging for this precinct.</p>	<p>Protect existing rural uses and ensure no further encroachment from incompatible uses.</p>
	<b>2,650</b>	<b>1,395</b>				

Source: MacroPlan Dimasi

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# Introduction

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## Purpose

GHD commissioned MacroPlan Dimasi (MacroPlan) to provide an analysis of the industrial land demand market for Bullsbrook as part of the investigations to inform the preparation of the Bullsbrook Freight and Industrial District Structure Plan.

## Methodology

### Literature review

MacroPlan has reviewed the Perth and Peel @3.5 million – North-East Sub-regional Planning Framework (2018) and the Economic and Employment Lands Strategy: Non-Heavy Industrial (2012). These studies consider industrial land supply and demand with specific focus on the relationship to the State's economic cycles and the specific advantages of the North-East Sub-region of Perth as a future freight and logistics hub around a new intermodal terminal.

### Demographics analysis

#### Population projections

MacroPlan assessed population projections for Bullsbrook and its employment and population-servicing catchments, including WAPC WA Tomorrow. Population breakdowns included age with specific focus on the people of working age to inform the future labour force within the City and the North-East and North-West sub-regions.

#### Employment assessment

MacroPlan assessed the employment self-sufficiency, skill-base required, and the long-term labour force impact on economic and investment opportunities. The assessment examined the trends in the labour force in the northern corridor including the main growth industries and long-term labour force requirements given the major structural shifts in employment (i.e. decline of manufacturing and primary industry employment, growth of services and logistics).

### **Market analysis**

MacroPlan assessed the demand and supply of future industrial land, considering the locational advantages and spatial distribution of the demand (urban development areas) and the suppliers (including transport connections) as part of the assessment.

The assessment covered demand for industrial land by major land use including all staging and ultimate land demand for specific uses (i.e. logistics, intermodal freight, mining-related services, primary industry/agribusiness, business park). This provided a demand trajectory to plan for the medium and long-term requirements of the area to evolve over time whilst still protecting the requirements of the logistics/intermodal freight needs over the long term.

### **Staging**

The staging assessment (hectares by year by use) informed the structure planning process and to guide appropriate investment in the District Structure Plan area.

### **Jobs balance sheet**

MacroPlan prepared a jobs balance sheet incorporating the strategic employment as well population-base employment across the area to guide the local structure plans.

### **Scenario analysis**

A SWOT assessment for the District Structure Plan area was undertaken which identified critical success factors for the development. MacroPlan assessed the long-term economic cycles for Western Australia considering the prospects for State development that can be supported from the District Structure Plan area. This became the basis for the three scenarios incorporating scale and rate of development – base case, low/slow and high/fast.

## Subject site and surrounds

Bullsbrook is in the City of Swan in Perth's North-East Sub-region approximately 32km from the Perth CBD. In 2016, the City of Swan had an estimated resident population of 133,851 people, increasing by approximately 19.7 per cent or 26,345 people since 2011. The Western Australia Planning Commission projects the population will reach approximately 170,730 people by 2026. This is an increase of almost 3,700 people per annum.

The primary north-south road connections to the subject site are the Great Northern Highway and the Perth-to-Darwin National Highway (with the NorthLink component due for completion in 2019). East-west connections will consist of Stock Road and Neaves Road, however, these still need additional planning and as yet, there is no funding or timing commitment for construction.

The Perth-Geraldton railway line abuts the site to the west. It is the only direct freight line connection between Midland and Geraldton. Arc Infrastructure has confirmed that an industrial facility would be able to connect to and utilise the rail line providing a significant opportunity for intermodal freight connecting the State and national networks.

The area has traditionally been used for agricultural purposes and livestock grazing. The Ellen Brook is the key environmental consideration and forms part of the conservation area and Bush Forever portion of the site. The RAAF airbase is to the north east of the site and is complementary to the future planned industrial use of the subject site in that the site will provide a noise buffer for the future urban development south of North Ellenbrook.

**Figure 1.** Regional context



**Map 1: Perth**

**Major Activity Centres**



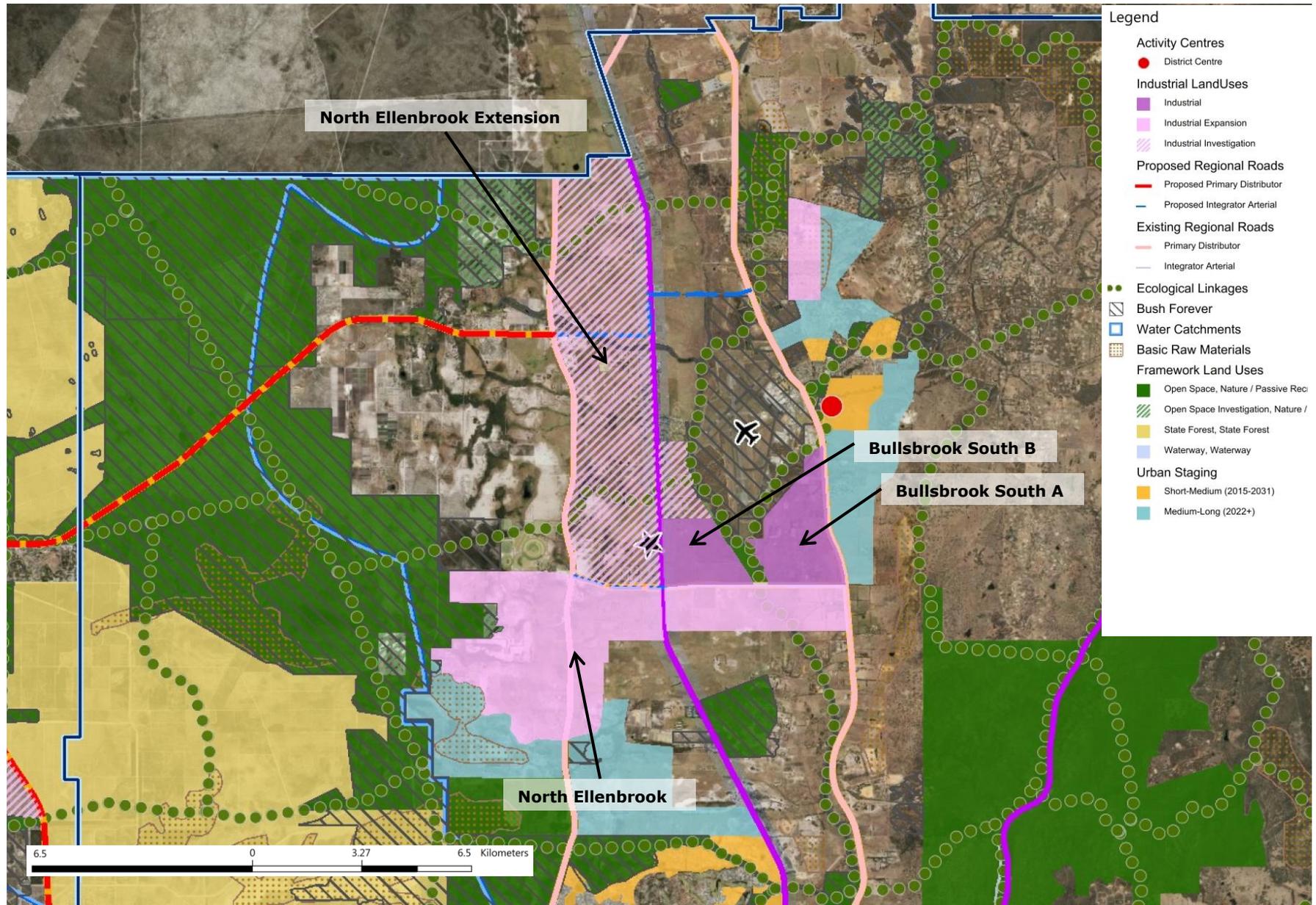
Source: MacroPlan Dimasi 2018

- Arterial Road Network North-South
- Future Perth-Derwin Highway
- Arterial Road Network East-West
- Railway Line
- Capital City
- Strategic Metro. Centre
- Secondary Centre
- Future Strategic Centre
- Future Secondary Centre

The subject site is referred to as the Bullsbrook Freight and Industrial Area in this report and consists of four major precincts consisting of a total of 2,650 hectares:

- Bullsbrook South A (300 ha gross) – zoned industrial and is called the Northern Gateway Industrial Estate
- Bullsbrook South B (100 ha gross) – zoned industrial
- North Ellenbrook (900 ha gross) – identified as 'industrial expansion' in the Perth and Peel @3.5 million – North-East Sub-regional Planning Framework
- North Ellenbrook Extension (industrial investigation) (1,350 ha gross) - identified as 'industrial investigation' in the Perth and Peel @3.5 million – North-East Sub-regional Planning Framework.

**Figure 2.** Bullsbrook Freight and Industrial Area context and zoning



Source: Department of Planning, Lands and Heritage

## Travel distance and time

The construction of the NorthLink component of the Perth–Darwin National Highway has provided substantial benefits to the accessibility of the Northern Gateway Industrial Park to the Perth metropolitan region.

The estimated travel distance and time between the subject site in relation to each of the Strategic Metropolitan Centres and the Capital City Centre (as defined by State Planning Policy 4.2 Activity Centres for Perth and Peel).

**Table 2.** Travel and distance estimates utilising the future Perth-to-Darwin National Highway (incorporating NorthLink benefits)

Capital and Strategic Metropolitan Centres	Bullsbrook Freight and Industrial Area	
	Time (hours)	Distance (km)
Perth	0.44	40.6
Armadale	0.45	57.0
Cannington	0.37	46.6
Fremantle	0.56	65.3
Joondalup	0.30	34.6
Mandurah	1.26	122.0
Midland	0.21	23.9
Morley	0.33	36.0
Rockingham	1.07	86.7
Stirling	0.38	43.5
Yanchep	0.47	57.6

Source: MacroPlan Dimasi (2018)

These calculations are for non-restricted access vehicles. Restricted access vehicles have such as B-doubles (vehicles not exceeding 36.5m) would only have access to Welshpool and Rockingham. Freight on smaller vehicles (up to 25m) would have access to all Strategic Metropolitan Centres.

## Section 1: Literature review

---

This section of the report details the current relevant strategic planning relevant to industrial demand and supply in the North-East Sub-region.

### 1.1 State Planning Strategy 2050

The State Planning Strategy is the principal strategic land use planning document for Western Australia, integrating the strategic context and basis for the coordination and integration of land use planning and development. This document sets out the high-level principles for growth around five dimensions:

- Liveable
- Prosperous
- Connected
- Sustainable
- Collaborative

### 1.2 Perth and Peel @3.5 million

Perth and Peel @3.5 million provides the overarching strategic planning vision for the Perth metropolitan and Peel regions in Western Australia. The draft framework released in 2015 went through extensive stakeholder consultation to deliver the final framework in March 2018.

The fundamental assumption underpinning Perth and Peel @3.5 million is the rapid growth outlook for Perth and Peel from 2 million people to 3.5 million by 2050. Three scenarios assessed compared a Contained City (100 per cent infill), a Dispersed City (30 per cent infill, 10 per cent greenfield) and a Connected City (47 per cent infill, 53 per cent greenfield).

The preferred Connected City approach means that the North-East Sub-region was projected to increase mainly through the development of Greenfield areas (accommodating an additional 66,000 dwellings). The implications for the subject

site is that areas such as North Ellenbrook and Bullsbrook South were considered in more detail as part of the assessment of the final framework.

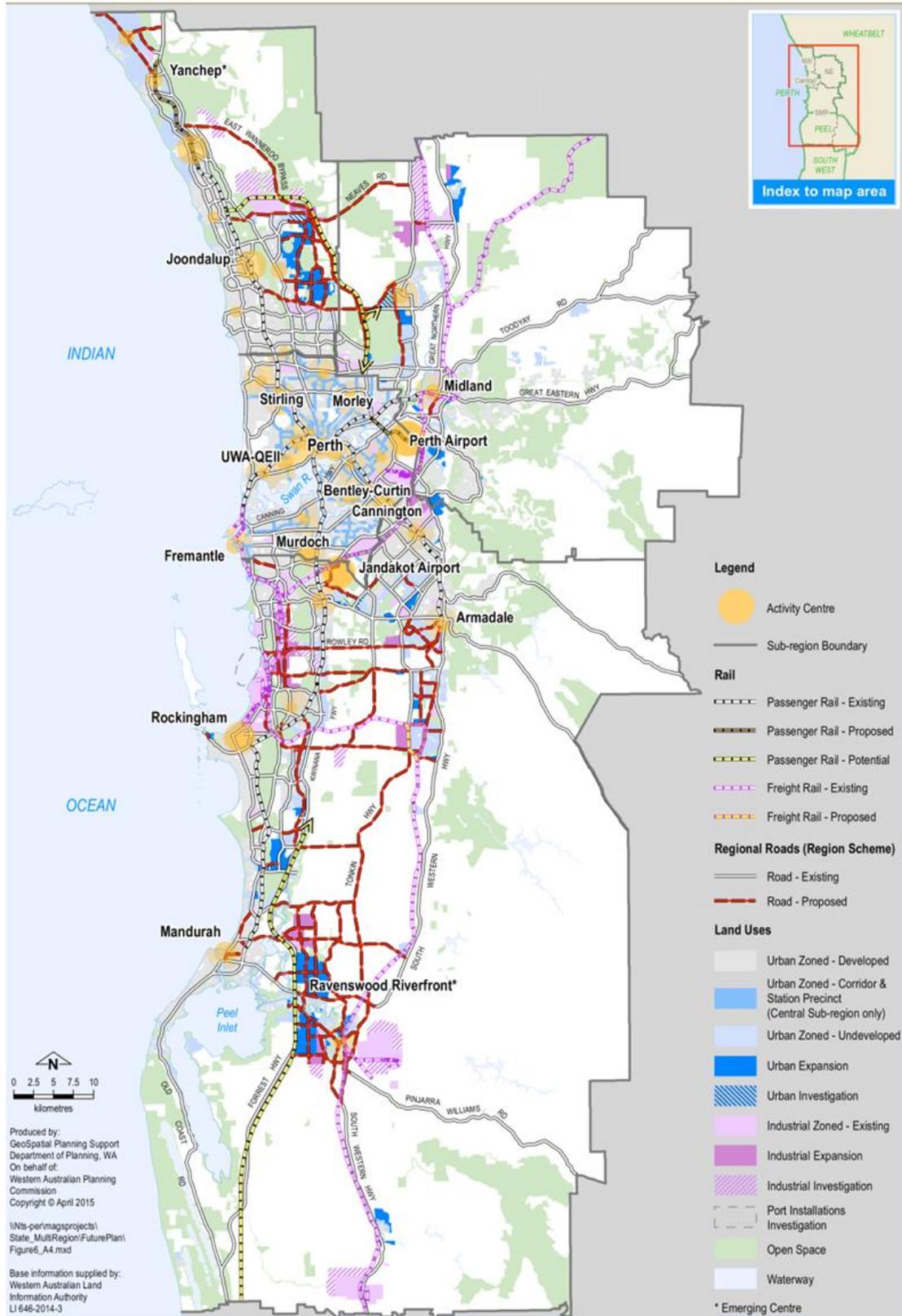
### **1.3 Perth and Peel @3.5 million – North-East Sub-regional Planning Framework**

The Perth and Peel @3.5 million – North-East Sub-regional Planning Framework is the principal document for strategic planning guidance covering 2,010 square kilometres, comprised of the cities of Swan and Kalamunda, and the Shire of Mundaring. It guides future growth through establishing a long-term, integrated planning framework for land use and infrastructure.

An extract of the framework's objectives that are relevant to this study includes:

- strengthen key activity centres and employment nodes to meet the future needs of industry, commerce and the community
- provide transport linkages that connect people with key centres of activity and employment, and access to areas beyond the Perth and Peel regions
- facilitate and support a future regional transportation network and facilitate the provision of service infrastructure
- protect areas with basic raw materials for timely extraction
- provide ongoing consideration of water supply and protection of public drinking water source areas
- retain land for rural and agricultural purposes
- guide the staging and sequencing of future urban development.

**Figure 3.** Perth and peel spatial plan



Department of Planning, Lands and Heritage – Perth and Peel @3.5 million, 2018

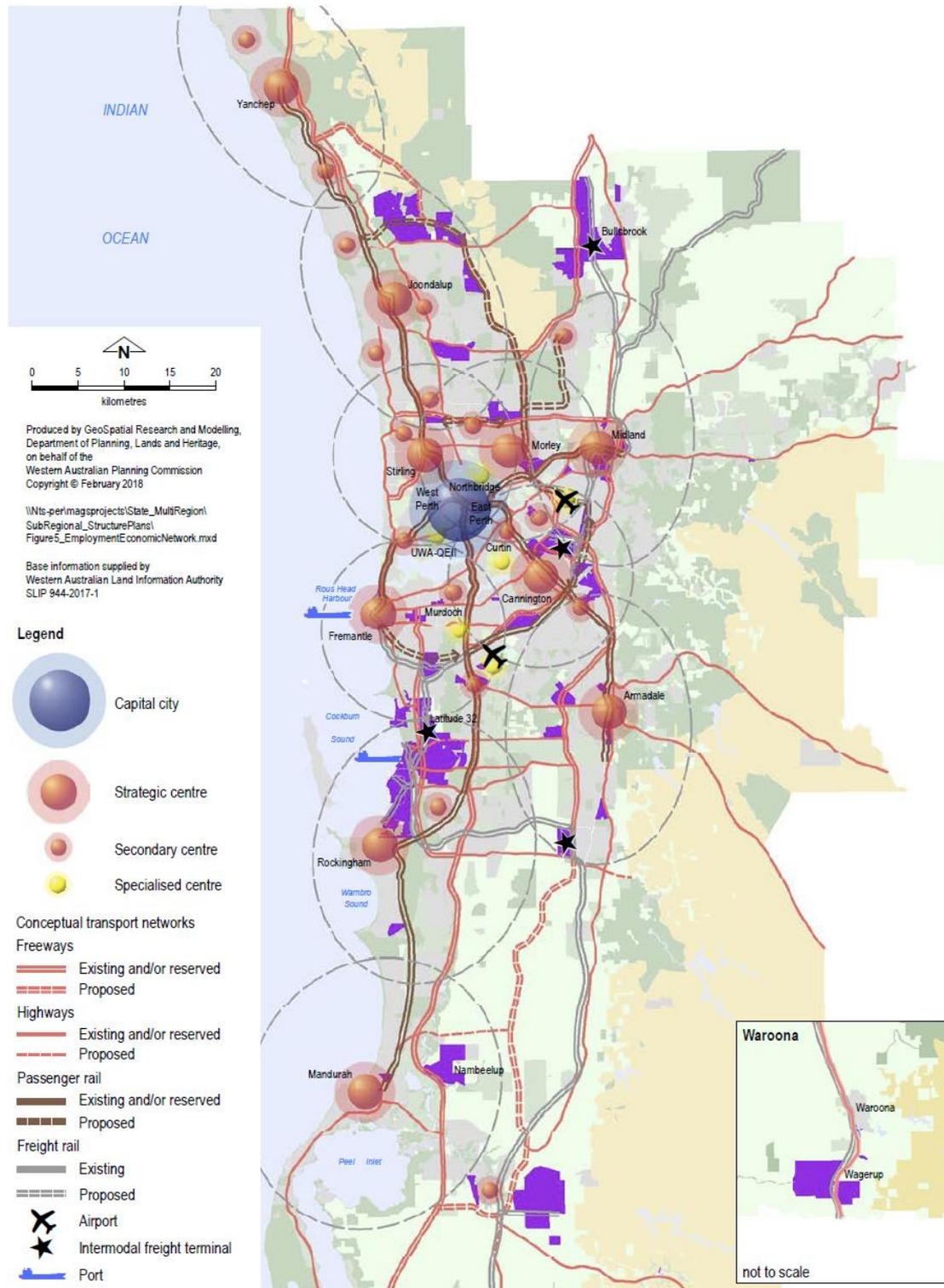
The framework indicates employment located within the sub-region will increase from 82,380 in 2011 to nearly 193,000 by 2050 – an increase of more than 110,500 jobs. Many of these jobs will directly service the population providing retail, education, health and other services.

In addition, the need to actively attract strategic employment will help to provide the population living within the sub-region with nearby jobs. This aims to reduce the burden on the transport system from commuting.

Employment for the subject site will come from nearby suburbs such as Ellenbrook and Bullsbrook Town Site, but could also have a broader employment catchment for higher uses from the wider North-East and North-West sub-regions.

The following figure shows the major employment areas including the activity centres hierarchy and the airports (specialised centres). Bullsbrook has the major transport advantages of the rail, easy access from the east and north for interstate and intrastate freight, in addition to the Road access to Perth Airport.

**Figure 4.** Employment and economic network 2050



Source: Perth and Peel @3.5 million – North-East Sub-regional Planning Framework

## **1.4 Economic and Employment Lands Strategy: Non-Heavy Industrial**

The Economic and Employment Lands Strategy: Non-Heavy Industrial 2012 (EELS) identifies general and light industrial needs for the Perth Metropolitan Area and Peel Region. The strategy plans for ongoing economic growth and sustainability of employment land (industrial and commercial) over the next 20 years and beyond.

While the supply side of the EELS assessment has been superseded by the Perth and Peel @3.5 million – North-East Sub-regional Planning Framework, the demand assessment in EELS, remains current.

The EELS presents a whole of government approach to the prioritisation and timely delivery of employment land supply. Specifically the strategy aims to:

- Identify the areas, type and location of general and light industrial land required over the next 20 years
- Review the existing industrial land development program and identify possible extension opportunities
- Identify and evaluate the suitability of locations for new general and light industrial estates
- Develop a strategy to facilitate the delivery of general and light industrial land and assist in the restoration of the Government's long-term general and light industrial land bank.

At the time it was prepared, there was an anticipated shortfall development-ready industrial land (although sufficient vacant land was zoned, much of the vacant land was not serviced and required significant infrastructure investment to unlock its investment potential).

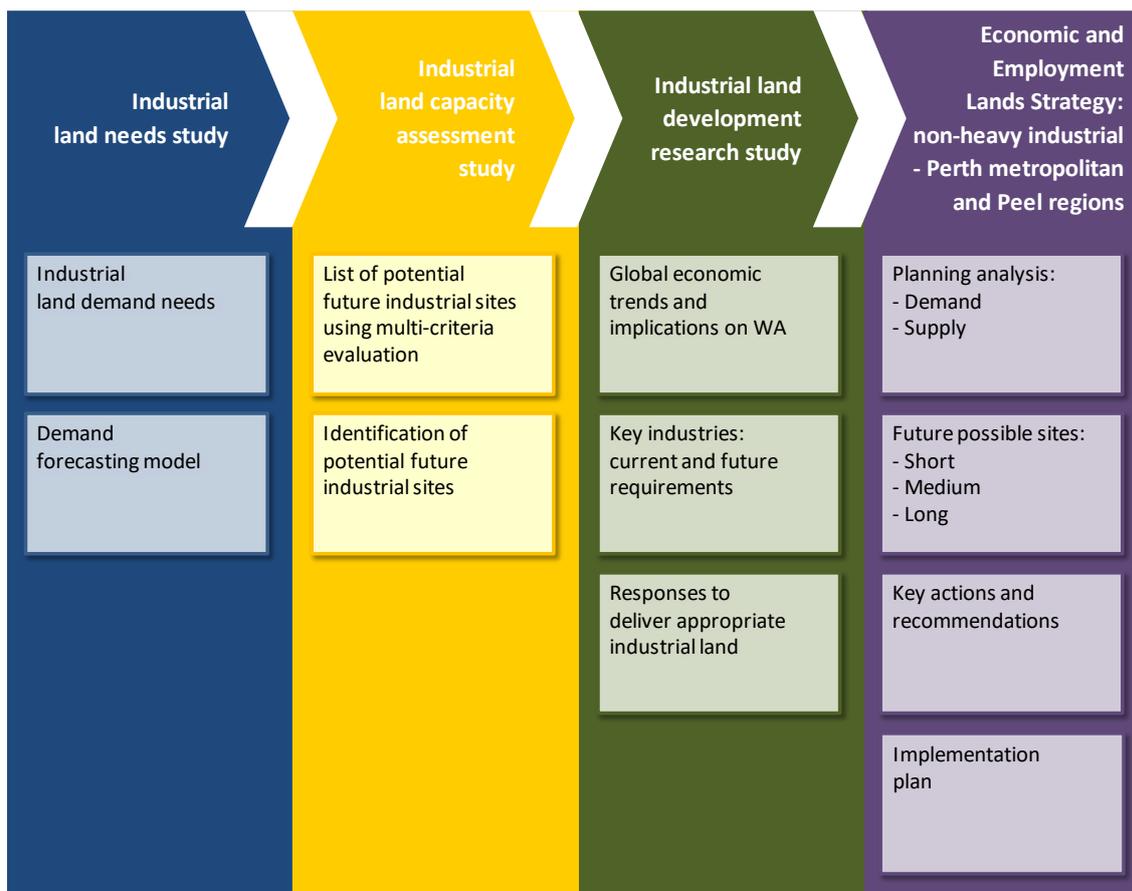
The strategy identified 37 sites totalling just under 13,000ha of potential gross developable land. Sites were identified for short- (0-4 years) medium- (4-10 years) and long-term (10+ years) release.

The EELS identified Bullsbrook South as a higher priority for delivery, based on its context and input from stakeholders. The strategy recommends the site is suitable for a mix of general and light industrial with options for general commercial zoning for a supporting neighbourhood centre. The land has since been developed released as the Northern Gateway Industrial Area by Sirona Capital.

As detailed in the following figure, the conclusions and recommendations of the EELS were based on the findings of three key studies:

- Industrial Land Needs Study (ILNS)
- Industrial Land Capacity Assessment (ILCA)
- Industrial Land Development and Research Study (ILDRS).

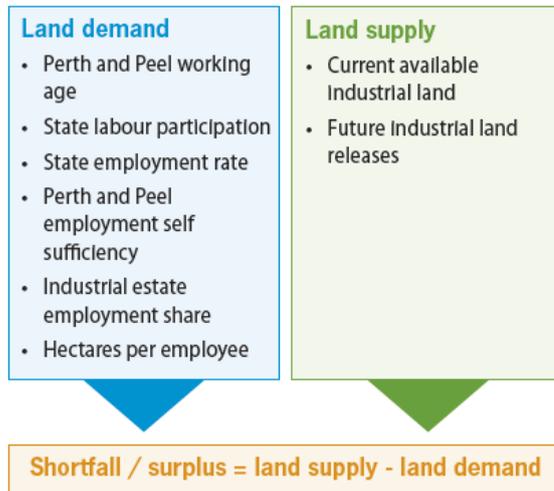
**Figure 5.** Economic and Employment Lands Strategy: Non-Heavy Industrial methodology



Source: Economic and Employment Lands Strategy: non-heavy industrial Perth metropolitan and Peel regions (April 2012)

The demand assessment for EELS is based on growth factors using population as an input to the model to determine the quantum of industrial land required.

**Figure 6.** EELS demand-supply modelling inputs



Source: Economic and Employment Lands Strategy: non-heavy industrial Perth metropolitan and Peel regions (April 2012)

### Recommendations of EELS

Based on the key findings of the ILNS, ILCA and consultation, there were six recommendations outlined in the EELS:

- Ensure there is suitable governance and coordination of the planning and delivery of industrial land
- Develop and maintain a program to forecast and monitor the demand and supply of industrial land
- Maintain a 20-year land bank to ensure a regular industrial land supply
- Ensure the timely delivery of development-ready land
- Maintain a significant Government role in industrial land supply to facilitate greater participation by the private sector
- Ensure the industrial sites, particularly those considered to have state and regional significance, and located within the inner and middle sectors, are preserved.

## Section 2: Urban growth, population, demographics and employment

Knowledge of local drivers is a critical component of the industrial assessment and establishing the workforce availability and nature of the area. The following section examines each of the main drivers of change affecting the study area to inform the analysis of the area.

### 2.1 Urban growth

Land developers provide an indication of their future lot production as part of the WAPC's Urban Development Program, Developers' Intentions Survey. This was most recently analysed and published in Land Development Outlook 2016/17, which indicates that the North-West Sub-region has the largest growth potential of all the urban corridors. It is also characterised by large land holdings which permit the bigger more experienced developers to deliver master planned estates, which typically have high population growth rates.

After the North West Sub-region, the second highest growth area is the South West Region. Developer intentions in these two areas combined could provide more than 138,263 additional dwellings.

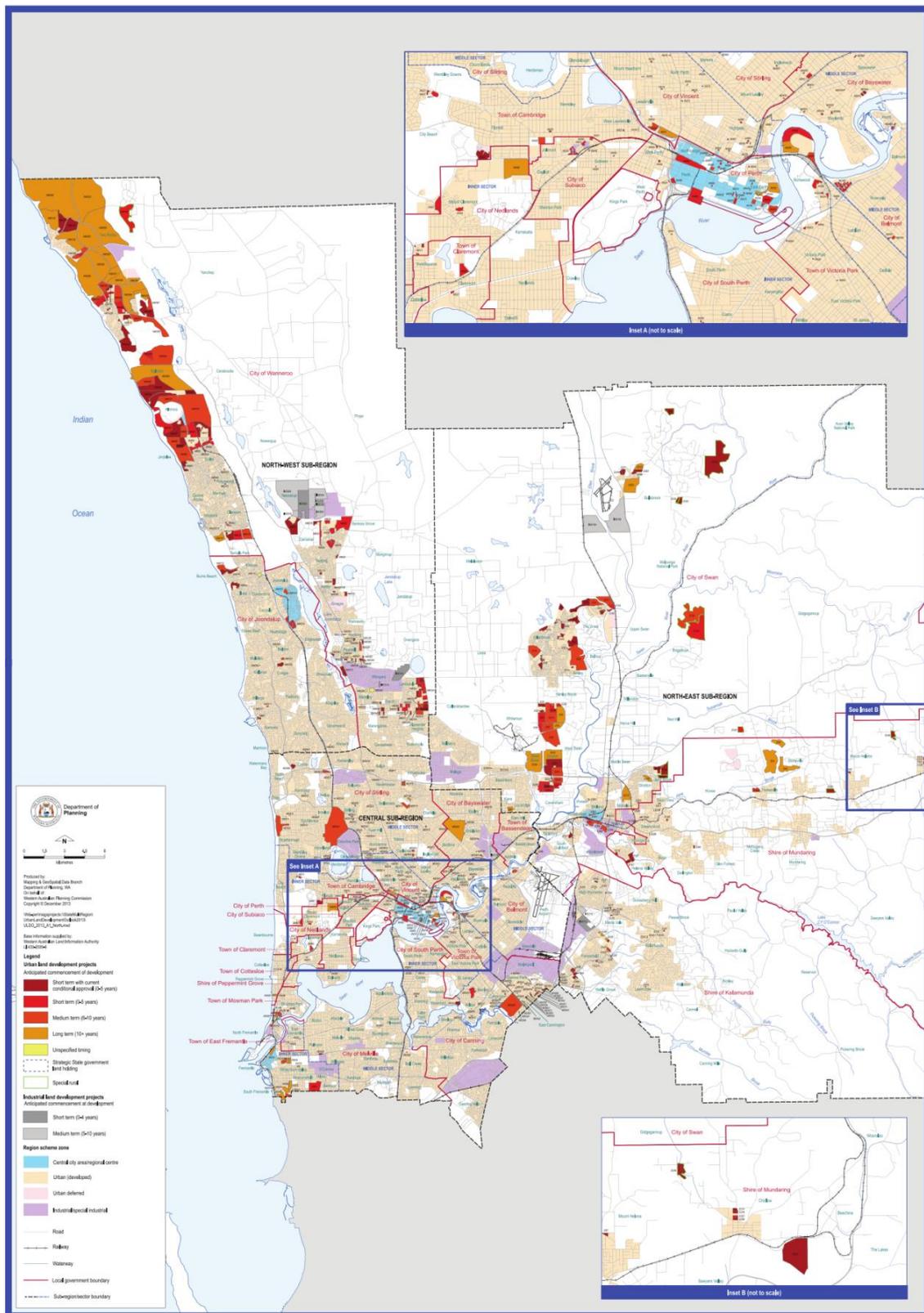
The following table and figure show the major urban growth areas, yields and approximate timing for Perth.

**Table 3.** Future dwelling releases by urban corridor in Perth

Map colour-code	Region	Central	North-West	North-East	South-East	South-West	Peel	TOTAL
	Short term dwelling release (0 to 4 years)	19,732	13,989	10,858	11,348	21,470	5,586	<b>82,983</b>
	Medium term dwelling release (5 to 10 years)	19,533	11,767	7,980	8,918	11,110	7,175	<b>66,483</b>
	Long term dwelling release (10+ years)	24,168	67,258	15,488	16,149	12,669	13,885	<b>149,617</b>
	<b>Total additional dwellings</b>	<b>63,433</b>	<b>93,014</b>	<b>34,326</b>	<b>36,415</b>	<b>45,249</b>	<b>26,646</b>	<b>299,083</b>

Source: WAPC Urban Land Development Outlook 2016/17

**Figure 7.** Urban growth areas in the North-West and North-East Sub-regions of Perth



Source: WAPC Urban Land Development Outlook 2016/17

The North-East Sub-region has a relatively small stock of vacant land zoned for urban development, when compared to other growth corridors of Perth. This will be addressed through expansion and investigation urban land as identified in the Perth and Peel @3.5 million – North-East Sub-regional Planning Framework.

Much of the appeal of the North-East sub-region lies in its rural character, which is seen as a great asset, to the sub-region and the city. Preserving this character has resulted in a limited supply of land for urbanisation, relative to other sub-regions. More than half of the North-East Sub-region is zoned rural under the Metropolitan Region Scheme. The resulting pattern of development means infrastructure supply and planning approval constraints for developments in the sub-region.

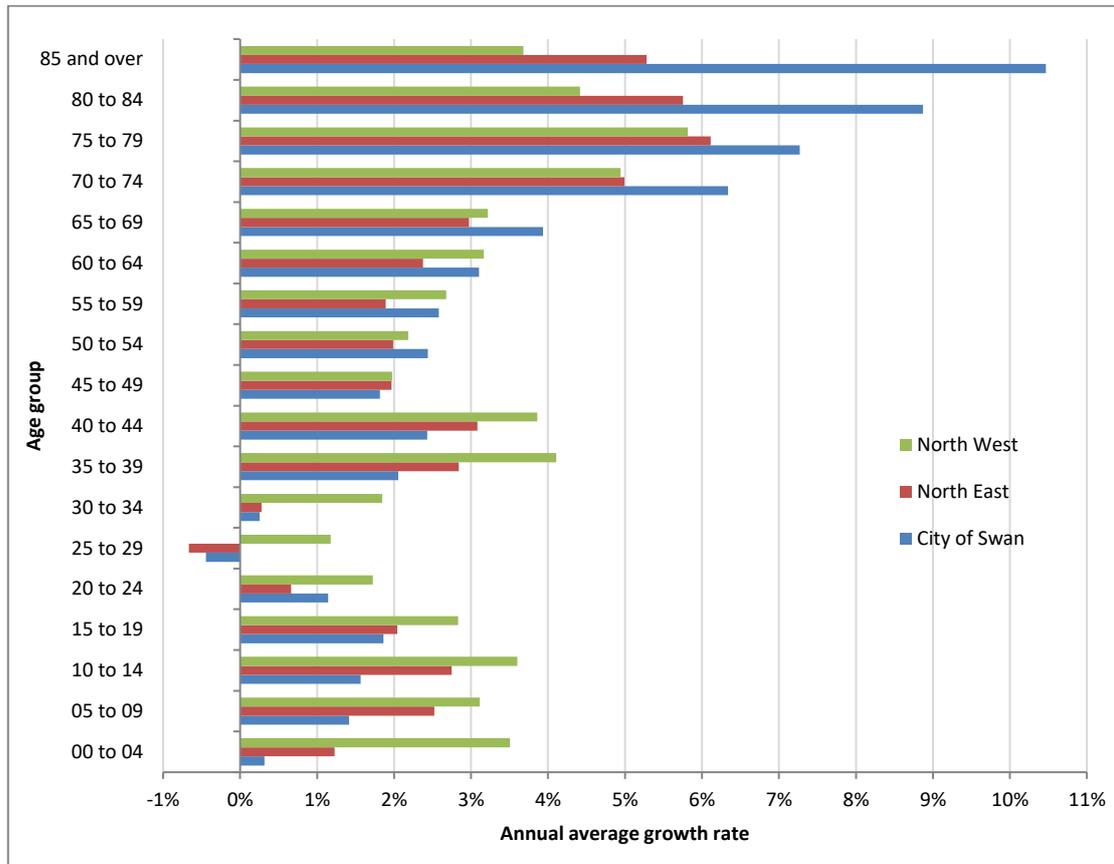
## **2.2 Population growth**

The Western Australia Planning Commission projects the City of Swan and North-East and West sub-regions population to grow by an average annual 2.1, 2.2 and 3.0 per cent respectively.

### **Population growth by age**

Growth in the City of Swan is expected to be driven by residents aged 80 years and older while the main driver in the wider sub-regions is 75-79-year olds. Projections indicate residents aged 15 – 64 will grow by an average annual 1.6 per cent in the City of Swan and 1.6 and 2.5 per cent in the North-East and North-West Sub regions respectively.

**Figure 8.** WAPC population growth projections 2016 - 2026



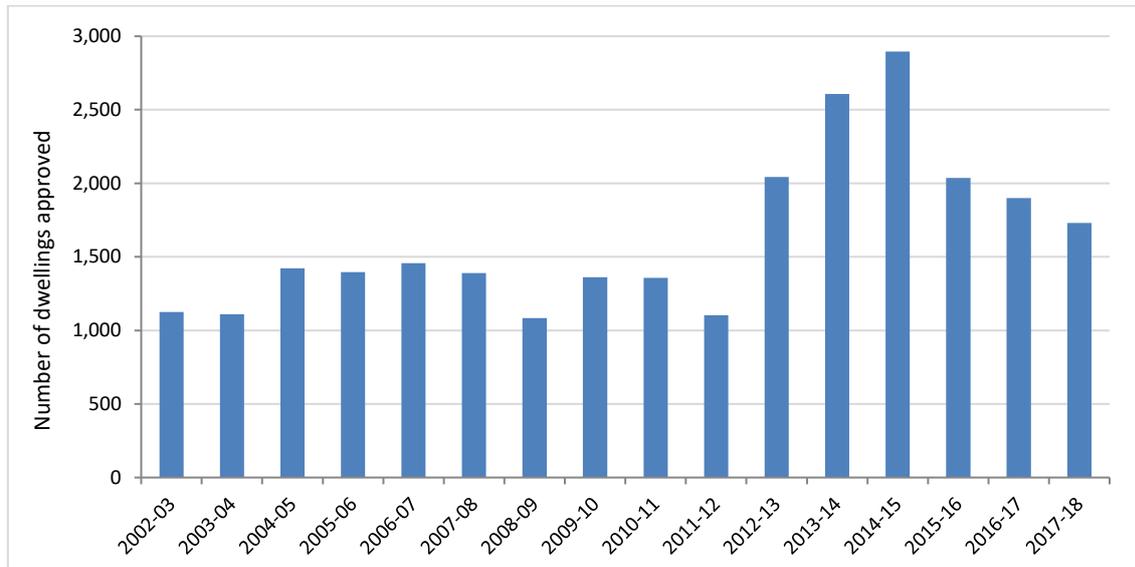
Source: Western Australia Planning Commission – WA Tomorrow 2015, ABS – Estimated Resident Population

### Dwelling approvals

Dwelling approvals in the City of Swan over the period 2002/03 – 2017/18 indicate an average annual of 1,626 dwelling approvals over the 15-year period. This average provides a useful benchmark for a long-term assessment as it includes different periods of economic activity including the ‘business as usual’ period up to 2011-2012 and then the period of very high activity related to unusually-high population growth fuelled by the resource sector boom.

These dwelling approvals figures substantiate the population growth projections from WA Tomorrow.

**Table 4.** City of Swan dwelling approvals, 2002/03 – 2017/18 financial years



Source: Australian Bureau of Statistics, Building Approvals

## 2.3 Demographic profile

An analysis of the current socio-economic and market activity within the suburb of Bullsbrook and the City of Swan (Swan LGA) area will further inform demand drivers and future opportunities for the area.

Key observations from the 2016 Census of Population and housing are:

- The total population for Bullsbrook suburb and Swan LGA was 5,185 and 133,851 people respectively.
- The median age in the Swan LGA was 34 years, notably lower than Bullsbrook suburb which had a median age of 38 years.
- There was a high proportion of couple families with children in the population.

**Table 5.** Population overview

<b>Census item</b>	<b>Bullsbrook</b>	<b>Swan (C)</b>	<b>Greater Perth</b>	<b>Western Australia</b>
<u>Population</u>	<u>5,185</u>	<u>133,851</u>	<u>1,943,858</u>	<u>2,474,410</u>
• 0-14 years	20.2%	21.7%	19.1%	19.3%
• 15-24 years	14.6%	13.8%	13.0%	12.5%
• 25-54 years	41.2%	44.0%	43.1%	42.8%
• 55-74 years	20.9%	16.6%	18.8%	19.5%
• 75 years +	3.3%	4.0%	6.0%	5.9%
<u>Household (no.)</u>	<u>1,660</u>	<u>45,633</u>	<u>701,970</u>	<u>881,085</u>
Average household size	<u>2.9</u>	<u>2.8</u>	<u>2.6</u>	<u>2.6</u>
<b>- Family households</b>	<b>83.1%</b>	<b>78.6%</b>	<b>73.4%</b>	<b>73.1%</b>
<i>Couple families with children</i>	39.1%	38.0%	34.0%	33.2%
<i>Couple families without children</i>	32.2%	26.0%	27.5%	28.1%
<i>Single parents families</i>	11.6%	13.4%	10.6%	10.6%
<i>Other families</i>	0.7%	1.2%	1.3%	1.2%
<b>- Non-family households</b>	<b>16.9%</b>	<b>21.4%</b>	<b>26.6%</b>	<b>26.9%</b>
<i>Lone person</i>	7.3%	9.2%	10.3%	10.9%
<i>Other household</i>	9.6%	12.2%	16.3%	16.0%
<u>Country of birth</u>	<u>5,185</u>	<u>133,851</u>	<u>1,943,858</u>	<u>2,474,410</u>
Australia born	66.5%	60.2%	57.3%	60.3%
Overseas born	22.0%	32.9%	36.1%	32.2%
• <i>Asia</i>	2.1%	10.3%	10.4%	8.8%
• <i>Europe</i>	11.1%	9.3%	12.2%	11.0%
• <i>Other</i>	27.3%	38.9%	41.9%	37.8%
Country of birth not stated	11.2%	7.4%	7.1%	7.9%

Source: ABS Census of Population & Housing, 2016; MacroPlan Dimasi

The dwelling profile data show that:

- Dwellings in the area are predominantly separate houses in both Bullsbrook suburb and Swan LGA.
- While outright ownership of dwellings by their respective households is generally lower than the average for Greater Perth, the proportion of dwellings being purchased (with a mortgage) is higher than the benchmark.

**Table 6.** Dwelling type and tenure

Census item	Bullsbrook	Swan (C)	Greater Perth	Western Australia
<u>Dwellings</u>	<u>1,749</u>	<u>48,714</u>	<u>776,015</u>	<u>999,649</u>
Separate house	91.4%	78.7%	68.4%	68.6%
Semi-detached	0.0%	10.9%	14.2%	12.3%
Flat, unit, apartment	0.0%	1.0%	5.9%	4.9%
Other	0.8%	0.6%	0.3%	0.6%
Not stated	0.4%	0.2%	0.2%	0.3%
Unoccupied	7.7%	8.7%	11.0%	13.3%
<u>Dwelling tenure</u>				
Fully owned	8.0%	7.4%	10.1%	9.9%
Being purchased	18.2%	18.1%	15.1%	13.8%
Rented	4.6%	7.5%	9.6%	9.9%
• Real estate agent	1.9%	3.7%	5.3%	4.9%
• State or territory housing authority	0.1%	1.1%	1.0%	1.2%
• Person not in same household	2.1%	2.1%	2.8%	2.7%
• Housing co-operative/community/church group	0.1%	0.1%	0.1%	0.2%
• Other landlord type	0.3%	0.3%	0.3%	0.7%
• Landlord type not stated	0.2%	0.1%	0.1%	0.2%
Other	0.2%	0.2%	0.4%	0.4%
Tenure type not stated	0.6%	0.7%	0.8%	0.8%
<u>Number of bedrooms</u>	<u>5,102</u>	<u>131,583</u>	<u>1,911,733</u>	<u>2,486,606</u>
None (include bedsitters)	0.0%	0.1%	0.1%	0.1%
One bedroom	0.6%	0.6%	1.2%	1.2%
Two bedrooms	1.5%	2.3%	4.4%	4.3%
Three bedrooms	9.8%	12.1%	13.4%	13.2%
Four bedrooms	16.0%	16.0%	14.1%	13.2%
Five bedrooms	2.6%	1.8%	1.9%	1.8%
Six bedrooms	0.5%	0.3%	0.3%	0.3%
Not stated	0.6%	0.6%	0.7%	0.7%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

Source: ABS Census of Population & Housing, 2016; MacroPlan Dimasi

The employment and income statistics indicate:

- The unemployment rate in the Swan LGA was 7.1 per cent, which was higher than the state average.
- The workforce size for Bullsbrook and Swan LGA is approximately 1,834 people and 52,342 people respectively.
- The gross median individual income is 24 dollars higher per week in Bullsbrook than for the Swan LGA with Bullsbrook at \$730 per week and Swan LGA at \$716 per week.
- Median rent and housing loan repayment in Bullsbrook are in line with the Swan LGA.

- Both areas have a high proportion of blue-collar jobs with high levels of technicians and trades workers. The white-collar jobs are mainly clerical and administrative workers, professionals and community service workers.

**Table 7.** Income and household expenditure

Census item	Bullsbrook	Swan (C)	Greater Perth	Western Australia
<u>Income</u>				
Median personal weekly income	730	716	728	724
Median family weekly income	1,827	1,811	1,955	1,910
Median household weekly income	1,714	1,623	1,643	1,595
<u>Household expenses</u>				
Median weekly rent	350	350	360	347
Median monthly mortgage repayments	2,000	2,000	2,000	1,993

Source: ABS Census of Population & Housing, 2016; MacroPlan Dimasi

The education statistics show:

- Attendance at TAFE is low for people living in Bullsbrook suburb, but the average across the Swan LGA is in line with the metropolitan benchmark.
- Attendance at university is relatively lower than the Greater Perth average.

**Table 8.** Education

Census item	Bullsbrook	Swan (C)	Greater Perth	Western Australia
<u>Educational institution attending</u>	<u>1,689</u>	<u>42,360</u>	<u>605,065</u>	<u>766,992</u>
Pre-school	2.8%	4.2%	3.9%	3.9%
Infants/Primary	25.8%	29.3%	27.1%	27.4%
Secondary	22.6%	22.7%	20.7%	20.5%
Technical or Further Educational Institution	3.9%	6.3%	6.3%	6.1%
University or other tertiary Institution	6.8%	11.3%	16.5%	13.9%
Other type of Educational Institution	1.9%	2.6%	2.6%	2.4%
Type of educational institution not stated	36.1%	23.7%	22.8%	25.8%

Source: ABS Census of Population & Housing, 2016; MacroPlan Dimasi

Vehicle ownership statistics from the Census indicate:

- The most predominant method of transport to work is overwhelmingly by cars with between 68–73 per cent of the employed travelling this way. This could suggest that there is a low level of public transport as well as long commutes.

- Vehicle ownership is relatively high in the Bullsbrook suburb and Swan LGA.

**Table 9.** Motor vehicle ownership

Census item	Bullsbrook	Swan (C)	Greater Perth	Western Australia
<u>Dwellings with...</u>				
No motor vehicles	1.1%	3.7%	4.9%	4.9%
1 motor vehicle	17.4%	27.9%	32.2%	31.6%
2 motor vehicles	37.8%	40.9%	39.4%	38.9%
3 motor vehicles	20.3%	15.5%	13.4%	13.7%
4 or more motor vehicles	20.0%	9.3%	7.4%	7.8%
All dwellings (with no. of motor vehicles stated)	96.6%	97.3%	97.3%	97.0%
Number of motor vehicles not stated	3.5%	2.7%	2.7%	3.0%
<u>Dwellings with...</u>				
No motor vehicles	18	1,663	33,694	42,620
1 motor vehicle	281	12,418	222,388	274,198
2 motor vehicles	611	18,205	271,887	337,355
3 motor vehicles	328	6,895	92,606	118,969
4 or more motor vehicles	324	4,123	50,906	67,709
All dwellings	1,561	43,302	671,490	840,844
Number of motor vehicles not stated	56	1,195	18,791	25,934
All dwellings	1,616	44,495	690,280	866,777

Source: ABS Census of Population & Housing, 2016; MacroPlan Dimasi

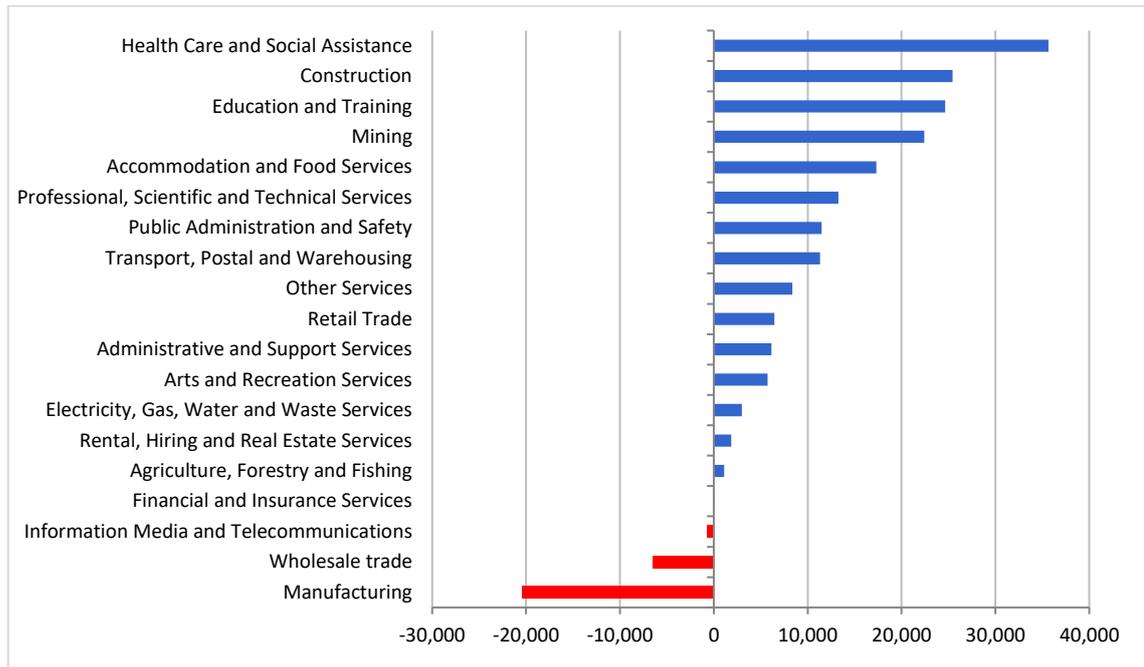
## 2.4 Employment assessment

### Employment

Historically, Perth's population has grown by about 2.2 per cent across the past decade. This has been matched by equally strong growth in employment. Between 2006 and 2016, the composition of employment within Perth altered slightly as the general economy moved towards a service sector basis however over the most recent five years to 2016, there has been a noticeable shift in the industry composition.

The mining industry now accounts for 5.0 per cent of employment, construction 9.9 per cent and transport & warehousing about 4.6 per cent.

**Figure 9.** Employment growth, Greater Perth area, 2006 - 2016



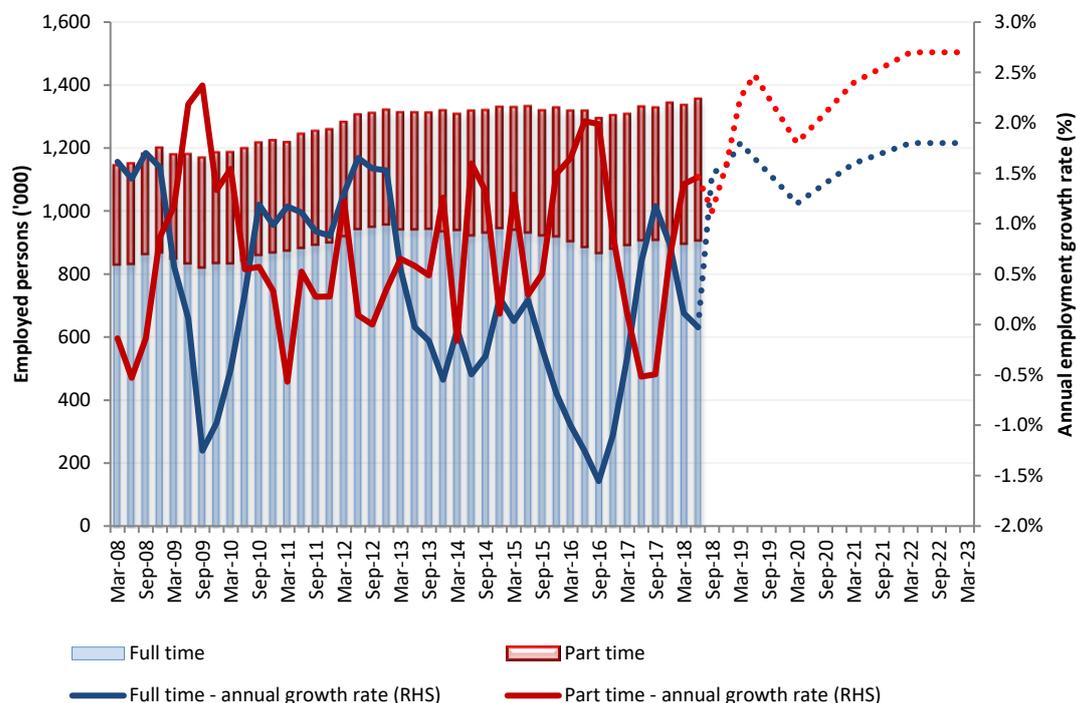
Source: ABS Census 2006, 2016

This shift in trend has implications for the future industrial land requirements of Perth. As employment in these industries continues to grow faster than average employment growth, the demand for industrial land will continue.

Larger inter-modal and freight hubs will be required and demand for business and technology parks will continue as headquarter premises are sought out and knowledge and innovation-based businesses linked to mining & minerals seek to move into the supply chain.

WA Treasury has forecast a gradual decline in unemployment rates from their current level. MacroPlan has forecast a small spike in the short term but then a decline in unemployment as the labour market shifts around.

**Figure 10.** WA employment growth outlook



Source: ABS 6202.0 - Labour Force, Australia, August 2018, WA Treasury 2018

**Key points:**

- Employment expectations are a key factor in households’ decisions to consume.
- A forecast return to employment growth of over two per cent per annum will drive demand for housing.
- As finite construction and engineering projects represent much of the State’s economic boost over the past decade, this past high employment growth will not be maintained unless there is a steady stream of business investment in new projects.
- Relatively high wages and low interest rates have increased the capacity of some households to afford more expensive dwellings.

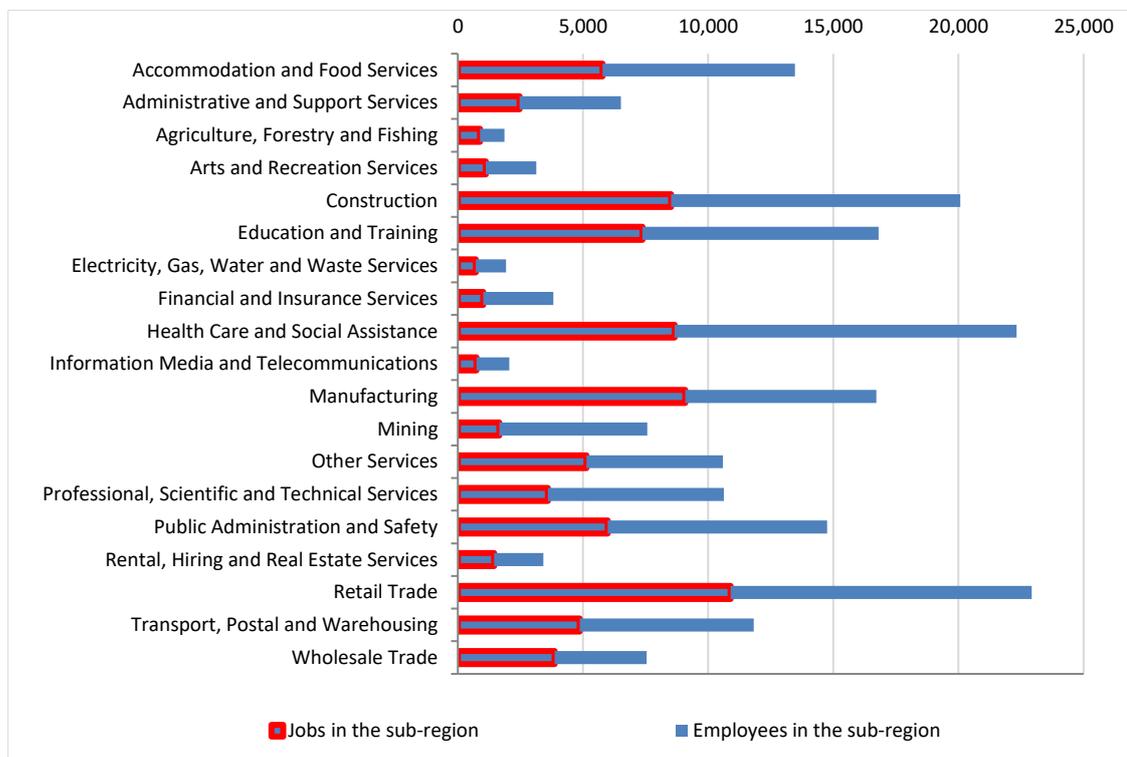
The WA Treasury forecasts indicate total employment in Western Australia to grow by 1.5 per cent in 2018-19, 2.0 per cent in 2019-20 and 2.5 per cent in 2020-21 and 2021-22.

## Self-sufficiency

The City of Swan resident population has a high proportion of workers in the manufacturing and construction industries as well as retail trade and health services.

The North-East Sub-region has a reasonable level of employment self-sufficiency, at 68.1 per cent (68 jobs for every hundred resident workers). Achieving the *Perth and Peel @3.5 million Sub-regional Planning Framework 2018* targets for employment self-sufficiency in the sub-region will require the creation of approximately 104,100 additional jobs by 2050.

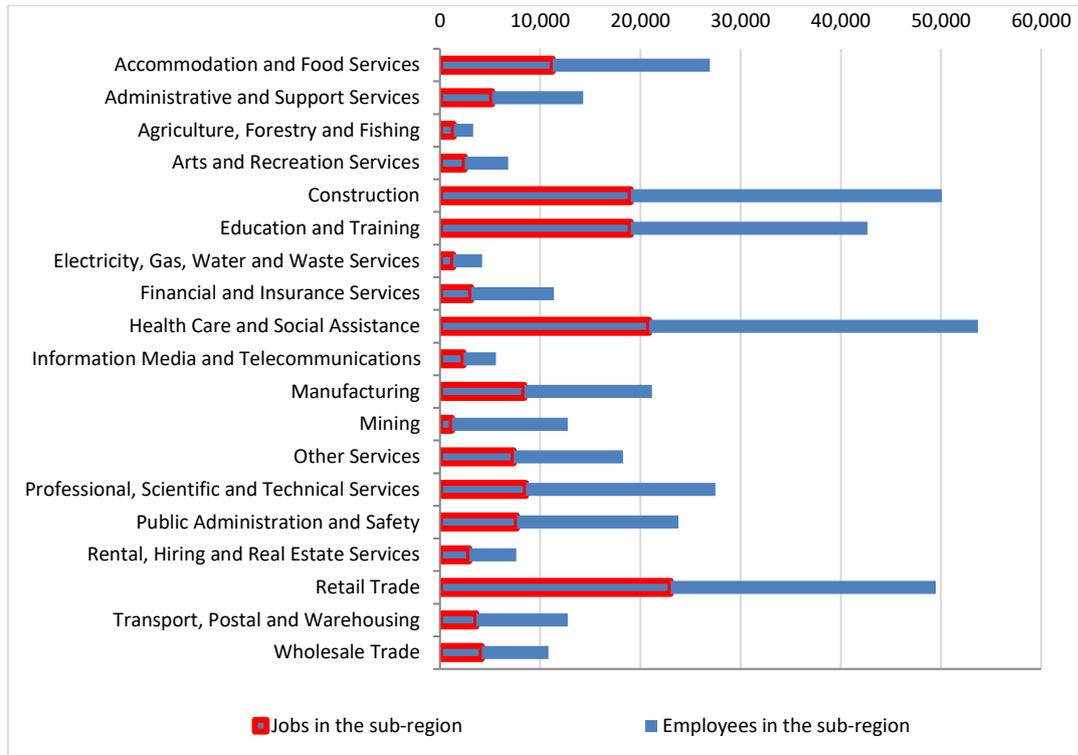
**Figure 11.** Relationship of jobs and employees in the North-East Sub-region



Note: Data do not include responses that were inadequately described or not stated.  
Source: Australian Bureau of Statistics – Census of Population and Housing 2016

In contrast, the North-West Sub-region has a low level of employment self-sufficiency, at just 56.7 per cent (56 jobs for every hundred workers). Achieving the *Perth and Peel @3.5 million Sub-regional Planning Framework 2018* targets for employment self-sufficiency in the sub-region will require the creation of approximately 63,500 additional jobs by 2050.

**Figure 12.** Relationship of jobs and employees in the North-East Sub-region



Note: Data do not include responses that were inadequately described or not stated.  
 Source: Australian Bureau of Statistics – Census of Population and Housing 2016

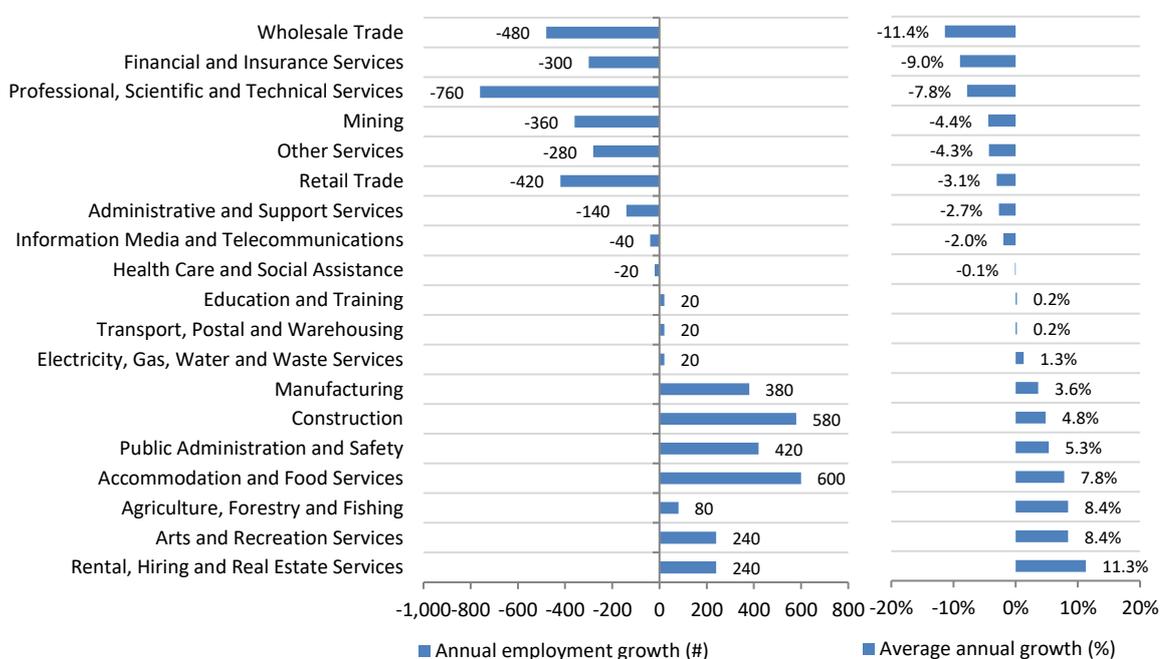
## 2.5 Employment growth opportunities

The job market in the North-East Sub-region is led by the health care and social assistance industry which was the largest industry in the region at 15,700 jobs but saw negative growth over the period at -0.1 per cent.

The following figure illustrates the change in employment in each industry over the period May 2013 to May 2018 in the North-East Sub-region. The fastest growing industries include the rental, hiring and real estate (11.3% growth), arts and recreation (8.4% growth), agriculture, forestry and fishing (8.4% growth), accommodation and food services (7.8% growth) and public administration and safety (5.3% growth).

The market is shifting away from the wholesale trade (-11.4% change), financial and insurance services (-9.0% change) and professional, scientific and technical services (-7.4% change) industries as these industries saw negative annual growth in employment over the period.

**Figure 13.** Change in employment by industry, Perth – North East, 2013 – 2018

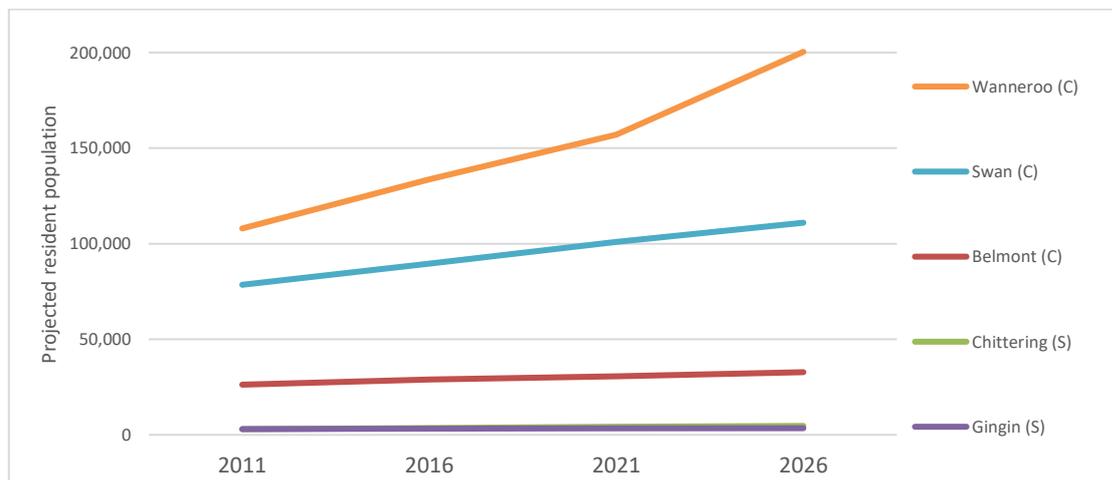


Source: Department of Jobs and Small Business, 2018

### Working-age population and growth of catchment areas

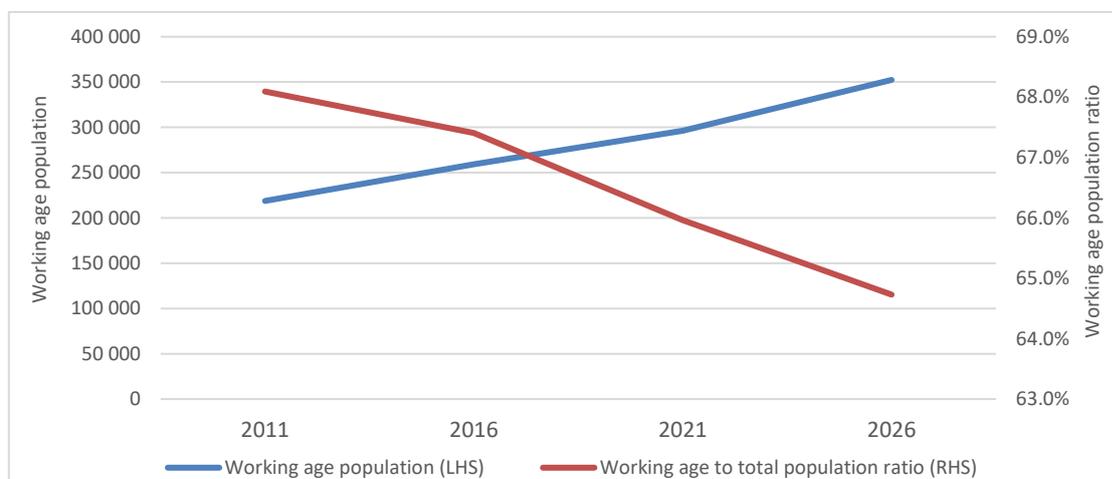
The future workforce for this area is expected to primarily be from the City of Swan (particularly Ellenbrook and Bullsbrook as the closest urbanised areas), however, depending on the total quantum, nature and specialisation of the work, the area may develop a much wider employment catchment for workers. On this basis the following figure shows the projected population growth in the likely catchment areas for workers in the Bullsbrook Freight and Industrial Area – the cities of Swan, Wanneroo, Chittering, Muchea and Belmont. These local governments are used for the following two figures showing the growth in the population by working age (aged 15 to 64 years).

**Figure 14.** Employment catchment – projected growth of working age population (15-64 years)



Source: Western Australia Planning Commission – WA Tomorrow 2015; MacroPlan Dimasi

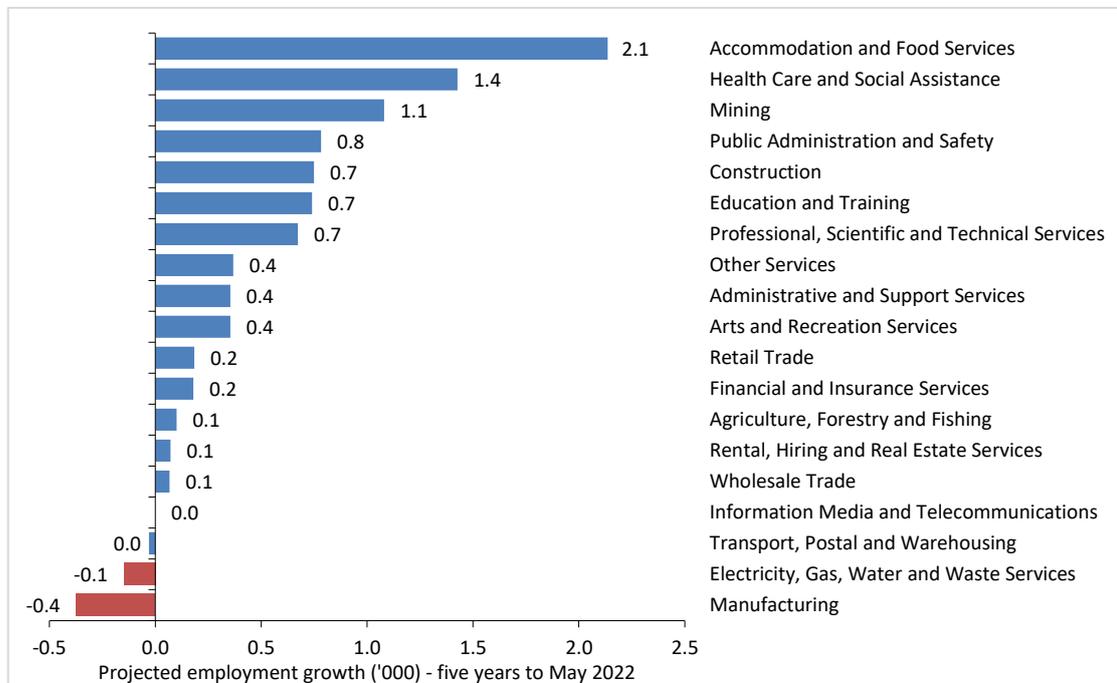
**Figure 15.** Employment catchment – projected growth of working age population (15-64 years)



Source: Western Australia Planning Commission – WA Tomorrow 2015; MacroPlan Dimasi

Employment projections for the North-east Sub-region indicate mining and construction employment will be one of the top five driving industries, while manufacturing and logistics employment decline. These projections reflect the trend in construction and mining wages outlined above. Note that these projections only extend to 2022, which is well short of the development timeframe for the Bullsbrook Freight and Industrial Area, however, it does provide a suggestion of the future potential growth if these trends continue into the medium and longer terms.

**Figure 16.** North-East Sub-regional employment projections to 2022



Source: Department of Jobs and Small Business (2018)

## Section 3: National trends and Perth market

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This section provides an overview of trends in industrial land demand in a national context as well as outlining the characteristics and drivers of the industrial land market within the Perth metropolitan region.

### 3.1 National trends in industrial demand

A look at emerging trends occurring in industrial land markets across Australia reveals how the use of industrial land is changing. The globalised economy emphasises a requirement for innovation and specialisation to establish a competitive niche. This has resulted in changes to the way new estates are being planned and positioned, with lots needing to be more flexible and adaptable to tenant needs and requirements.

The trends identified in the industrial market across the country include:

- More flexible lot sizes
- Bigger more efficient warehousing
- Greater accessibility by road, rail and public transport for both business and employees
- Convenient location close to growing residential areas and hence access to workforce
- Greater importance placed on competitive advantage
- Reduction in costs to be more competitive
- An ability to have an increased number of functions occurring at any one site.

The dominance of Asia as the global manufacturing hub has driven the need for more efficient and low-cost manufacturing in Australia. This has meant that industry has established new modes of production, with greater reliance on imported components, more automated manufacturing and assembly and with a greater emphasis on establishing market niche such as high-tech engineering.

The increased reliance on imported components in the manufacturing sector has resulted in an increased focus on assembly and packaging processes with lower overall value-add. There has been a growing emphasis on logistics and distribution, with the supply chain from production to delivery effectively becoming shorter and more efficient. Some of this could shift again with additive manufacturing (3D printing) providing a new disruption to the sector.

Australia's participation in the global free trade market and the removal of tariff protections/industry support from government has meant the industry sector has had to compete on productivity and cost. Agriculture and manufacturing are the leading examples where productivity has had to increase dramatically to compete.

Location decisions are a part of this drive to increased productivity and efficiency and the Bullsbrook Freight and Industrial Area has the fundamental locational characteristics that make it attractive for long-term investment.

### **Implications for Bullsbrook Freight and Industrial Area**

The Bullsbrook Freight and Industrial Area is highly accessible by road, close to the rail network and complements the industry and worker-type in the area. Furthermore, it is a large land holding meaning lot sizes can be flexible and adaptable to market conditions.

There is currently a void in the market place for processing and packaging of rural produce. The historical uses of the area as an agricultural precinct along with its connectivity via road and rail provide an opportunity for the estate to cater for this market gap.

### **Industry segments**

Industrial demand is segmented into several main categories. The following table provides an overview of the key features of these sectors and describes the various attributes and activity occurring on industrial land. These industry segments should be considered in the overall approach and understanding of market needs to ensure the correct delivery of industrial land within the Perth market.

**Table 10.** Industrial land user segments

Industry	Size and description	Opportunity
Heavy / Noxious / Offensive (5-50ha)	Heavy industries. e.g. Oil refinery, aluminium smelter	Not a consideration for the subject site
Transport/ Warehouse/ Storage (2ha+)	Trend in manufacturing/ importing to outsourcing storage - distribution combined. Major transport routes emerging as transport and distribution hub for increased efficiency and delivery.	Proximity to rail network, major existing and planned arterial roads make this segment a key candidate for the subject site.
Manufacturing / Component Assembly	Component assembly manufacturers vary from extensive land areas to less than 2 hectares.	Based on the worker profile, this may be a target market for the subject site
Light Industrial & Trade Park	In this sector, greatest demand is for smaller blocks between 500sqm and 1,000sqm ranging up to 1 ha for light industrial/ small local businesses. Examples include engineering and mechanical workshops. Less attention is paid to aspects such as landscaping, signage and setbacks. Lots and buildings tend to be at the more affordable end of the market.	The location attributes of the site in relation to transport and heavy haulage would suggest there is an opportunity to target mechanical workshops and related services.
Service Business Park (SBP)	SBP's attract a wide range of service providers and can include manufacturing and processing/ packaging/ distribution industries seeking a high amenity location as well as equipment hiring, places of worship, funeral directors and police and emergency services. Land parcel sizes 1000sqm to 2000sqm (up to 5000sqm).	This is the eventual evolution of the estate and could facilitate such uses once a critical mass is established. Manufacturing and distribution would be the target market segments.
Technology Parks	Similar block sizes to SBP, but high amenity values with high standards of landscaping and built form more akin to an office park. Land parcel sizes 1000 – 2000sqm (up to 5000sqm).	Not a consideration for the subject site in its initial stages.
Specific Uses	Restricted retail - large scale homemaker centres and showrooms Highway uses – car, boat and truck sale yards Recreation/entertainment - indoor complexes e.g. tennis, squash, basketball/netball, indoor cricket stadiums & outdoor activities such as motor sports e.g. go-carts Agri-business– packaging and processing, including for interstate and overseas exports.	There is an opportunity in this segment to provide for the rural sector. In the way of production, storage and distribution of rural products due to its location and historic land use.

Source: MacroPlan Dimasi 2018

### 3.2 Intermodal and freight demand trends

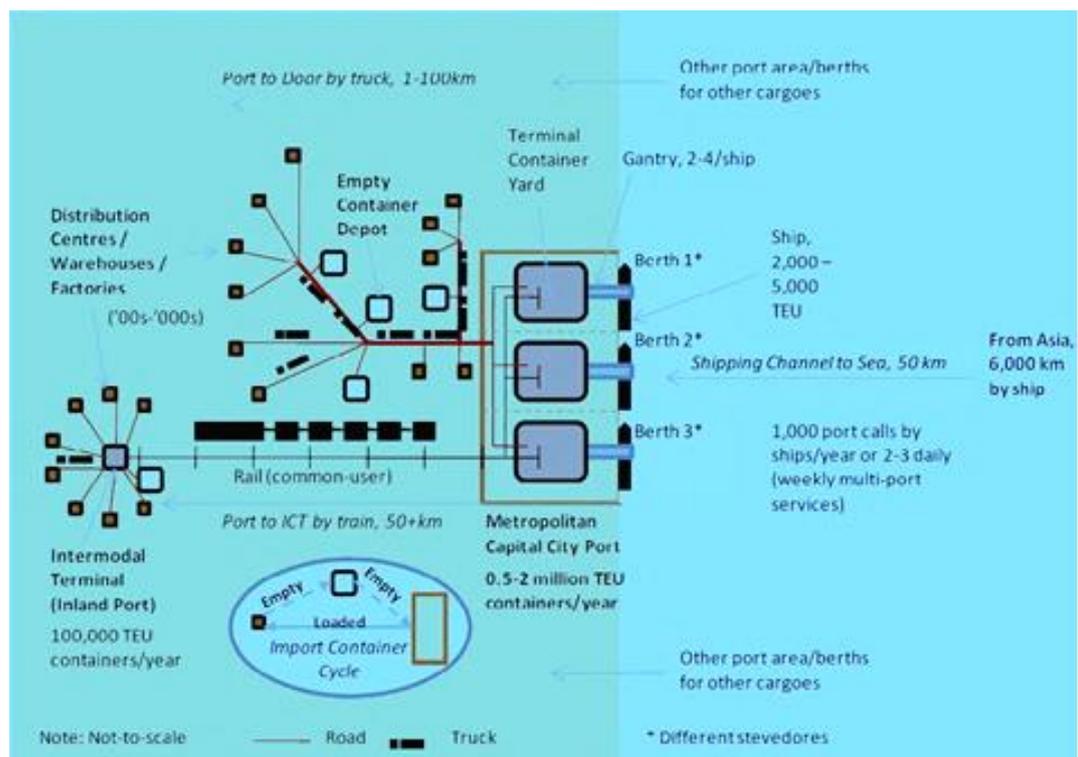
The global shift to free trade has opened the way for the growth of containerised trade. Essentially containers have unlocked the constraint of limited or highly-valuable land at the ports and allowed many freight functions to be shifted to inland locations, away from the coast.

Without the constraint of having to be near the coast, intermodal terminal operators can reprioritise their location decisions based on other factors such as access to markets, workforce availability and optimal road connections.

They are of course, still constrained by the need for rail, however, this is often an easier barrier to overcome than finding space around ports.

Functions such as customs processing, inspecting, sorting, and packing containers are some examples of tasks performed at intermodal terminals.

**Figure 17.** Typical inland terminal



Source: Colliers International

Typical uses at intermodal terminals include:

- Container handling
- Ancillary warehousing and storage
- Road-to-road cross docking
- Depot for empty container storage
- Wash, preparation and repairs and maintenance facilities
- Purpose built temperature-controlled storage facilities
- Industry park clusters

Locational factors affecting terminal owner/operator or supply include:

- suitable land area

- proximity to transport infrastructure (namely truck networks, railway lines and ports)
- accessibility
- appropriate return on capital.

User factors affecting intermodal demand include:

- proximity to industries, markets & CBD
- land rents
- types of intermodal freight/containers
- ease of rail access
- truck access type

Indirect factors that affect the attractiveness of intermodal terminal location include:

- the need to mitigate potential conflicts arising from competing land uses
- residential encroachment is an emerging issue for potential sites
- off-site impacts such as truck movements, 24/7 operation, noise and night light.

### **International examples**

Intermodal terminals in other countries operate quite differently to those in Australia:

**USA:** While intermodal terminals have a significant role in long-haul transport of domestic and international containers, they have no role in the distribution of containers in metropolitan and regional centres around the ports and cities.

**Europe:** There has been significant development of rail shuttle services that interconnect major ports to inland intermodal terminals and servicing both regional and international markets however, there appear are few significant examples of intermodal networks servicing primarily metropolitan port freight distribution.

### **Australian examples**

Intermodal terminals in Australia have three major functions:

- freight traffic related to international trade (equivalent to the primary function of terminals in the USA and Europe)
- interstate freight networks
- metropolitan distribution of freight direct from the intermodal terminal.

Intermodal terminals vary considerably in size and while there are dozens of intermodal terminals in Australia, very few are significant in scale and located in metropolitan locations. Major facilities are located in:

- Sydney: West and South West
- Melbourne: West and South East
- Brisbane: Australia TradeCoast (ATC), South and Outer South and the Outer South West
- Adelaide: North and Outer North
- Perth: East region (Kewdale and Forrestfield).

### 3.3 Jobs of the future

Given that the development of the Bullsbrook Freight and Industrial Area will be over a long timeframe of 20-30 years and beyond, trend assumptions are subject to considerable variation and disruption due to global political, economic and technological changes. This means that many of the jobs and industries of the future are likely to be quite different from those of today. This section addresses some of the factors affecting the future of industry and employment.

Smart jobs – those that are cognitive (as opposed to manual) and non-routine – have demonstrated the strongest growth over the past 20 years (Reserve Bank of Australia, 2016):

- The cognitive component of work has increased from 54.1 per cent of jobs in Australia in 1986 to 59.6 per cent by June 2016 (Reserve Bank of Australia, 2016). Underneath this overall gradual change is a transformational shift in some sectors of the economy because of structural change and techno-global drivers.
- Routine tasks reduced from an estimated 67.0 per cent of all labour in Australia in 1986 down to 53.5 per cent by mid-2016.

Over recent decades, there has been a noticeable decline in the share of people employed in routine manual jobs. This decline has affected job numbers in manufacturing, mining, agriculture and administration/services – all sectors that have high shares of routine manual occupations. One of the reasons behind this trend is that some of these jobs have been automated.

Routine cognitive jobs were relatively flat as a proportion of the total workforce until the early 2000s, however since then they have begun to decline as computer systems begin to have a more significant role in the accounting, legal and professional services jobs.

Parallel and related changes to the optimal size/scale of manufacturing plants, in tandem with declining international (sea and air) shipping costs, have seen industries concentrate in fewer locations globally. Large-scale plants require large land areas, and with continuing declines in the cost of trucking, their location next to sea ports has become less relevant.

At the same time, the threat of automation is much wider than it has been in the past due to two effects:

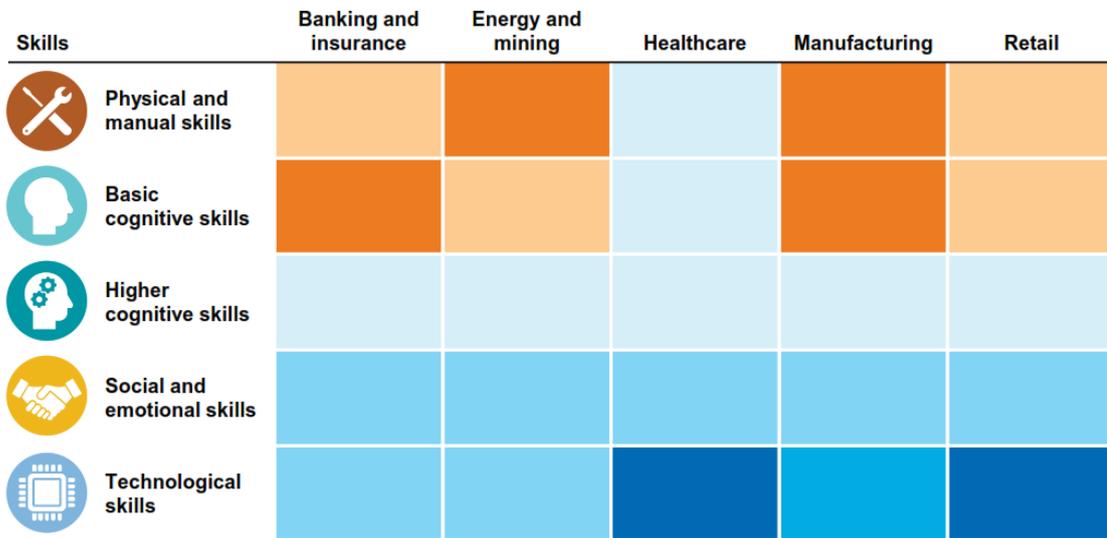
- Technical improvements in robots replacing routine manual labour. Significantly improved visual perception, dexterity and mobility means that robots can be applied in more situations requiring manual labour. The global robotics market was estimated at \$71 billion in 2015, with compound growth of 17 per cent. The Asia-Pacific region accounts for some two-thirds of the global expenditure on robots (International Data Corporation, 2016).
- Algorithms and computing power replacing routine cognitive jobs. More sophisticated, aided by digitisation of more data and standardisation of metadata (i.e. global accounting standards).

**Figure 18.** Projected shift in skills needed in five industry sectors as technology changes the nature of work

Skill shifts will vary across sectors as automation and AI are adopted.

Based on McKinsey Global Institute workforce skills model

Negative ■ ■ ■ Positive

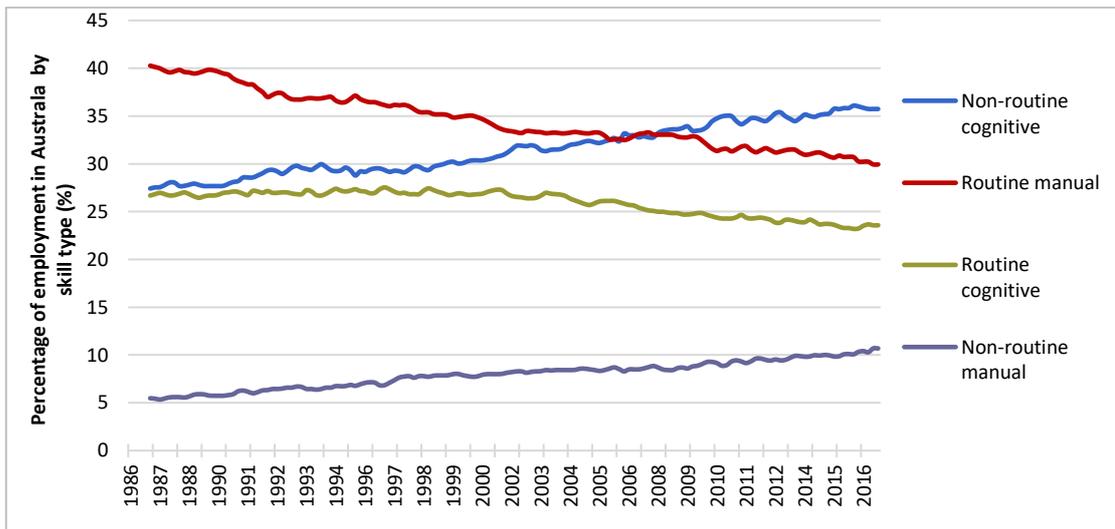


NOTE: Based on difference between hours worked per skill in 2016 and modeled hours worked in 2030. Western Europe: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, Netherlands, Norway, Spain, Sweden, Switzerland, and the United Kingdom.

SOURCE: McKinsey Global Institute workforce skills model; McKinsey Global Institute analysis

Source: McKinsey & Company, 2018

**Figure 19.** Australian jobs shifting to non-routine cognitive and non-routine manual jobs



Source: Reserve Bank of Australia, 2016; Australian Bureau of Statistics, 2016; MacroPlan Dimasi

Smart jobs cut across both 'blue' and 'white' collar classifications of the labour force. This means that some typical white-collar jobs are just as 'threatened' as blue-collar workers (Frey & Osborne, 2013).

Technological change has allowed the movement of jobs that were typically considered as non-tradeable, making some of the routine cognitive jobs to be executed in other parts of the world where labour costs are lower such as offshore back-office functions and call centres.

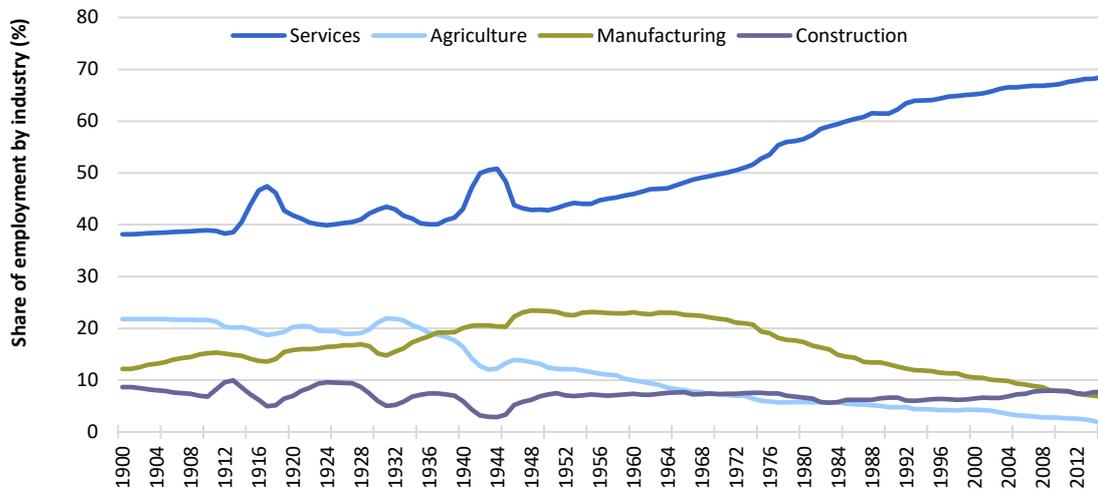
According to the Committee for Economic Development of Australia (CEDA), in 2015 approximately 40 per cent of occupations were highly susceptible to automation and similar research by the Department of Industry, Innovation and Science found that 44 per cent of jobs were vulnerable to computerisation.

Non-routine jobs have become steadily more important and the reason behind it is that these jobs tend to be more complicated to automate. For instance, some non-routine occupations, such as architecture, may require creativity and the ability to solve non-routine problems, while other, such as aged care work, requires a physical human presence. The Australian workforce may also have a comparative advantage in many occupations in the non-routine category because of the high education levels of Australians.

Many jobs that are routine and manual have been replaced by robots, particularly in the agriculture, manufacturing and logistics sectors. Jobs that are routine and cognitive have been replaced with standardised systems and computers, which can process routine tasks very efficiently.

Agriculture and manufacturing are industries that had a long history of decline in the share of routine manual jobs due to technological change while the services sector has increased the number of jobs considerably.

**Figure 20.** Share of employment by industry

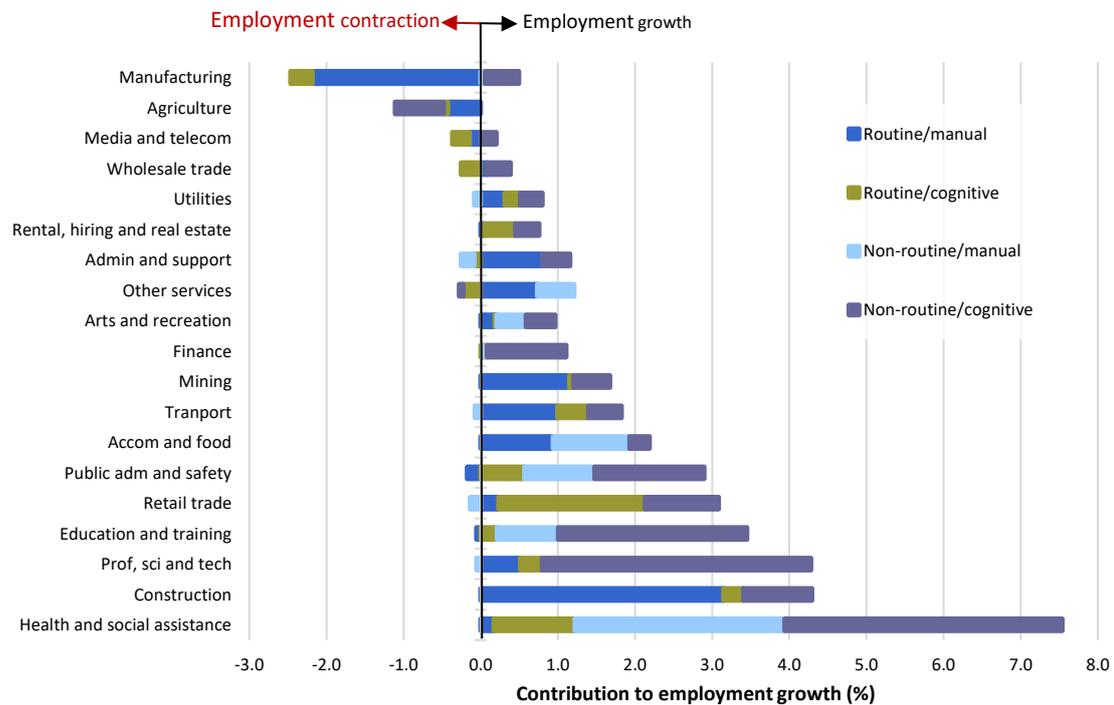


Source: Australian Bureau of Statistics, 2016; Reserve Bank of Australia, 2016

The following figure shows that the health care and social assistance industry has made the largest contribution to employment growth over the past 15 years, and most of this has been in non-routine work. The other two industries that made the largest contributions to growth in non-routine jobs over this period are professional, scientific and technical service and education and training.

The stability of relative wages in the health sector over most of the past 15 years suggest that the expansion of demand for health care workers has been more or less met by an increase in the number of people who are able to work in the sector.

**Figure 21.** Contribution to employment growth by industry employment and skill type, 2000/01 to 2015/16



Source: Australian Bureau of Statistics, 2016; Reserve Bank of Australia, 2016

Education and training, construction and mining have all experienced a trend increase in their relative wages over the past 15 years or so. This suggests that the supply of workers with the right skills has not kept up with the increase in the demand from these industries.

Research for the United States has shown that employment growth has been faster for occupations that have created more new jobs titles (National Bureau of Economic Research, 2016) emphasising the positive aspect of skill-biased technological change; although technological change makes some jobs redundant, history repeatedly demonstrates that others are created in their place.

The implications for the Bullsbrook Freight and Industrial Area are that it will need to cater for a highly technical workforce across all the relevant industry sectors. While some jobs will be lost to automation (especially manufacturing and agriculture), humans still operate in this fields, but their jobs are more likely to now be classified as 'professional, scientific and technical' (for example).

### 3.4 Economic and sectoral drivers in Perth

Development paradigms in the industrial market have undergone significant shifts post-GFC and the mining investment super cycle. A return to strong employment growth will lead population growth. This, combined with large-scale infrastructure investment and a high valued Australian dollar will influence and shape industrial land demand, scale and composition within Perth.

Of these issues, the Australian dollar is one of the most important factors impacting on the industrial landscape as high dollar makes imports cheap and exports comparatively uncompetitive. This changes the nature of industrial demand by shifting from local manufactures towards imports. This, in turn, shifts industrial land demand from manufacturing towards greater warehousing and logistics needs.

If imports increase, this will increase containerised trade and increase demand for intermodal rail hubs, or inland ports, as well as distribution centres close to major highways.

The following table highlights some of the key drivers of industrial land markets within Perth. These drivers will affect the various industrial sub-markets in different ways.

**Table 11.** Economic drivers

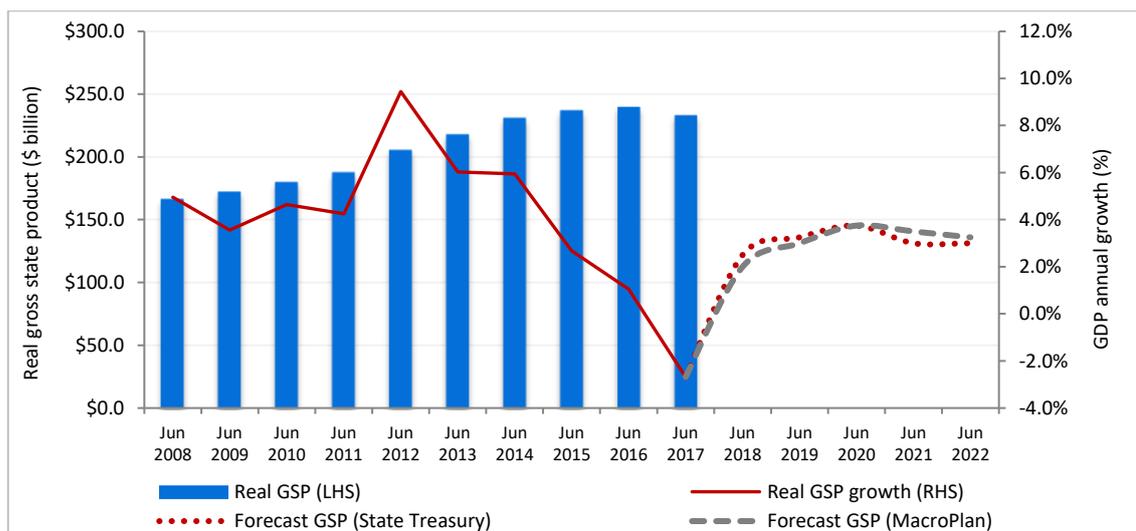
<b>Driver</b>	<b>Measure</b>
<b>Economic growth</b>	GDP, GSP (ABS)
<b>Commodity prices</b>	Iron ore, gold, base metals, mineral sands (lithium, titanium) (RBA)
<b>Exploration activity</b>	Mineral and petroleum exploration
<b>Industrial production</b>	Industrial production (ABS)
<b>Engineering construction</b>	Engineering construction, including resource-sector construction projects (ABS) & government capital works program
<b>Population growth</b>	Historical & future population growth
<b>Employment growth</b>	Employment/labour force growth by 'blue collar' industry
<b>Port &amp; freight projections</b>	Port: container movements. Airport: freight tonnes
<b>Inflation &amp; interest rates</b>	CPI and RBA Target Cash Rate
<b>Exchange rates</b>	Australian dollar relative to US
<b>Freight activity</b>	Freight movements – intrastate, interstate, overseas (BITRE)
<b>Global frameworks / geopolitics / economy</b>	Global economic conditions (eg. US, Asia, banking regulations)

Source: MacroPlan Dimasi (2018)

## Economic production

Understanding the likely future growth for WA provides an insight into the on-going requirement for industrial land required to achieve forecast levels. In 2016-17, Western Australia had the fourth largest economy in Australia. The state's annual economic growth rate of -2.7 per cent was the slowest growth of all the states and territories and over the past 10 years, Western Australia's economy has averaged 3.9 per cent growth per year. Forward projections indicate that there will be a quick turnaround in State economic growth from the 2017/18 financial year onwards. This is based on Commonwealth and State government capital works investment as well as the non-mining construction sector (retail, hotels) picking up in the short to medium terms.

**Figure 22.** Western Australia Gross State Product and Australia Gross Domestic Product, Annual, 2008 to 2022



Source: ABS Australian National Accounts: National Income, Expenditure and Product 5206.0

Western Australia's economy is projected to grow at an annual average of 3.0 per cent in the long-term. This reflects lower levels than during the mining boom, however it is still in line with projected national growth. Provided labour force constraints can be avoided, there is potential for medium term growth to be revised upward of projections.

In the longer term, the economy will be subject to cyclical factors that may affect timing and structural changes which will affect the type of industrial development in demand.

## **Population growth**

Population growth and dwelling construction will be key drivers of industrial land demand given the synergies regarding construction and building services, distribution centres for retail operators and other local industrial service precincts.

In an employment feedback loop, population growth is driven by employment opportunities and as such the size of the potential workforce which could be supported within industrial land precincts is dependent on the number of jobs created. Migration to a region generally occurs once employment is secured and many of the overseas migrants becoming permanent residents have already been working in the country before gaining citizenship. The Perth population grew by an average annual 2.2 per cent over the past decade and is expected to continue to do so over the medium to longer term.

Perth is a rapidly evolving city with several urban fronts being developed concurrently and this will continue to create strong economic multipliers, supporting industrial land demand through employment growth and construction fuelled supply chain demand.

## **Market share and competitive advantage**

The establishment of major high-tech business parks and specialised precincts with linkages to mining and Asia should be encouraged as should a network of proper intermodal terminals that reduce road congestion and timing delays at the Port of Fremantle.

Movement of freight from road to rail or vice versa at locations in middle-to-outer metropolitan locations in proximity to regional highway routes will be important to ensure efficiencies are maximised and economic multipliers are fully harnessed.

Inter-modal precincts in themselves can become micro-economies driving freight and logistics, distribution centres & head-offices as well as other

supporting sectors. The development of the road/rail intermodal at Forrestfield should be just the beginning of this type of network.

The evolution of the global economy means major businesses now operate across the entire supply chain from value adding (direct distribution), to maintenance, to contracting (e.g. Toll, Linfox, TNT). This has implications for industrial land need such as large sites, access to a diverse worker base, transport networks and proximity to multiple markets. Accommodating more major national and global companies such as these will be possible with the right frameworks.

## Section 4: Market analysis

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This market assessment first considers the supply side of the equation with a focus on the estates that compete directly with the proposed Bullsbrook Freight and Industrial Area and then considers the factors and catalysts that can trigger the demand and investment.

### 4.1 Supply in competing estates

#### Muchea Industrial Park

Muchea is an employment node located at the intersection of the Brand Highway and Great Northern Highway, located approximately 20 km north of the proposed Bullsbrook Freight and Industrial Area. The District Structure Plan area comprises 1,113 ha of land, of which 343 is set aside for environmental purposes. Like the subject site in Bullsbrook, it is well positioned and has attractive strategic location attributes, including access to:

- Perth-to-Darwin National Highway
- Great Northern Highway
- Midland-Geraldton railway line providing access Fremantle Port and proposed outer harbour at Kwinana
- Agricultural areas
- A sustainable employment base.

Due to its locational attributes, it will provide benefits to businesses involved in transporting large equipment and other goods to locations in the State's Mid-West and North-West regions.

Modelling conducted in 2008 indicated that when fully completed, Muchea could provide approximately 1,000 jobs, likely driven by primary production, freight and logistics and local demand (as there was previously no industrial zoned land in the Shire of Chittering). The site already hosts the WA Meat Industry Association saleyards, and two poultry farms, and a relocation of Ingham's Sinagra operation by 2020.

Planning at Muchea is currently progressing with the first stage (Precinct 1) being zoned and a local structure plan in place. A Special Control Area applies to the structure plan area. Preliminary subdivision approval for the first 12 lots in Precinct 1 has been issued in 2018.

The Western Australian Planning Commission has recently endorsed an update to the Structure Plan to reflect changes in the planning environment since its initial release including the anticipated completion of NorthLink in 2019 and the relocation of the road train assembly area from Muchea to Wubin and to assist in co-ordinated infrastructure provision and land release.

#### Implications for Bullsbrook Freight and Industrial Area

The role of the Muchea Industrial Park is likely to be focused on primary production, logistics and freight operations and provide for regional demand. It can also provide a base to serve the agricultural needs of feedstock, fertiliser and seed for the Wheatbelt.

While Muchea will have an agricultural and food processing focus to drive demand, the Bullsbrook Freight and Industrial Area can focus on complementary industry including interstate freight, import processing and distribution centres for the North-West and North-East sub-regions.

With the Muchea land lacking essential services, the costs of bringing serviced land to market is likely to increase, which would place upward pressure on end prices. Furthermore, the proposed Bullsbrook intermodal terminal and proximity to the Perth CBD, Fremantle Port and other intermodal terminals in and south of Perth should differentiate the Bullsbrook location for potential tenants from what is available at the Muchea Industrial Park.

#### **Meridian Park, Neerabup**

Meridian Park in Neerabup provides an alternative location for prospective tenants and is fully serviced. With an ultimate development area of 540 hectares, it is expected to develop over a 30 to 50-year timeframe. It is within 4 km of the Mitchell Freeway (via Flynn Drive) and has been designed to accommodate Restricted Assess Vehicles (Category 4).

The estate has been on the market since 2008 and has sufficient stocks of land to meet the medium and some long-term demand.

Given that sales of these estates could continue for many years, the timeframes for these developments could potentially overlap with the proposed Bullsbrook Freight and Industrial Area.

Despite the location's transport access and proximity to the growth north-west urban corridor, it is not likely to become a major logistics hub. Instead it is ideally suited to provide construction-related goods and services which will be required as the Alkimos to Yanchep corridor grows over the next 25 years. The early provision of the METRONET passenger rail service to Yanchep with construction commencing in 2019 will provide a stimulus for urban development (as happened with the Perth to Mandurah rail opening up the South-West Sub-region following the Government's commitment in 2004).

#### Implications for Bullsbrook Freight and Industrial Park

While Meridian Park may attract some level of logistics and distribution investment to service the North-West Sub-Region, this location is not as attractive for full-scale development as is the Bullsbrook location (which can service two urban corridors as well as the Perth central area).

Instead, Meridian Park is likely to draw business that service the infrastructure, engineering and construction industry sectors.

#### **Latitude 32, Postans/Wattleup**

Latitude 32 is part of the Western Trade Coast and offers 1,400 ha of industrial land close to the potential new Outer Harbour development in Kwinana (the 'West Port' project) and is serviced by freight rail infrastructure. Therefore, Latitude 32 is the prime location to service many of the intermodal and freight needs of the Perth and Peel regions (and beyond).

The rapidly-developing urban areas within the South-West Sub-region mean there is an existing large workforce catchment for future employees.

Given the size of Latitude 32 and the substantial land supply, it will continue to develop over several decades and will overlap with the proposed timing of the Bullsbrook Freight and Industrial Area.

#### Implications for Bullsbrook Freight and Industrial Park

While Latitude 32 is a very large development and has major advantages for servicing the future Outer Harbour, to some degree development of the estate also depends on a commitment to West Port project.

The Bullsbrook Freight and Industrial Area is largely independent of the West Port project as it is readily serviced equally by either the existing Fremantle Inner Harbour or the proposed Outer Harbour (via the Midland – Geraldton rail).

#### **Stockyards Estate, Hazlemere**

The Stockyards Estate in Hazlemere has been very successful within a relatively short period of time. Key factors are:

- able to deliver large lots to the market with custom built facilities in a relatively short time
- proximity to major interstate and intrastate freight routes
- proximity to Perth Airport
- offered best-practice ESD initiatives and was flexible to tenant requirements.

The location attributes of the Stockyards estate also appealed to freight and logistics users due to proximity to Perth Airport and main arterial routes north and south, east and west.

#### Implications for Bullsbrook Freight and Industrial Park

The success of the Stockyards Estate provides a good signal for the proposed Bullsbrook Freight and Industrial Area as it shares several locational attributes. Given that the Stockyards is likely to be substantially developed by the time the Bullsbrook project comes on line the two estates are not likely to compete directly.

The proposed Hazelmere South Extension area as identified in the South-East Sub-regional Framework will provide an additional 50 hectares of industrial land, however, this is also likely to be taken up (based on the development rates of the Stockyards Estate) relatively quickly in the short term and therefore will not likely compete with the Bullsbrook development in the medium to longer terms.

### **Intermodal terminals**

The intermodal terminals at Kewdale and Forrestfield will increase capacity over time through technological improvements and increased automation. This will mean that while they may not have vacant land available for development by the time that the Bullsbrook project can be developed, they will still provide direct competition for intermodal freight handling.

#### Implications for Bullsbrook Freight and Industrial Park

Bullsbrook is likely to be able to compete on land price and large lot availability over Kewdale and Forrestfield into the longer term.

## **4.2 Demand drivers**

This section of the report assesses the more localised demand drivers that will influence the industrial land market across Perth. This section also identifies some of the broader competitive advantages of the Perth industrial land market and discusses methods and approaches that will potentially enable a greater market share of national and international major tenants for Perth.

### **Demand overview**

Demand for industrial land can typically be considered from two-perspectives:

- Long-term planning perspective
- Short to medium term commercial market perspective.

Strategic planning should consider likely longer-term trends and growth underpinned by assumptions that will allow allocation of land precincts of sufficient size in appropriate locations to accommodate future economic and

employment growth. At the same time, disruption from technology will have a role in changing the nature of industrial operations over the longer term.

One of the most important facets is ensuring that there is a sufficient 'buffer stock' of industrial land supply within the metropolitan area. That means supply-side pressures should not constrain the market and lead to an upwards ratchetting of land and rental prices. A buffer of 10-20 years of available land supply is typically considered to be appropriate however this supply must consider constraints, serviceability as well as location attributes.

Inevitably, demand for industrial land will ebb and flow according to broader macroeconomic conditions and at the microeconomic level it will be influenced by factors such as infrastructure delivery and housing growth. Demand growth will not consistently track at the same pace each year. There will always be cyclical economic, social and political factors that will influence the market in the short term. Over the longer term, periods of particularly high economic growth, can increase demand substantially (as happened with the recent resources boom).

Generally, demand for industrial land will be driven by several factors, primarily:

- Export & import driven economic growth (including mining)
- Domestic industrial production & construction
- Population & employment growth.

### **Economic growth**

Some of the key sectoral drivers for the Perth industrial land market have been discussed previously. Western Australia's economic growth is expected to reach 3.25 per cent in 2018-19 compared to the projections for Australia at 3.0 per cent. This is close to the long-term average growth and reflects WA's export links to the fast-growing economies Asian-Pacific region.

Understanding the likely future growth for WA provides an insight into the on-going requirement for industrial land required to achieve forecast levels.

Economic conditions are a key driver of population growth in Perth. This is primarily due to the employment prospects created in a strong economy, which attract additional permanent migrants – mainly from overseas. These are most often workers and their families, arriving as part of the skilled migration program.

### **Major mining projects**

Mining investment is expected to fuel demand for labour and create significant flow-on multiplier benefits for the Western Australian economy. There is significant capital expenditure in the mining sector within WA alone, with more than \$176 billion in capital expenditure in projects, including \$144.3 billion committed or under construction and \$31.8 billion under consideration. This equates to significant labour and capital needs.

Even under conservative assumptions there will be demand for more than 25,000 construction jobs and more than 4,000 operational jobs. The flow through impacts into other supporting sectors such as mining service, building & construction services, materials manufacturing will drive strong industrial demand within Perth over this timeframe.

### **Population growth**

Population growth and dwelling construction will be a key driver of industrial land demand given the synergies between construction and building services, distribution centres for retail operators and other local industrial service precincts.

Population growth increased demand for housing and goods, which stimulates local business and employment. This creates a self-reinforcing cycle of growth that is fundamental to the State's prosperity. The key population growth trends are:

- The population growth rate shows that Western Australia has been through the worst of the cycle and that the renewed employment opportunities in mining projects should help to stem the outflow of people to other states and territories.
- Note that the GFC interrupted the normal growth cycles and caused a spike in population growth in late 2008 and throughout 2009.

- Following the GFC-driven population growth spike in 2008-09, Western Australia had an even stronger population growth cycle in 2012 and 2013 because of employment demand from the resources boom. This high growth created consequential impacts for the housing sector gearing up to meet that demand. While the State's population growth rate has reduced significantly, positive net migration from overseas and natural increase are keeping the population growth rate at about the same level as the national average.
- Perth's population growth has remained stronger than regional Western Australia.
- Population growth reached its low point in 2017 and the consensus projections over the next few years all indicate a return to an annual population growth rate of around two per cent over the next five years

## Market indicators

The table below outlines the Perth industrial market indicators in 2012 and 2017. While rents, values and yields have fallen over the last five years there has been a shift in demand from the Perth East precinct to the North. As at October 2017, the North precinct leads both the prime and secondary markets in rents and the average land values for properties larger than 5,000m<sup>2</sup>.

**Table 12.** Perth industrial market indicators, 2012, 2017

Precinct	Avg. Prime rent	Avg. Secondary rent	Core market yields		Avg. Land values	
	\$/m <sup>2</sup> net	\$/m <sup>2</sup> net	Prime	Secondary	<5,000m <sup>2</sup> \$/m <sup>2</sup>	1 - 5 ha \$/m <sup>2</sup>
<b>As at October 2012</b>						
North	\$115	\$80	8.0 - 8.75	9.0 - 10.5	\$408	\$235
South	\$110	\$80	8.0 - 8.75	9.0 - 10.5	\$341	\$228
East	\$120	\$85	8.0 - 8.75	9.0 - 10.5	\$518	\$304
<b>As at October 2017</b>						
North	\$86	\$67	6.75 - 7.50	8.00 - 9.00	\$373**	\$213
South	\$81	\$62	6.75 - 7.50	8.00 - 9.00	\$284	\$227
East	\$88	\$66	6.75 - 7.50	8.00 - 9.00	\$363	\$258

\*average excludes Osborne Park values

\*\*includes premises which are either vacant or currently available for lease greater than 2,000m<sup>2</sup>

Source: Knight Frank

## **Market implications**

The success of the Stockyards Estate was its ability to provide large tracts of land and construct purpose-built facilities for likely tenants (including Coca Cola Amatil, Detroit Diesel and Toll Ipec).

In contrast, analysis of the industrial space on offer indicates that many of the current facilities on offer are either poorly-located, are too small, lack tenant requirements (e.g. power, hardstand areas) or have the wrong mix of office and warehouse space. These locations are likely to transition to other industry uses, better suited to high-value business activities.

With strong growth expected in the industrial sector over the medium-to-long term, the current supply pipeline is relatively low. Current estates at Nowergup, Nambelup and Latitude 32 will offer some larger parcels of land for development, however there will be long-term demand for such precincts and as such, larger parcels of land need to be identified and brought to market to meet the growing demands of the Perth industrial sector.

The majority of Perth's industrial land being offered to the market has been sub 5,000sqm in size. Historically land and facilities for sale indicated that facilities representing the 0-3,000sqm market segment were most highly represented, while facilities larger than of 5,000sqm were under-represented. The changing demand from industrial businesses in Perth is evidenced by tenant enquiry which indicates 5,000-10,000sqm facilities are most sought after, followed by >10,000sqm facilities.

The Perth industrial landscape transformed in the last decade with changes to tenant requirements and design. The Perth industrial market has become more sophisticated and mature and have resulted in new benchmark levels being reached across all market indicators including rental levels and land values. This has also meant that institutional developers are required to develop and finance buildings for long-term rentals.

The drive for greater efficiency through the application of technology to the supply chain process has created a need for larger and more efficient warehouses. This had been evidenced in Western Australia with companies

such as Coles, Woolworths, Linfox, Toll and Aldi all operating out of new facilities large facilities, with the largest of these approaching 80,000sqm in size.

### **Critical mass**

An important driver of activity is the concept of agglomeration. Businesses will seek to locate in proximity to markets and supply chains and often near other businesses operating within a similar sector. There are strong economic benefits associated with business agglomeration.

As Perth has grown rapidly, it has overcome many of the disadvantages of the geographic isolation from the eastern states. Perth has become increasingly more significant and important on a national scale. The mining boom, the burgeoning economic growth and strong relative wealth led to an ever-increasing presence of global and national businesses opening offices in Perth.

This has resulted in many new retailers entering the WA market including Aldi, Costco and new DFO investments, which have directly increased demand for distribution and logistics facilities.

### **Major infrastructure**

Perth has historically been a well-planned city, with an efficient infrastructure network including a road network that services the outer metropolitan areas. There are effective linkages to most of the major industrial precincts and as industrial land prices increase, there will be a further push outwards for cheaper, larger lot industrial land connected to major highways. Aside from Kewdale and Forrestfield, only Latitude 32 will provide a quality intermodal infrastructure within Perth of sufficient scale to meet the demand of Perth's growth.

**Table 13.** Major infrastructure

Infrastructure	Description
Road networks	Major highway networks include the Kwinana Freeway, Perth-Bunbury Highway, Tonkin Highway and Albany Highway which are key access routes south. While the Mitchell Freeway, Grand Highway and Great Northern Highway are key access routes North. The Canning Highway & Stirling Highways provide connections to the port.
Rail networks	The Kewdale Primary Freight Hub forms the major freight distribution point in the metropolitan area for interstate and regional freight receipt and metropolitan freight distribution. The rail network is most important distribution network for freight movements through Fremantle and connections to inter-modal hubs such as Mundijong and enhancement of existing hubs needs to occur to facilitate significant economic multipliers.
Perth airport	Perth Airport is centrally located less than 10km to the east of the CBD and 30km from the subject site.
Sea ports	<p><b>Fremantle Port</b> Located about 15-20km from the Perth CBD. Accounts for 71% of state imports &amp; about 15% of state export trade.</p> <p><b>Kwinana Port</b> Located about 35-40km south of the Perth CBD and provides a secondary hub for movement of sea-freight. The development of an outer harbour at Kwinana is under consideration.</p>

Source: Department of Planning, Lands and Heritage

There are significant investments in infrastructure underway or planned in the short to medium term. These will both enhance the functionality of the existing network while also allowing greater capacity of movement. They should also influence the desirability of various industrial locations across Perth. Some of these key investments are summarised in the following table.

**Table 14.** Major transport and freight infrastructure investments

Infrastructure	Value	Status	Commencement	Completion
Kwinana Freeway (4 projects)	\$368 million	Construction about to commence	2018	2020
Perth to Darwin Highway	\$196 million	Under construction	2016	2019
Wanneroo Road	\$146 million	Construction about to commence	2018	2020
Other road infrastructure (6 projects)	\$449 million	Under construction	2018	~2020
Airport Rail Link	\$1.9 billion	Under construction	2017	2020
Other rail (METRONET Stage 1) projects	\$1.05 billion	Committed and possible	2017	TBA

Source: Department of Infrastructure, Regional Development and Cities (2018)

## **Demand segments**

MacroPlan has analysed the different drivers that will influence industrial land demand based upon the requirements of businesses. Some case study examples are provided in **Appendix 1** to highlight these concepts in various cities across Australia.

This section provides an evaluation framework that would be suitable in understanding optimal tenancies and composition within industrial precincts, or for identifying premium locations. There are several key drivers that will influence the segmentation of the industrial land market within Perth and Peel.

## **Geographic drivers**

Location or geographic drivers are fundamental to the success of industrial land precincts and must be matched to appropriate pricing and tenancy types. Considerations and requirements influencing the desirability of various precincts include:

- Regional versus metropolitan
- Distance to CBD and ports
- Access to employment/labour and markets
- Land topography & environmental constraints

## **Business drivers**

Demand for industrial land is heterogenous due to the diverse types of industrial land owners, investors and users that exist within the market, including major institutional players, developers/builders, smaller private investors and owner-occupiers.

Major investors will seek to manage industrial estates, ensuring the tenancy mix and structure is maintained and suitable to create a fully-functional precinct. Motivation will be secure rental returns and potential capital growth of the asset.

Developers and builders may look for larger tracts of lands and seek to subdivide into smaller lots for sale. Developers and builders would be motivated by potential profit through DA success or the build phase.

Owner-occupiers will typically be looking for premises that are fit-for-purpose or for the appropriate land parcel size on which to construct a purpose-built building.

Businesses also have differing requirements depending upon the industry sector in which they operate, the size and type of the market in which they operate (e.g. domestic/international), and the phase in the life-cycle of the business itself. Some of the key requirements of businesses are shown in the following table.

**Table 15.** Lot size, freight and location requirements by tenant type

Infra-structure	Size	Features	Freight needs	Examples	Locational criteria
<b>Multi-nationals</b>	5 hectares + (up to 20 hectares or more in some cases) At least 25,000 sqm footprint	Branded sites with high amenity, landscaping etc Anchor tenants	International/ national trading	Ford, GM etc	<ul style="list-style-type: none"> <li>● Gateway location</li> <li>● Good access</li> </ul>
<b>National companies</b>	2 to 5 hectares	Industrial Park located on primary road	Access to national routes but not necessarily ports	Woolworths, Coles, FAL, Aldi	<ul style="list-style-type: none"> <li>● Good access</li> <li>● Labour force</li> </ul>
<b>Service/support industries</b>	Up to 1-2 hectares	Clustered around each other with low amenity and minimal office space	Limited	Small engineering component support firms i.e. machinist, panel beaters	<ul style="list-style-type: none"> <li>● Access to suitable land size</li> <li>● Access to arterial roads</li> </ul>
<b>Local service / local businesses</b>	1,000 to 5,000 sqm sites with offices / warehouse storage component. (up to 30 ha in extent)	Often high amenity in new business parks with office at front of premises and storage at rear. Office and warehouse parks.  Restricted retail, some recreation and entertainment	Limited	Flexible - printing supplies / import export of technology parts. Car repairs, building supplies and products.  Business Parks	<ul style="list-style-type: none"> <li>● Land as an asset</li> <li>● Affordable land</li> <li>● Do not require extensive fit out</li> <li>● Accept lower amenity if rent is low.</li> <li>● Efficient links to key suppliers</li> </ul>
<b>Head office companies/ technology firms</b>	1,000 to 5,000 sqm primarily office configuration	High quality office space with landscape gardens. Often co-located with other firms in campus style buildings	Primary or secondary arterials with access to freeway	Head offices of multinational or national firms with or without operations at other sites  Example: BMW Australia, Sigma Pharmaceuticals, BASF	<ul style="list-style-type: none"> <li>● High amenity sites with significant exposure/signage opportunities</li> <li>● Suitably skilled labour pool catchment</li> </ul>
<b>Bulky goods/showroom</b>	500 sqm up to 2 hectares	Various showroom sizes with carparking on major metropolitan roads	Limited	Harvey Norman JB Hi Fi	<ul style="list-style-type: none"> <li>● Good access and visibility</li> <li>● Clustering of uses</li> <li>● Labour pool catchment area</li> </ul>

Source: MacroPlan Dimasi (2018)

**Table 16.** Lot size, freight and location requirements by tenant type (continuation)

Infra-structure	Size	Features	Freight needs	Examples	Locational criteria
<b>Manu-facturing</b>	Size is varied. Around 1 hectare for small component assembly up to 10 hectares + for larger firms	Manufacturing plants often co-located with office for security / design purposes i.e. Ford Australia	Access to freeways important	National or multinational firms, motor vehicles, building parts, food processing	<ul style="list-style-type: none"> <li>● Buffer zone from residential</li> <li>● Need large labour pool catchment area</li> <li>● Direct access to motorways and main arterials, ports and airport</li> <li>● Location of accessible public transport network to grow and accommodate large vehicles</li> </ul>
<b>Business Parks</b>	Approximately 80 hectares	Campus style environment with high amenity	Limited	Accommodated technology-based firms integrating research, distribution, administration, sales, etc  Example: Macquarie Park or Norwest	<ul style="list-style-type: none"> <li>● Sizable catchments containing knowledge-based skills</li> <li>● Proximity to research, innovative firms</li> <li>● Good amenity</li> <li>● Outstanding transport and communication infrastructure</li> <li>● Premium employment lands</li> <li>● Co-locate business and administration</li> <li>● Ample onsite parking</li> <li>● Purpose designed building for long term tenancy</li> </ul>
<b>Freight and logistics</b>	Between 1 and 10 hectares	Inter-modal facilities i.e. flexible access to rail/roads	International and national trading  Good access	Freight and logistics companies  Example: Enfield in Sydney	<ul style="list-style-type: none"> <li>● Good access to motorways, port, rail and airport</li> <li>● Service large markets</li> <li>● Centrally located</li> <li>● Affordable prices</li> <li>● Buffer zones from residential</li> <li>● Space to grow and accommodate large vehicles</li> </ul>

Source: MacroPlan Dimasi (2018)

### 4.3 Case studies: Market segment opportunities

This section of the report provides a summary of case study examples of best practice industrial/employment land developments across Australia, with a focus upon the 'missing links' in Perth's industrial land market. The examples selected are summarised in the following table and the full details are provide in **Appendix 1**.

The most significant factor is that interstate markets have a greater level of institutional investment from large property trusts and investors (such as ISPT, GPT, Dexus, Stockland, Walker, Frasers Property Australia, Goodman). These institutions, with significant amounts of land banking, can help to alleviate the pressure on the industrial market and to private major facilities on long-term leases.

The lack of institutional developers is important because on the eastern seaboard a significant percentage of industrial projects are financed and built by developers based on long leases with custom building and site specifications. This provides an opportunity for the subject site to attract institutional developers to secure long-term leases.

In WA, LandCorp (or the Industrial Land Authority) has traditionally filled in that market gap, although, being a single organisation, it does not have the resources to provide the same level of active investment in each estate.

In summary, there is currently a lack of provision for industrial land supply to cater for:

- Freight and distribution hubs
- Major corporate tenants
- Large land users, national and multinational tenants
- Business parks
- Clustering of users
- Sites with critical mass to attract institutional investment
- Large built form product available for lease.

**Table 17.** Case study examples

Type	Precinct name	Precinct location (city)	Precinct age	Size	Lot size range	Predominant industries/uses	Examples	Ancillary/supporting uses	Examples	Infra-structure characteristics	Planning controls	Other key features
<b>Corporate tenants</b>	Metroplex on Gateway	Brisbane	18 years	62 hectares	2,500 sqm - 20,000 sqm	General industry, light industry, and commercial uses	Austral Foods, Armaguard, Fisher & Paykel Australia, Johnson & Johnson, LG Electronics, Phillip Morris, Phillips Australia, Toshiba, Yokogawa Australia Pty Ltd and Adidas Australia	Retail uses	ABC Childcare Centre, Michael Hill Jeweller, Mobilecare, Master Engraving and Zac's Place (café/restaurant)	The site enjoys immediate access to the Gateway Bridge and major arterial road systems that serve south-east Queensland	Zoned General Industry Area under the Brisbane City Plan 2000, shops and offices are limited to a maximum floor space of 250sqm and must satisfy the provisions of the Centre Design Code, before being referred to Council	Metroplex is comprised of a mix of business and industrial uses that are integrated into each precinct, rather than separated by land use classification. Land was released in four stages and development of business, industrial and supportive land uses have been encouraged
<b>Major freight/distribution hub</b>	Industry Park - Dandenong	Melbourne	10 years	120 hectares	2,300 sqm - 45,000 sqm	Manufacturing industries	Bunnings distribution, Onesteel, New Wave Logistics, NP Distribution	Convenience shops and ancillary offices	Arco café	Excellent road access and located in proximity to Westernport and the Port of Hastings, one of the four major commercial ports in Victoria	M1 Industry Park is in a Business Zone 3 and M2 Industry Parks is in an Industrial Zone 1, within the Greater Dandenong planning scheme	Zoning encourages integrated development
<b>Major business park</b>	Norwest Business Park - Bella Vista	Western Sydney	18 years	Norwest comprises 377 hectares including 221 hectares of business park, 35 hectares of lakes and parkland and 122 hectares of executive residential estates.	NA	Industrial, commercial and residential	IBM, ResMed, BASF, C&W Optus, Sigma Pharmaceuticals, Wyeth Australia, Schneider Electrics and Woolworths Limited	Retail, local services	Coles supermarket, retail, and local services	Direct access to the M2 and M7 motorways, as well as bus services	Zoned Employment Area 10(a) (Business Park) - A central precinct within the estate is zoned Business 3(a) (Retail)	Facilities and services available to tenants include a Crown Plaza Hotel, a neighbourhood shopping centre including a Coles supermarket, 35 speciality stores, food court, medical, banking, childcare and post office services as well as two petrol stations.

Type	Precinct name	Precinct location (city)	Precinct age	Size	Lot size range	Predominant industries/uses	Examples	Ancillary/supporting uses	Examples	Infra-structure characteristics	Planning controls	Other key features
<b>Major land bank</b>	Swanbank Enterprise Park	Ipswich, Queensland	Development Approval Dec 2007	Total site of 2,200 hectares - 300 hectares prime Industrial and 1,400 hectares buffer and green space	5+ hectares	Targeting difficult-to-locate industries, located around existing Swanbank Powerplant	Boulder Steel/APST, Swanbank Poweplant, Swanbank Papermill, part of QLD Government Western Corridor Water Recycling system.	NA	NA	Located adjacent to the Cunningham Highway. Construction of South West Transport Corridor which will run along site's southern boundary. Co-location with regional electricity generation capacity. Trade waste management, gas, electricity, recycled water and fresh water already on tap	Master Planned Development under Ipswich City Council Planning Scheme. Recognised Industrial land precinct under SEQ Regional Plan as part of Western Corridor	Larger buffer, green space. Located in Western Corridor and rapid population growth areas (Springfield, Ripley Valley, Ipswich etc). To create 14,000 jobs
<b>Major freight/distribution hub</b>	Eastern Creek, Penrith	Penrith, Sydney	2000	Currently contains 1,500 hectares of industrial land with additional 1,000 hectares of employment land	Stage 3 serviced industrial land ranging from 6,086 sqm to 21,390 sqm	Industrial, commercial, distribution centre	Woolworths Liquor Distribution Centre, Kimberley-Clark Distribution Centre, CSR Warehouse and Distribution Centre			Direct access to the M4 and M7 motorways. Erskine Park Link Road under construction	This incorporate the State Environmental Planning Policy 59 (SEPP 59) employment lands, including Eastern Creek, Huntingwood, the Raceway and Greystanes precincts	The Planning Minister will be able to stage the future development in line with infrastructure provisions
<b>Clustering</b>	Australia Trade Coast	Brisbane	20 years	8,000 hectares	NA	Aviation & aerospace, building & construction, business services, food manufacturing, innovative manufacturing, retail, shipping & marine, transport & logistics	Qantas, Virgin Blue, Sunstate Cement, Raptis, Sandvik, DFO, DP World, Swire Cold Storage, NQX	Retail and local services	Direct Factory Outlet, Airport Village (including Woolworths Supermarket), Portside Wharf, Port of Brisbane Visitor Centre, Metroplex on Gateway services & facilities, Colmslie Hotel, child care centre	33 International & domestic airlines service Brisbane Airport, Airtrain is currently being constructed, The Brisbane Multimodal Terminal, The Port of Brisbane, Gateway Motorway, Airport Flyover.	Zoned Mixed use, light industry, general industry, heavy industry under Brisbane City Council	Australia Trade Coast Limited is a partnership between Queensland Government, Brisbane City Council - Brisbane Marketing, Brisbane Airport Corporation and Port of Brisbane Pty Ltd who work together to promote and develop the region as a premier location for trade and industry

Source: MacroPlan Dimasi (2018)

## 4.4 Critical success factors

From the market analysis and case studies, MacroPlan has identified nine key success factors that underpin successful, sustainable industrial precinct development. MacroPlan has also identified the opportunity that this creates for the proposed estate at Bullsbrook.

### 1. Strategic location in high growth area

The area needs to be accessible to port and airport facilities, regionally significant road infrastructure, major economic growth areas and major population growth areas.

**Opportunity:** The proposed Bullsbrook Freight and Industrial Area is well-located to benefit from the proposed growth in and around the surrounding urban expansion areas. The uses proposed at the site would complement the existing worker profile while also providing further employment and amenity opportunities. The addition of standard gauge rail access (in addition to the existing narrow gauge) would be ideal.

### 2. Access to enabling and supporting infrastructure

The project requires excellent road access for large vehicles (B-double at least) to support freight activity such as B-double turning, trailer parking, staff and visitor parking. Depending on the project it is also beneficial to have access to rail and sea ports and infrastructure. Access by bus (public transport) is important for workers, particularly for relatively remote locations.

**Opportunity:** The subject site is in proximity to a major arterial road route to the north of the state and well-located for the future Perth-to-Darwin National Highway. It has access to the rail network which makes it an ideal candidate to facilitate the changing landscape of the industrial market and cater for freight and logistics and heavy haulage vehicles. Sites east of Perth are also highly desirable for logistics companies due to easy access to the Fremantle port via major arterial roads.

The lack of water and sewer connections is a financial and timing constraint in the short to medium term and will require an integrated response that can also cater for the proposed urban expansion of Ellenbrook North and Bullsbrook South.

Access to gas infrastructure from the Dampier to Bunbury LNG pipeline offers an excellent opportunity for energy intensive uses and manufacturing.

### **3. Large parcels under consolidated ownership**

During development, consolidated ownership allows for a coordinated development strategy to be employed. It also allows for a mix of lot sizes and flexibility in composition. It also allows for easy management and administration of issues. It provides certainty for tenants and investors in relation to development outcomes.

**Opportunity:** This is a key driver in having a successful estate, it minimises the consensus required to get things done and ensures product delivery. Tenants are more likely to commit to an estate if they can be guaranteed of delivery and timing. Any issues that may comprise the final delivery of lots or titles (i.e. such as multiple ownership) reduces the ability to attract tenants.

### **4. Environmental approvals and credentials**

Several of the most successful international industrial estates have ISO 14001 these include the Byron Bay Industrial Estate (Australia), Plaine de l'Ain industrial park (France) as well as 8 TECOM Business Parks in Dubai. Corporate tenants and investors require a high level of Environmentally Sustainable Design (ESD) initiatives as evidenced by the success and tenant profile attracted to the Stockyards Industrial Estate.

ESD initiatives implemented at the Stockyards Estate were warehouse air conditioning, wash down bays, heavy duty cranes, a state of the art multi-

purpose product test centre, rain water tanks for re-use in the amenities, warehouse insulation, and sun-louvers.

**Opportunity:** The subject site only has manageable environmental issues and as such will reduce the time in which the finished lots can be brought to market, increasing appeal to tenants. There is also an opportunity to implement best practice ESD initiatives. This adds to the appeal of the estate and its ability to attract multinationals that have a growing awareness of their carbon footprint and social corporate responsibility.

## **5. Lot size mix**

The lots sizes should reflect the industries being targeted and the natural competitive advantages of the precinct. Amalgamation of lots should also be an option for prospective tenants, this allows for flexibility and adaptability to the changing needs and requirements of tenants in a market that is dynamic.

**Opportunity:** There are several market gaps in Perth's industrial market and larger lots are underrepresented. The subject site would be best positioned in this instance to have flexible lot sizes and be dictated by market forces and end user requirements.

## **6. Exposure, marketing & branding**

This helps build the branding and reputation of the industrial area, information included should be relevant to lot size, infrastructure available and the management details. An effective entry statement adds to the overall appeal of the estate and helps create a "sense of place".

**Opportunity:** With the large very development area and long-term development, there is an opportunity build a recognisable brand for the project to market the estate(s).

## **7. Anchor tenancy**

Attracting anchor tenants creates the reputation and awareness of the area, decreases perceived risk, entices other tenants and assists in creating critical mass. Furthermore, if the industrial estate wishes to specialise or focus on industry sectors, the anchor tenant can be critical.

**Opportunity:** Two target anchors would be those involved in freight and logistics and heavy haulage. There is an opportunity to attract a major tenant due to being able to offer land at an affordable price and a development that is flexible to their requirements. Alternatively, a purpose-built facility leased to a major anchor is also a possibility and will help define the concept for the estate.

## **8. Non-industrial land uses to provide worker amenity**

Industrial developments should contain dedicated lots for retail and commercial uses, depending on the size of the industrial area and location as to the feasibility of the level of this retail (e.g. food, fast food, pubs etc.). As a minimum the area should contain a deli and ATM, for larger areas other possibilities include newsagent, chemist, petrol station, crèche etc.

The area should also include bulky goods and supporting non-industrial land uses, these are support services but also operate as commercial businesses which improve worker amenity and underpin white collar co-location.

**Opportunity:** The subject site can evolve over time at which point it can adapt to the requirements of the broader catchment. This flexibility will enable the estate to incorporate as much or as little non-industrial uses as required.

## 4.5 SWOT assessment

### Strengths

Perth's primary competitive advantage is its economic growth driven by the mining sector and connectivity with Asian markets. This bodes well for businesses and supports the agglomeration of resource related companies.

Perth, while isolated from the rest of Australia has strong international connectivity, with economic links to Asia. From a trade perspective, these connections are more efficient than the eastern states due to time zone and transport costs. This global connectivity should not be underestimated over the next 50 years as WA continues to source labour from these locations to service mining related growth.

The implications are that Perth can accommodate businesses and absorb investment from overseas potentially more effectively than the eastern states.

The Bullsbrook Freight and Industrial Area provides an opportunity to help service this export growth building an efficient, high-technology intermodal facility without the issues of interrupting existing operational facilities.

The very large area for development could deliver a long-term solution to meet the needs of WA's growing economy while providing land supply and keeping prices contained to facilitate economic development (ie. allowing companies to invest in their businesses, rather than paying high prices for land or rent).

### Weaknesses

The Bullsbrook Freight and Industrial Area has several existing weaknesses that will need to be resolved before any significant development can be undertaken:

- Lack of infrastructure: The Bullsbrook Freight and Industrial Area is currently quite constrained through a lack of infrastructure including: no standard gauge rail (only narrow gauge); poor east-west road connectivity (through to the North-West Sub-region); lack of reticulated sewer and remote from any trunk main; lack of water supply; lack of local power supply.

- Environmental issues: This includes things such as high water table, environmentally-sensitive areas, flora and fauna.
- Long approvals process: Approvals process is long and complicated (i.e. lot creation) which again increases the cost and delays the delivery of land.

## **Opportunities**

With opportunities in the traditional areas of Kewdale and Welshpool diminishing, the subject site is ideally located to become the next freight and logistics hub. With proximity to rail and airport facilities, the subject site can service activity in the north-west to areas such as Geraldton and the Pilbara. The site also possesses all the requirements of an intermodal freight terminal, further enhancing its appeal to the freight and logistics sector.

### **Transport-driven opportunities**

The Bullsbrook location is well-suited to build on major transport-related opportunities such as:

1. Heavy haulage and ancillary uses
2. Freight and logistics
3. Transport related services (i.e. mechanical workshops)
4. Agriculture (movement of produce, ancillary/supporting services)
5. Mining related industries (i.e. warehouses for product testing).

#### **1. Heavy haulage and ancillary uses**

Cargo and heavy haulage relates to the transportation of heavy equipment, such as:

- Mining machinery and associated equipment
- Earthmoving machinery
- Farming machinery
- Heavy industrial components, etc.

These types of tenants require wider roads and dual road access to enable easy flow through for traffic. The types of vehicles that will need to be catered for include B-doubles, B-Triples and Quads. A facility that can

allow these vehicles to turn and move around easily saves time and hence improves their overall efficiency.

## **2. Freight and logistics**

Freight and logistics relates to the transportation and storage of goods such as:

- Food and food products
- Furniture
- White goods
- Electronics

Typically, these tenants require large warehouses, in excess of 20,000sqm with additional space for large hardstand and lay down areas. They require wide roads and easily accessible entry and exit points, vehicles most common with this end user are B-doubles.

## **3. Transport-related services**

These types of tenants are the support services required for the freight and logistics sector. The types of tenants include mechanical workshops, for the repair and maintenance of vehicles, storage users such those that make and distribute pallets for easy movement of goods and specific parts distributors for larger vehicles. While these tenants may require larger workshops, some of the ancillary users may only need smaller lots.

## **4. Agriculture/rural**

This relates to any business or tenant related to agriculture. This would include things such as:

- Farming equipment
- Equipment repair and maintenance
- Fertilizer production, storage and distribution
- Storage of produce (i.e. large freezer warehouses).

These tenants depending on their part of agriculture will require various in terms of land and warehousing and as such flexibility in the estate would be required to attract this segment. The inclusion of this industry reflects

the City of Swan's role as a major producer of grapes and strawberries in WA; supplying 46.4 per cent of WA's grapes (not including those used for wine and table) (\$8.3 million) and 34.5 per cent of WA's strawberries (\$14.7 million)

### **5. Mining related industries**

Its connectivity to mining projects in the Pilbara could also make the area become a testing ground for mining equipment. This is one particular sector of the industry that has been active throughout the downturn with oil and gas companies requiring purpose-built facilities to test equipment before they reach the mine site. Requirements from such tenants vary and as such flexibility in the estate for various lot sizes would be ideal for such tenants.

These potential tenants have varying requirements; however, the majority will require lots larger than 2ha, a segment of the market which is currently undersupplied. In addition to this the vehicles associated with them are extremely large and as such supporting infrastructure for such vehicles to add ease and efficiency to businesses will be required to appeal to these types of tenants.

### **Cost advantages**

The changing industrial environment has forced tenants to look at ways of creating a competitive advantage. One way which this can be done is by reducing fixed costs, particularly those related to occupancy of land and buildings. With the established industrial areas nearing full build-out, land prices have increased.

During the last mining boom, industrial activity was constrained due to shortage in land supply which forced land prices higher. Industrial production is a good indicator of economic growth and as such constraining the industrial market leads to constraining the growth of the State. To promote industrial activity, affordable land needs to be made available to meet those peak investment cycles. This is a key competitive advantage of an industrial estate at Bullsbrook.

The proposed Bullsbrook Freight and Industrial Area can serve three key roles:

1. Provide industrial land at an affordable level
2. Provide much needed supply and hence competition to the industrial market assisting in keeping the general cost of land at more affordable levels
3. Creating employment opportunities to promote population growth.

MacroPlan concludes that an industrial estate at the subject site would benefit the State and provide much needed industrial land to the Perth market that will create employment opportunities and encourage economic growth.

## **Threats**

The threats that may hamper the development of the Bullsbrook Freight and Industrial Area include:

### **Lack of funding to resolve the infrastructure constraints**

The Bullsbrook Freight and Industrial Area is not required to meet any short-term demand or meet any current pressures. That also means there is little to no urgency to resolve the infrastructure constraints associated with its development. There is a threat that this may delay investment for too long and that the necessary catalytic infrastructure may not be developed in time to meet the next demand cycle.

### **Global economic and geopolitical conditions**

Western Australia's economy is fundamentally linked to international global conditions (commodity demand/prices, exchange rates, international investment). Arguably these international links are more relevant to the State than the national economic conditions (hence why WA has very different economic cycles to the other states – the 'two-speed' economy).

Any prolonged global recession would therefore affect WA, potentially more so than other states. This may lead a prolonged downturn in investment in the State and a lack of demand for industrial land.

**Technological change**

Changes in technology are disrupting several sectors including agriculture, manufacturing, retailing and finance. If these disruptions also have an impact on sectors such as freight and logistics (through driverless trucks and automated container terminals). This may mean that existing intermodal facilities can become far more productive with the introduction of new technology and that Bullsbrook may not be required to meet demand except in the very long term.

**Protracted development**

Not achieving a critical mass relatively quickly could mean the Bullsbrook Freight and Industrial Area struggles to attract sufficient private investment to function as a successful estate or that any investment by the State is not recovered within a reasonable payback period.

## Section 5: Jobs balance sheet

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The potential uses identified for the proposed development provides significant opportunities for local employment and industrial activities to support the Bullsbrook area. These employment opportunities can be classified as:

- Direct employment generation: The initial jobs directly created by the proposed construction/development phase and other expenditure flows.
- Indirect employment generation: Additional ongoing jobs indirectly created by the proposed development.

MacroPlan has calculated the long term supported employment expected at the development once the construction phase has completed. Long term supported employment has been calculated from a review of the likely employment land mix at the subject site to the following benchmarks (following table) established from MacroPlan's experience in the industrial land market.

**Table 18.** Job densities by industry

Industry	Jobs /hectare
Manufacturing	33-40
Construction	33-50
Wholesale trade	20
Transport & storage	20
Support services	18

Source: MacroPlan Dimasi (2018)

Based on the above schedule and the employment land mix identified an average density of 30 jobs per net developable hectare is likely to be achieved at the proposed development. The estimated 1,395 ha of developable land which could be developed (after conservation/buffer areas and land for infrastructure are removed), suggests that the proposed development is likely to generate employment for approximately 41,850 people once fully-developed. The following table outlines the jobs generated in each stage of the development.

**Table 19.** Job generation – Bullsbrook Freight and Industrial Area

	<b>Developable land (ha)</b>	<b>Direct employment</b>
Short term	270	8,100
Medium term	450	13,500
Long term	675	20,250
<b>Total</b>	<b>1,395</b>	<b>41,850</b>

Source: MacroPlan Dimasi (2018)

The size of the potential workforce created supports the notion of strong population growth in the area, as population is driven by employment. MacroPlan believes that to achieve the population growth required to sustain strong economic growth in Western Australia, there needs to be employment opportunities created in growth areas. Therefore, an industrial estate at Bullsbrook will help achieve both population targets and strong levels of economic growth.

## Section 6: Development and scenario analysis

### 6.1 Base case development

Given the early stage of the investigations this section makes broad assumptions on the development potential of the Bullsbrook Freight and Industrial Area as an 'order of magnitude' estimate. At this scale, MacroPlan has assumed that around 1,395 ha could be developable of the total of 2,650 ha (around 53 per cent of the gross area).

**Table 20.** Assumed development potential (untested)

Bullsbrook Freight and Industrial Area	Area		Comment
	Gross (ha)	Estimated net developable (ha)	
Bullsbrook South Extension A	300	210	Assumed 70% developable based on existing zoning and road connections.
Bullsbrook South Extension B	100	60	Assumed 60% developable based on zoning of adjacent sites.
North Ellenbrook (Industrial Expansion)	900	450	Assumed 50% developable based on potential environmental constraints (including high water table), infrastructure requirements.
North Ellenbrook Investigation	1,350	675	Assumed 50% developable based on potential environmental constraints (including high water table), infrastructure requirements.
<b>Total</b>	<b>2,650</b>	<b>1,395</b>	

Source: MacroPlan Dimasi

The long-term average take-up rate for major industrial estates in Perth has been around 10 ha per annum, although this is subject to wide variation.

The North-East Sub-regional Planning Framework indicates that demand for industrial land in the sub-region is expected to grow to 2,810ha by 2050. The most comprehensive recently-produced estimate of supply is the Economic and Employment Lands Strategy which indicated a supply of 1,458ha in 2011. This indicates an additional 1,352ha and an average take up rate of 34.7 ha per annum to 2050.

This land take-up will be distributed across several existing industrial areas in the sub-region (including Malaga, Forrestfield, Hazelmere, Hazelmere South, Midland, Midvale, Welshpool East, South Guildford, Mundaring, and Bullsbrook Townsite North – in addition to the proposed new Bullsbrook Freight and Industrial Area.

MacroPlan’s base case for this assessment has assumed that there would be two logical development fronts:

- Bullsbrook South Extension A (incorporating the Bullsbrook Northern Gateway Industrial Park) develops primarily has a freight and logistics hub with some associated supporting industry (truck maintenance).
- North Ellenbrook (Industrial Expansion) develops to provide light/general industrial, service commercial and some large format retail to service the Ellenbrook and Bullsbrook urban areas.

On this basis, at peak development, the overall take-up would be around 20 ha per annum which is nearly 60 per cent of the total demand in the North-East Sub-region (approximately 34.7 ha per annum). Over the longer period however, this is likely to average around 12 to 15 ha per annum. At these rates, the Bullsbrook Freight and Industrial Area could meet future demand for around 95 to 115 years. Given these timeframes, some parts of the Bullsbrook Freight and Industrial Area will be undergoing redevelopment and intensification, while other parts are still yet to be developed.

The following table outlines the Bullsbrook Freight and Industrial Area future supply by estimated release term.

**Table 21.** Bullsbrook Freight and Industrial Area

Industrial estates	Estimated net developable area (ha)	Estimated number of years’ supply	Development timeframe	Comments
Bullsbrook South Extension A	210	21	2020-2040	Zoned an on the market (Northern Gateway Industrial Park). Has a DCP in place for infrastructure, but businesses that have low requirements for water/sewer services can locate there prior to trunk services being available.
Bullsbrook South Extension B	60	6	2030-2050	This will essentially be an extension of the ‘A’ precinct and the timing will be dictated by take-up of that area.
North Ellenbrook	450	45	2030-2075	Growth staging will be tied to urban expansion (Ellenbrook) largely due to the need for major infrastructure extensions that can service both the urban and the industrial needs.
North Ellenbrook Extension	675	67.5	2050-2100+	Intermodal terminal will dictate development timeframe. Existing rural uses should be retained and protected in the meantime.
<b>Total</b>	<b>1,395</b>	<b>139.5</b>	<b>2020-2100+</b>	

Source: MacroPlan Dimasi

The following table indicates how each of the areas may develop. Given the timeframes involved, these uses are indicative and based on differentiating the uses in each of the precincts while also taking advantage of their specific locational and infrastructure advantages.

**Table 22.** Bullsbrook Freight and Industrial Area land use and release schedule

Precincts	Initial land development and uses	Growth phase development and uses (in addition to initial uses)	Mature development/uses (in addition)
<b>Bullsbrook South Extension A &amp; B</b>	Freight and logistics - road Value-added industry (packaging, processing)	Potential for intermodal facility (small scale)	Enterprise / business park including technology and training precinct
<b>North Ellenbrook</b>	Small-scale service commercial and light industry	General industry	Business/office park
<b>North Ellenbrook Extension</b>	Mining industry autonomous vehicle 'test-bed'	Logistics- road freight and warehousing	Freight and logistics- rail intermodal with full customs and quarantine services

Source: MacroPlan Dimasi 2018

The industrial requirements will drive demand in line with other industrial areas, for this assessment MacroPlan considers Kewdale to be a potential representation of the types of major uses that could evolve in the Bullsbrook Freight and Industrial Area. The following table illustrates the proportion of each land use (by floorspace) at Kewdale as at 2015, and the potential distribution (in developable hectares). Note that as floorspace and land area are not proportional across all uses, this provides *indicative* estimates.

**Table 23.** Industrial land distribution, Bullsbrook Freight and Industrial Area – indicative land use based on WAPC Planning Land Use Codes

Planning Land Use Categories (PLUC)	Kewdale	Bullsbrook Freight and Industrial Area (ha)
Entertainment/Recreation/Culture	0.0%	0.0
Health/Welfare/Community Services	0.2%	2.8
Manufacturing/Processing/Fabrication	12.0%	167.2
Office/Business	15.8%	220.2
Primary/Rural	0.0%	0.0
Residential	0.0%	0.0
Other Retail	3.5%	48.8
Service Industry	6.2%	86.4
Shop/Retail	2.4%	33.4
Storage/Distribution	51.5%	717.7
Utilities/Communications	8.5%	118.5
<b>Total</b>	<b>100.0%</b>	<b>1,395</b>

Source: Department of Planning, Lands and Heritage- Land Use and Employment Survey 2015-17, MacroPlan Dimasi 2018

## 6.2 Development staging

The attractiveness of the Bullsbrook Freight and Industrial Area has increased and moved closer to reality, in part due to the State and new Federal Government delivery of NorthLink (as part of the Perth-to-Darwin National Highway). This has provided a significant benefit by increasing the accessibility of the site to and from the Perth metropolitan region.

The staging of the development is dependent on a comprehensive funding strategy to supplement the strategic planning assessments.

The initial stages of the project would target tenants involved in transport and logistics, heavy haulage – essentially tenants that do not require trunk water or sewerage connections and that need large areas of affordable land for primarily hard-stand uses. Along with this are opportunities for related services, such as mechanical workshops and spare part distributors to cater for the repair and maintenance of the vehicles associated with heavy haulage and logistics.

The number and size of freight and logistics tenants that are attracted to the area will then dictate the timing of the second stage of the development which is to develop an intermodal facility to optimise the available rail and road infrastructure. This could facilitate the manufacture and distribution of products across the State. The intermodal facility would be a natural progression due to the nature of the businesses in the estate, it is envisaged that there would be a cluster of transport related industries.

Once the intermodal facility is established and there is enough critical mass, the next evolution would be to a fully-functional logistics park. The increased employment base would need increased amenity in order to maintain and remain competitive. It would also contain a white-collar workforce that would facilitate the demands of businesses in the estate.

MacroPlan considers that an industrial development at the subject site could be successful if the estate is flexible and adaptable to market conditions. The ability to attract a major anchor will be enhanced by having flexible lot sizes, zoning and the ability to construct a purpose-built facility based on tenant requirements.

Attracting a multinational operator that can anchor the development would be a catalyst to attract other businesses to the proposed estate.

### **6.3 Low/slow scenario**

Under this scenario the take up rate is reduced by 10 ha, to 10 ha per annum, which indicates 139 years of supply.

Extending the development schedule will provide more lot flexibility, allowing the estate to develop lots in line with evolving demand, rather than retrofitting after development. Furthermore, this will allow more land to be available after the completion of key infrastructure developments in the area such as the Perth to Darwin highway.

However, developing at a slower pace carries the risk of falling behind the market due to environmental issues that arise that may require moving through an extensive approvals process. In addition, if development falls behind market demand, it could see nearby estates absorb Bullsbrook Freight and Industrial Area's market share.

### **6.4 High/fast scenario**

Under this scenario the take up rate is increased by 20 ha per annum, which reduces supply to around 70 years.

Developing the Bullsbrook Freight and Industrial Area at this faster rate would allow the estate to take advantage of the strong demand for logistics in the North-East Sub-region. This would also provide early entrants with the ability to customise lots to their requirements and acquire large lots at affordable land values. Faster development would create investment interest and, in turn, attract other tenants creating synergies.

Some businesses may hesitate to enter the market before the infrastructure is completed/nearing completion. An upgraded east-west road connection in particular, are likely to be a significant trigger to making the Bullsbrook area more attractive for industrial development.

## Section 7: Conclusions and recommendations

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The location requirements of industry will have an important bearing on the future demand for industrial land and the future growth of the State. There appear to be several key roles and uses which comply with the objectives of developing a master-planned estate, including:

- Local servicing including construction and manufacturing / component assembly suppliers
- Light industrial uses for smaller businesses such as engineering and mechanical workshops
- Local and regional distribution
- Major national and state level tenant
- Potential for mixed use role (medium/longer term), ancillary to other uses such as heavy haulage and warehousing
- Rural support services.

### **Market demand analysis**

The key drivers of industrial land demand are population growth and export volumes. Growth in exports, particularly around the mining industry has a flow on effect that will see employment, freight movements and population growth increase. This in turn drives up demand for industrial land to support the expansion of warehousing and storage facilities, the need for additional intermodal terminals and other population driven industrial uses.

The Sub-regional Planning Framework indicates that demand for industrial land in the North-East is expected to grow to 2,810ha by 2050, an additional 1,352ha and an average take up rate of 34.7 ha per annum.

It is estimated that the Bullsbrook Freight and Industrial Area could achieve a take up rate of approximately 12-15 ha per annum over the longer timeframe. This could increase to 20 ha per annum during periods if two separate estates are developed simultaneously. Each estate would need to have a unique offer to not directly compete or cannibalise development.

The initial stages of the estate would target tenants involved in road-based transport and logistics, heavy haulage – uses that can be developed without major infrastructure expenditure, such as trunk water/sewer or an intermodal rail terminal. Along with this are opportunities for related services, such as mechanical workshops and spare part distributors to cater for the repair and maintenance of the vehicles associated with heavy haulage and logistics. This may include a mixture of purpose-built facilities for lease and lots for sale to perspective tenants to develop on their own.

The overall size, zoning and composition of the estate depend on the end user. As such, MacroPlan has identified a potential service market for a new industrial estate in Bullsbrook, potential service markets and triggers for the overall project.

**Table 24.** Land use specification

Use	Service market	Triggers	Staging (years)					
			0-5	5-10	10-15	15-20	20-25	25+
<b>Freight and logistics – road</b>	<ul style="list-style-type: none"> <li>North west WA</li> <li>North metro</li> </ul>	<ul style="list-style-type: none"> <li>Perth-Darwin Hwy</li> <li>East-west road connections</li> </ul>						
<b>Freight and logistics - intermodal</b>	<ul style="list-style-type: none"> <li>Metro urban</li> <li>Interstate transport</li> </ul>	<ul style="list-style-type: none"> <li>Intermodal terminal</li> </ul>						
<b>Value-added industry</b>	<ul style="list-style-type: none"> <li>Sub-regional</li> </ul>	<ul style="list-style-type: none"> <li>Industry growth in the sub-region</li> </ul>						
<b>General industry</b>	<ul style="list-style-type: none"> <li>Business-to-business</li> <li>Urban development</li> </ul>	<ul style="list-style-type: none"> <li>Urban development (Bullsbrook East, Ellenbrook North)</li> </ul>						
<b>Light industry</b>	<ul style="list-style-type: none"> <li>Urban development</li> <li>Business-to-business</li> </ul>	<ul style="list-style-type: none"> <li>Urban development (Bullsbrook East, Ellenbrook North)</li> </ul>						
<b>Technology + business</b>	<ul style="list-style-type: none"> <li>Urban development</li> <li>Industry</li> <li>Mining services</li> </ul>	<ul style="list-style-type: none"> <li>Employment catchment</li> </ul>						
<b>"Left field"</b>	<ul style="list-style-type: none"> <li>Mining automation</li> </ul>							

Source: MacroPlan Dimasi

The industrial requirements will drive demand in line with other industrial areas, for this assessment MacroPlan considers Kewdale to be a potential representation of the types of major uses that could evolve in the Bullsbrook Freight and Industrial Area. The following table illustrates the proportion of each land use (by floorspace) at Kewdale as at 2015, and the potential distribution (in developable

hectares). Note that as floorspace and land area are not proportional across all uses, this provides *indicative* estimates.

**Table 25.** Industrial land distribution, Bullsbrook Freight and Industrial Area, ultimate development

Planning land use categories	Kewdale	Bullsbrook Freight and Industrial Area (ha)
Entertainment/Recreation/Culture	0.0%	0.0
Health/Welfare/Community Services	0.2%	2.8
Manufacturing/Processing/Fabrication	12.0%	167.2
Office/Business	15.8%	220.2
Primary/Rural	0.0%	0.0
Residential	0.0%	0.0
Other Retail	3.5%	48.8
Service Industry	6.2%	86.4
Shop/Retail	2.4%	33.4
Storage/Distribution	51.5%	717.7
Utilities/Communications	8.5%	118.5
<b>Total</b>	<b>100.0%</b>	<b>1,395</b>

Source: MacroPlan Dimasi (2018)

### Jobs balance sheet

Based on the above schedule and the employment land mix identified an average density of 30 jobs per net developable hectare is likely to be achieved at the proposed development. The estimated 1,395 ha of developable land suggests that the proposed development is could generate employment for approximately 41,850 people once fully functional.

**Table 26.** Job generation – Bullsbrook Freight and Industrial Area

	Developable land (ha)	Employment
Short term	270	8,100
Medium term	450	13,500
Long term	675	20,250
<b>Total</b>	<b>1,395</b>	<b>41,850</b>

Source: MacroPlan Dimasi (2018)

### Demographics analysis

#### Population projections

The Western Australia Planning Commission projects the City of Swan and North-East and North-West Sub-regions population to grow by an average annual 2.1, 2.2 and 3.0 per cent respectively. WA Tomorrow projections indicate residents in

the working ages (15–64) will grow by an average annual 1.6 per cent in the City of Swan and 1.6 and 2.5 per cent in the North-East and North-West sub-regions respectively.

### **SWOT analysis**

The Bullsbrook Freight and Industrial Area has some weaknesses such as the lack of major trunk and transport infrastructure as well as competition from other proposed developments such as and Latitude 32, Meridian Park. In addition, given the long timeframes to development, the nature of industry and employment is likely to change (be 'disrupted') before the area is developed.

These weaknesses and threats are outweighed by the area's strengths. There is strong demand from the logistics industry for large custom lots with that are near major access routes, particularly in the North-East Sub-region, given the advantages of road freight connectivity to the eastern states. The site will also be able to take advantage of the Perth to Darwin Highway, population growth in the North-East Sub-region and its potential for an intermodal terminal.

### **Scenario analysis**

Based on the SWOT analysis and identified critical success factors MacroPlan considers the base case scenario to represent the optimum rate and scale of development for the Bullsbrook Freight and Industrial Area, this scenario takes advantage of current market gaps and leaves room for the development to evolve to future industrial needs, minimising the potential for over or under development. This scenario will position the Bullsbrook Freight and Industrial Area as an attractive opportunity for the main drivers of industrial demand, the logistics, freight and warehousing industries.

## Appendix 1: Case studies

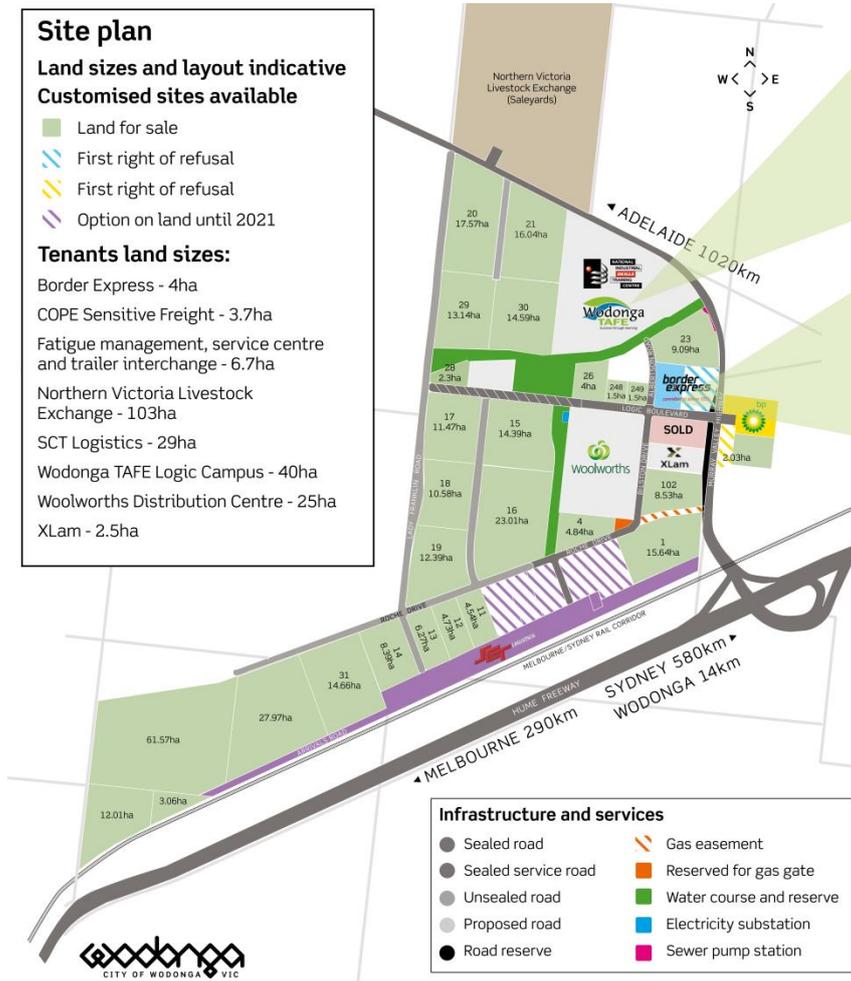
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### ***Case Study: Wodonga Logic – Logistics / Transport***

Logic Park is a strategically located industrial and business park located in Melbourne's north east at the intersection of the Hume Highway and Murray Valley Highway in Wodonga, 290km from the Melbourne CBD and 580km from south of Sydney.

<b>Estate size:</b>	567 ha
<b>Uses/users:</b>	Mixed
<b>Lot sizes:</b>	30,000sqm – 610,000sqm
<b>Infrastructure:</b>	Intermodal terminal, Hume Freeway, Murray Valley Highway, significant infrastructure and services (power, water, fibre optic) and more than 1.9km of internal B double compliant road infrastructure
<b>Tenants:</b>	Woolworths, SCT Logistics, TAFE, Northern Victoria Livestock Exchange, Fatigue management service centre and trailer interchange and BP service centre.
<b>Summary:</b>	<p>Wodonga Logic takes advantage of its position on a major arterial and rail line to attract distribution businesses in much the same way as Australian Marine Complex takes advantage of its proximity to Freemantle Port to attract marine industries. Its success is largely based on it being a cluster of like businesses that are supported by the nearby road and rail (intermodal terminal) infrastructure.</p> <p>Lots are also flexible and can be amalgamated to suit tenant requirements. It is a distribution hub between Sydney, Melbourne and the ACT and service Regional Victoria, NSW, ACT and South Australia.</p>

**Figure 23.** Wodonga Logic site plan



**Figure 24.** Wodonga Logic Park



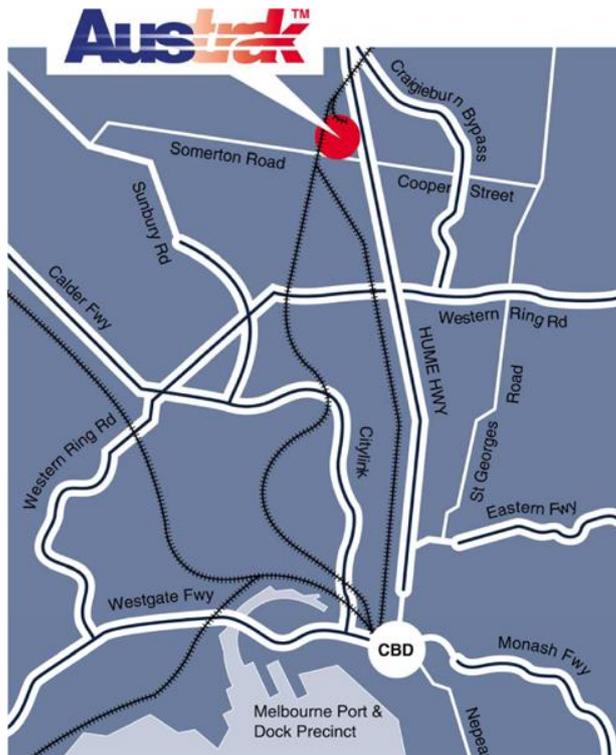
Source: Wodonga Logic

### ***Case Study: Somerton Business Park, Somerton***

The Somerton Business Park is a multi-functional regional freight hub that provides connectivity to the Port of Melbourne and to all state capital cities in Australia. It is strategically located on the Hume corridor which acts as the main corridor for all freight transported in Victoria. Somerton also acts as a port of origin and destination for shipping companies as it is fully customs bonded for both import and export containers.

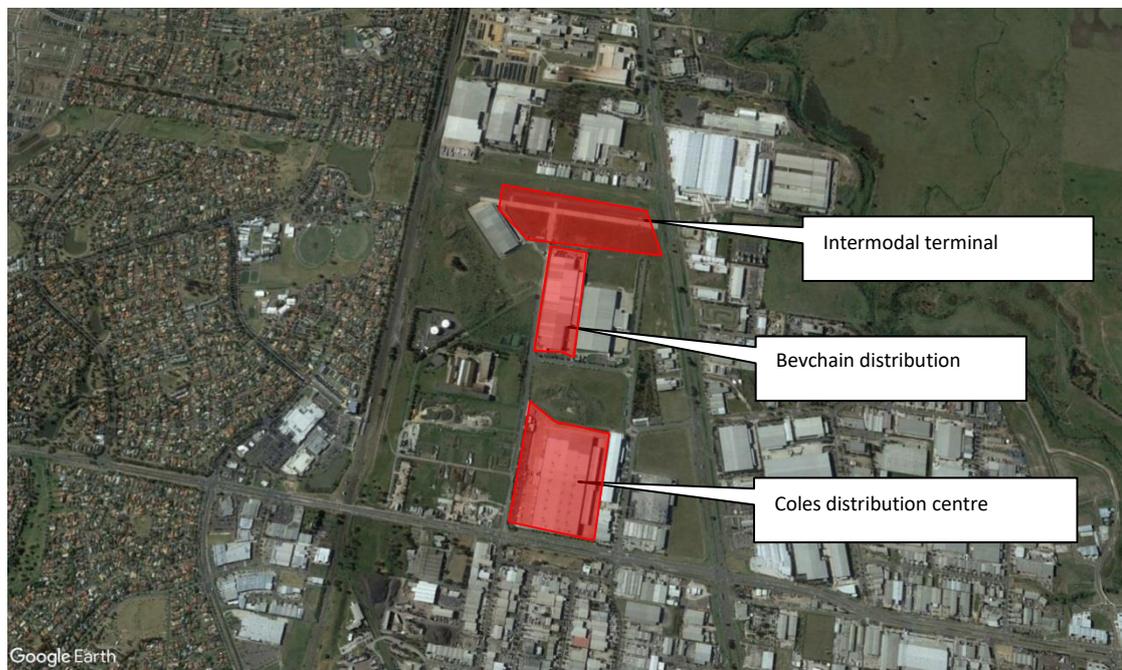
<b>Estate size:</b>	129ha
<b>Distance from CBD:</b>	23km North of Melbourne CBD
<b>Uses/users:</b>	Mixed Uses
<b>Lot sizes:</b>	N/A
<b>Infrastructure:</b>	Intermodal terminal connecting to Port Melbourne and interstate, direct access to the Hume Highway.
<b>Tenants:</b>	Coles national distribution centre, Kraft/Linfox, QUBE logistics, Boral Concrete.
<b>Summary:</b>	<p>Somerton Business Park is home to the Somerton Multi-Modal Freight Terminal, it is zoned industrial zone 1 for distribution, manufacturing and storage uses and supports an on-dock rail connection at Port of Melbourne and has a 10,000 TEU capacity container park facility.</p> <p>Ancillary/supporting uses/businesses include recruitment services, a gymnasium, automotive services, service centre and construction services.</p>

**Figure 25.** Somerton Business Park regional context



Source: Austrak

**Figure 26.** Somerton Business Park



Source: Google Earth

### **Case Study: Metroplex on Gateway**

Metroplex on Gateway is one of the largest business and industrial parks in Brisbane. The primary land uses permitted throughout the site include general industry, light industry, and commercial / retail business uses. The estate has the following characteristics:

- Estate size:** 62 ha
- Uses/users:** Mixed Business and Industrial
- Lot sizes:** 1,500sqm – 20,000sqm
- Infrastructure:** Immediate access to Gateway Bridge and Major Arterial Road Systems
- Tenants:** Austral Foods, Armaguard, Fisher & Paykel Australia, Johnson & Johnson, LG Electronics, Philip Morris, Philips Australia, Toshiba, Yokogawa Australia Pty Ltd and Adidas Australia. ABC Childcare Centre, Michael Hill Jeweller, Mobilecare, Master Engraving and Zac's Place (café/restaurant)
- Summary:** The estate was successful because it had immediate access to main arterial routes. There was a variety of lot sizes and land was released in stages enabling the estate to evolve dependant on market conditions.

**Figure 27.** Metroplex on Gateway



Source: Metroplex on Gateway

**Figure 28.** Metroplex on Gateway



Source: Metroplex on Gateway

### ***Case Study: M1 & M2 Industry Park - Dandenong***

M1 and M2 Industry Parks are located approximately 30 minutes from the Melbourne CBD, situated on the intersection of Western Port Hwy, South Gippsland Hwy and Abbots Rd.

<b>Estate size:</b>	120 ha
<b>Uses/users:</b>	Commercial and Industrial
<b>Lot sizes:</b>	2,340sqm – 40,797sqm
<b>Infrastructure:</b>	Excellent road access, proximity to the Port of Hastings,
<b>Tenants:</b>	Bunnings Distribution, MiTek Australia, New Wave Logistics, Hurley Transport, Loreal, BAM Wines and One Steel, Arco Cafe on site
<b>Summary:</b>	The estate offers both commercial and industrial uses and as such created a greater number of employment opportunities. Its proximity to the port, accessibility by road and flexible zoning and lot size mix encouraged the provision of manufacturing tenants, the storage and distribution of goods and associated uses.

Figure 29. M1 & M2 Industry Park



Source: Pellicano

### ***Case Study: Norwest Business Park – Bella Vista***

Norwest Business Park is located in the suburb of Bella Vista in Western Sydney. Facilities and services available to tenants include a Crowne Plaza Hotel, a neighbourhood shopping centre including a Coles supermarket, 35 specialty stores, food court, medical, banking, childcare and post office services as well as two petrol stations.

<b>Estate size:</b>	377ha (221ha of Business Park, 35ha of Lakes and 122ha of residential)
<b>Uses/users:</b>	Industrial uses supported by commercial and retail uses.
<b>Lot sizes:</b>	Various
<b>Infrastructure:</b>	Direct access to M2 and M7 and good public transport (Bus
<b>Tenants:</b>	IBM, ResMed, BASF, C&W Optus, Sigma Pharmaceuticals, Wyeth Australia, Schneider Electrics and Woolworths Limited
<b>Summary:</b>	Norwest is also an example of how residential uses can be accommodated close to industrial / commercial uses without compromising the viability of either use. It has developed into a unique and very successful employment-residential-commercial activity centre of a kind that is not duplicated across Australia. The ability to integrate all uses on the one site through the evolution of the estate is the reason for the success.

**Figure 30.** Norwest Business Park



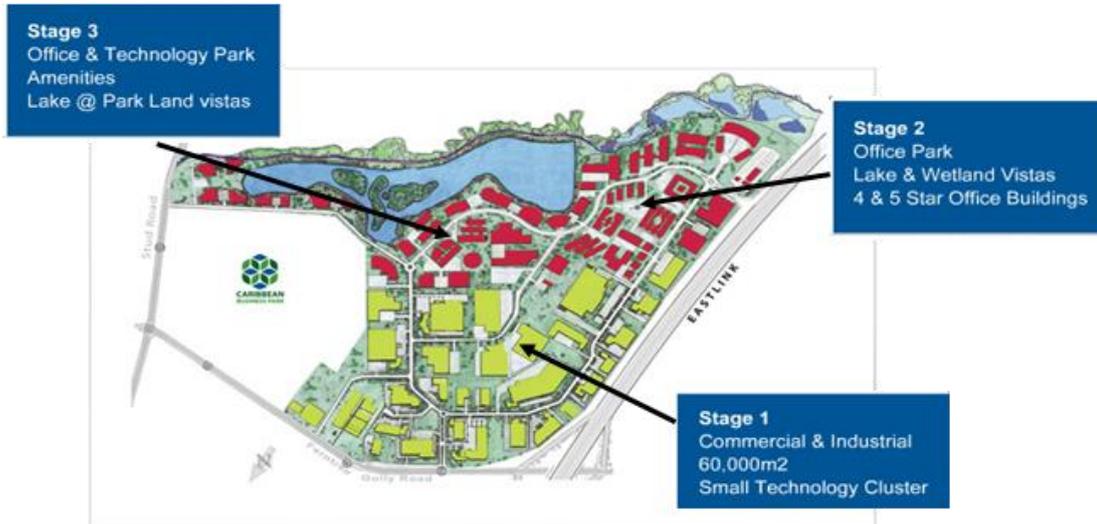
Source: Norwest Business Park

### **Case Study: Caribbean Business Park**

Caribbean Business Park is located in Scoresby, Knox, in Melbourne, adjacent to the Scoresby Freeway. Using Eastlink (M3) Caribbean Business Park is located just 9 minutes from Ringwood, 16 minutes from Frankston and 30 minutes from Melbourne CBD.

<b>Estate size:</b>	230ha
<b>Uses/users:</b>	Commercial, Industrial and High Tech
<b>Lot sizes:</b>	Various
<b>Infrastructure:</b>	Close proximity to M3 interchange making freeway accessible. Good public transport and proximity to shopping facilities.
<b>Tenants:</b>	Gillette, Hallmark, Myer and Whirlpool
<b>Summary:</b>	The business park is zoned Business 3, which encourages the integrated development of offices and manufacturing industries and associated commercial uses. To boost the attractiveness of the precinct to potential businesses and to service the needs of businesses and employees, it was identified that there was a need to establish a limited commercial activity centre. This integration has enabled the estate to be successful.

**Figure 31.** Caribbean Business Park



Source: Caribbean Business Park

**Figure 32.** Caribbean Business Park



Source: Caribbean Business Park

### ***Case Study: Northpoint Enterprise Park***

Northpoint Enterprise Park is a strategically located industrial and business park located in Melbourne's north at the intersection of the Hume Highway and Cooper Street in Epping, 18km from the Melbourne CBD.

<b>Estate size:</b>	125ha
<b>Uses/users:</b>	Mixed
<b>Lot sizes:</b>	3,000sqm – 70,800sqm
<b>Infrastructure:</b>	Proximity to public/community facilities, Close to main arterial routes
<b>Tenants:</b>	BP, Porta Mouldings, Sumitomo Australia Limited, Stratco, Bowens Timber, Preston Motors, Grace Australia, Beds 'R' Us
<b>Summary:</b>	A master planned development which is controlled by design guidelines. It will form part of a boarder community that will ultimately employ between 20,000 and 22,000 people

**Figure 33.** Northpoint Enterprise Park



Source: Northpoint Enterprise Park

### **Case Study: Cardinia Road Employment Precinct (CREP)**

The Cardinia Road employment precinct will be a multi-functional regional employment node that caters for a diverse mix of jobs. It will be a new hub for specialised business including research and development, manufacturing and production, engineering and trades related services. It will also contain a high density residential area that demands a neighbourhood level of retail facilities. This will be a fully integrated Estate, similar to Norwest Business Park.

<b>Estate size:</b>	353ha (186ha zoned industrial)
<b>Distance from CBD:</b>	50km South East of Melbourne CBD
<b>Uses/users:</b>	Mixed Uses
<b>Lot sizes:</b>	Yet to be determined (Various, dependant on End user)
<b>Infrastructure:</b>	Good accessibility and on site amenity
<b>Tenants:</b>	N/A
<b>Summary:</b>	<p>CREP forms part of a 2,500ha employment corridor for the greater south east growth area. The concept was developed with the specific purpose of creating more diverse employment opportunities. It has excellent access to the metro system of freeways/highways and arterial roads. With a full diamond interchange to the Pakenham Bypass and extensive frontage to Thompsons Road which is a planned 4 lane arterial east-west connection to Dandenong and Frankston.</p> <p>Once full developed this integrated Estate will be a vibrant mixed use activity centre that will house approximately 19,000 employees and 4,000 residents. It will cater for a number of uses including residential and retail. It will include a campus style business park, combined showroom and workshop type uses along with industrial areas.</p> <p>The key success factor for this precinct is its diversity of land use and high amenity which has been</p>

established in response to drainage and flora and fauna management plans.

**Figure 34.** Cardinia Road Employment Precinct



Source: Cardinia Road Employment Precinct Structure Plan

**Figure 35.** Metropolitan and regional context



Source: Cardinia Road Employment Precinct Structure Plan

## Appendix 2: Perth industrial land supply

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### **Perth existing supply of general industrial land**

#### **Central Sub-region**

This sub-region represents the engine room of the metropolitan area in terms of generating the highest employment self-sufficiency and highest economic value associated with existing industrial areas. However, the landscape is quickly changing, as industrial land is being occupied by higher end commercial uses. Other industrial users and activities, particularly in the region close to the CBD, are being forced to relocate, as land becomes more valuable and sought after residential and offices uses.

The Central sub-region can be divided in two sectors: south and north sectors:

- The north sector (Osborne Park and Balcatta Industrial Area) has undergone substantial change from a traditional manufacturing precinct to a park environment. As these locations are now close to full capacity, fringe suburbs will increasingly play a role in meeting market needs.  
The area is also categorised by numerous bulky goods outlets and car dealerships. Traffic congestion is also an issue despite multiple access points to the Mitchell Freeway.
- The south sector (Perth Airport Zone, Hazelmere, Forrestfield, O'Connor and Canning Vale) contains a mixture of logistics and manufacturing tenants. Its proximity to the airport, major road networks, CBD and a local workforce has ensured its popularity and recent development focus. Perth's eastern region is a popular choice for national and international companies.

#### **North-East Sub-region**

The North-East Sub-region has good access to both rail and freight infrastructure, making it more attractive option to freight dependant industry. On the other hand, while the North-West Sub-region has limited transport infrastructure to service industrial land, making it less attractive to industry wishing to locate in

this sub-region, the growing population base in this sub-region means that a growing workforce will be available to employees.

In the North-East Sub-region (Freeway Industrial Park, Malaga) current road access is considered adequate for logistics companies although with population growth and new infrastructure the area will develop as an important local industrial hub. Recent land releases in the North-East Sub-region are expected to relieve some of the tightness of the market. Malaga continues to grow, although not at the same pace as seen in the North-West Sub-region.

This area is still developing and can accommodate a number of business types and at present Malaga has a mixture of small companies of which the majority are service orientated and bulky goods.

Resolution of the east-west connectivity between the North-East and North-West sub-regions would be a significant catalyst for development of the Bullsbrook Freight and Industrial Area.

### **North-West sub-region**

As the North-East Sub-region has had limited land to facilitate industrial development, the North-West Sub-region market has been accommodating tenant demand through recent releases. The suburb of Neerabup, approximately 30 km from the Perth CBD, is being marketed as the new industrial hub in the north. The viability of the North-West Sub-region market is further enhanced by residential land release to the west, which provides a resident workforce for industrial occupiers.

This area is still developing and can accommodate a number of business types and at present Meridian Park has some extraction businesses working there (Limestone) and Timber manufacturing, also some service businesses.

### **South-East and South-West Sub-regions**

These sub-regions are already well serviced by established rail and road networks. Existing industrial development, location and accessibility are major attractors to industries opting to locate in these two sub-regions. Land availability

and the speed of approvals through the planning process will significantly influence the preference between the southern sub-regions.

#### South-East Sub-region

The south-east region (Forrestdale Business Park) is a well-established manufacturing and engineering precinct, although it has evolved strategically to accommodate a growing number of logistics and business park activities.

It has become a strategic link within the industrial sector due to its close proximity to the Perth CBD and its affordable land values compared to the north-west subregion.

An evolution in tenant demand has occurred in the South-East Sub-region, and recent movements into the precinct have been from storage and distribution users due to the well-established road networks and planned infrastructure improvements.

#### South-West Sub-region

The South-West Sub-region (Australian Marine Complex, Cockburn Commercial Park, Kwinana Industrial Area and Latitude 32), with its proximity to Fremantle Port is also a popular choice for new industry. The sector is dominated by the manufacturing / engineering industries, attracted by heavy industry located at the Kwinana industrial estate and proposed infrastructure works, including inter modal facilities and an outer harbour. The existence or imminence of major infrastructure suggests that the South-West Sub-region presently has a greater development and market potential than the North-West Sub-region.

### **Geographic location of existing activity**

Overall, there is a shortfall in supply of well serviced and located industrial land across the Perth metropolitan area. The majority of new industrial land is located in the southern suburbs (Naval Base, Kwinana, and Flinders Precinct) primarily due to the area's established (and proposed) infrastructure, which includes:

- The extension of the Roe Highway to the Kwinana Freeway
- Improved rail linkages between Kewdale, Kwinana and Fremantle to encourage more rail usage

- An inland container terminal at Kewdale
- More efficient use of road systems for freight movements
- A new outer harbour facility at Kwinana to handle freight overflow
- Improvements to Leach Highway and associated roads leading out of Fremantle

### Current available and potential future release

The table below demonstrates that with the supply of land provided through the Economic and Employment Lands Strategy, along with the development of the short to medium-term sites identified, there will be a shortfall against forecast demand for industrial land in all Metropolitan Regions with the exception of the South-East Region.

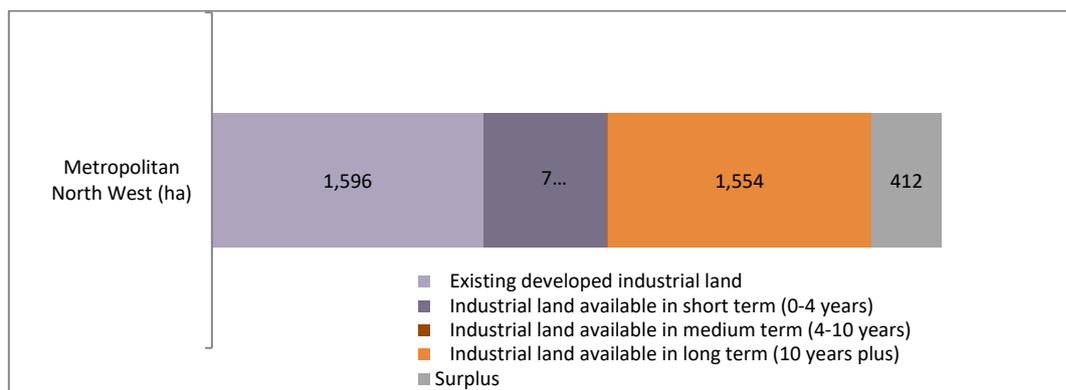
**Table 27.** Industrial floor space growth by Metropolitan Region

<b>Current non-heavy industrial zoned land supply (ha)</b>				
	<b>Metropolitan North-west</b>	<b>Metropolitan North-east</b>	<b>Metropolitan South-East</b>	<b>Metropolitan South-West</b>
Existing developed industrial land (as at 2015)	1,596	1,458	1,212	1,346
Industrial land available in short term (0-4 years)	728	812	597	35
Industrial land available in medium term (4-10 years)	0	749	0	1,246
Industrial land available in long term (10 years plus)	1,554	945	0	371
Shortfall/Surplus (assumes 70% of supply is developable)	412	-304	-1,128	-738
<b>Demand at 2050</b>	<b>3,466</b>	<b>4,268</b>	<b>2,937</b>	<b>3,736</b>

Source: Department of Planning, Lands and Heritage – Sub-regional Planning Framework 2018, Economic and Employment Lands Strategy 2014

The demand for employment land in the North West Sub-region is the 3,466 ha to 2050. Based on existing data on the available supply in the pipeline, the sub-region will encounter a surplus of 412 ha if no additional land is released to the market by 2050. The forecast take-up for the region is expected to be around an annual average of 2.2 per cent.

**Figure 36.** Future land supply, Metropolitan North-West Sub-region



Source: Department of Planning, Lands and Heritage – Sub-regional Planning Framework 2018, Economic and Employment Lands Strategy 2014

The following table highlights that within the Metropolitan North-West Sub-region there are no additional industrial areas identified that will have the capacity to cater for industrial land supply needs in the short term. There are only two sites becoming available in the medium term: The Pinjar South and Wangara.

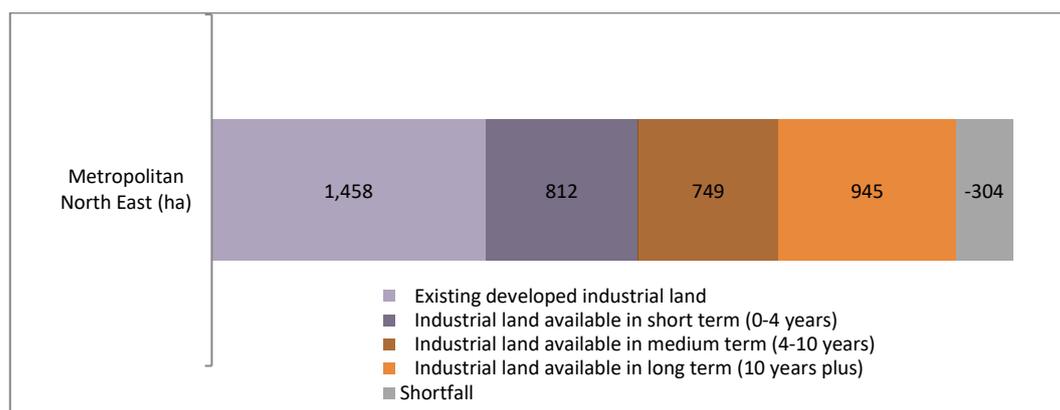
**Table 28.** Future land supply, Metropolitan North-West Sub-region

Metropolitan North		
Name	Sub-regional planning framework	Gross area
<b>► Future short term industrial sites (0-4 years)</b>		
Metropolitan Region Scheme undeveloped industrial land	Industrial	1,040 ha
<b>► Potential medium term non-heavy industrial sites (4-10 years)</b>		
NA		
<b>► Potential long term non-heavy industrial sites (strategic land bank sites) (10 years +)</b>		
Pinjar South	Industrial investigation	390
Pinjar North	Industrial investigation	300
Nowergup	Industrial investigation	662 ha
Nowergup	Industrial investigation	1,080 ha
Jandabup	Industrial investigation	450 ha
<b>Total gross area</b>		<b>830</b>

Source: Department of Planning, Lands and Heritage – Sub-regional Planning Framework 2018

The forecast additional demand for industrial land in the Metropolitan North-East Sub-region is 2,810 ha by 2050, and based on existing data on the available supply in the pipeline, the region will encounter a deficit of 304 ha if no additional land is released to the market by 2050. The forecast take-up for the region is expected to be around an annual average of 3.1 per cent.

**Figure 37.** Future land supply, Metropolitan North-East Sub-region



Source: Department of Planning, Lands and Heritage – Sub-regional Planning Framework 2018, Economic and Employment Lands Strategy 2014

The Metropolitan North-East Sub-region has two additional industrial areas that will have the capacity to cater 812 ha of industrial land in the short term. Furthermore, five sites have been identified which have Government support for further planning investigation and to remove constraints. These sites are Wattle Grove, Bullsbrook Town site, North Ellenbrook, Hazelmere and North Ellenbrook Extension.

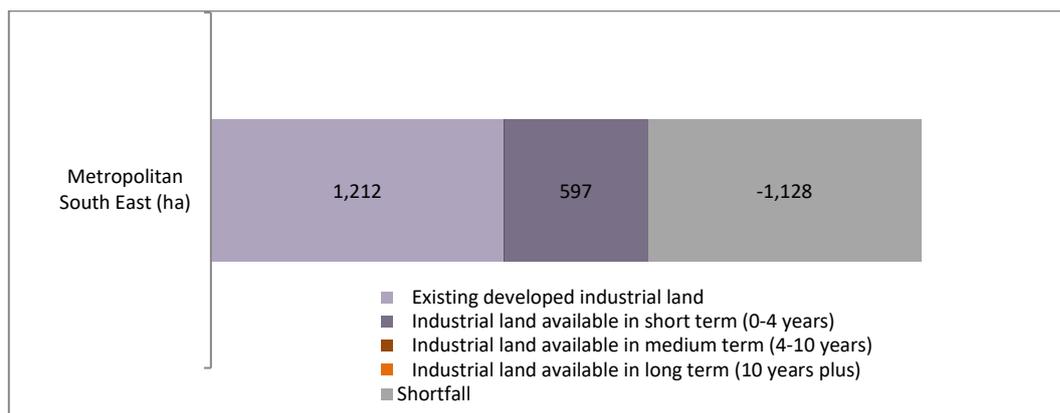
**Table 29.** Future land supply, Metropolitan North-East Sub-region

Metropolitan North-East		
Name	Sub-regional planning framework	Gross area
<b>► Future short term industrial sites (0-4 years)</b>		
Metropolitan regional scheme undeveloped industrial land	Industrial	760 ha
Bullsbrook South A	Industrial	300 ha
Bullsbrook South B	Industrial	100 ha
<b>► Potential medium term non-heavy industrial sites (4-10 years)</b>		
Hazelmere South	Industrial expansion	50 ha
North Ellenbrook	Industrial expansion	900 ha
Bullsbrook Townsite Precinct (North)	Industrial expansion	110 ha
Wattle Grove	Industrial expansion	10 ha
<b>► Potential long term non-heavy industrial sites (strategic land bank sites) (10 years +)</b>		
North Ellenbrook Extension	Industrial investigation	1,350 ha
<b>Total gross area</b>		<b>3,580 ha</b>

Source: Department of Planning, Lands and Heritage – Sub-regional Planning Framework 2018,

The forecast additional demand for industrial land in the Metropolitan South-East Sub-region is 1,725 ha by 2050 and based on existing data on the available supply in the pipeline, the region will have a deficit of 1,128 ha of industrial land by 2050. The forecast take-up for the region is expected to be around an annual average of 2.6 per cent.

**Figure 38.** Future land supply, Metropolitan South-East Sub-region



Source: Department of Planning, Lands and Heritage – Sub-regional Planning Framework 2018, Economic and Employment Lands Strategy 2014

The Metropolitan South-East Sub-region has one additional industrial area that will have the capacity to cater 415 ha of industrial land in the short term. Furthermore, two sites (South Forrestdale and South Armadale) have been identified for development in the medium-term.

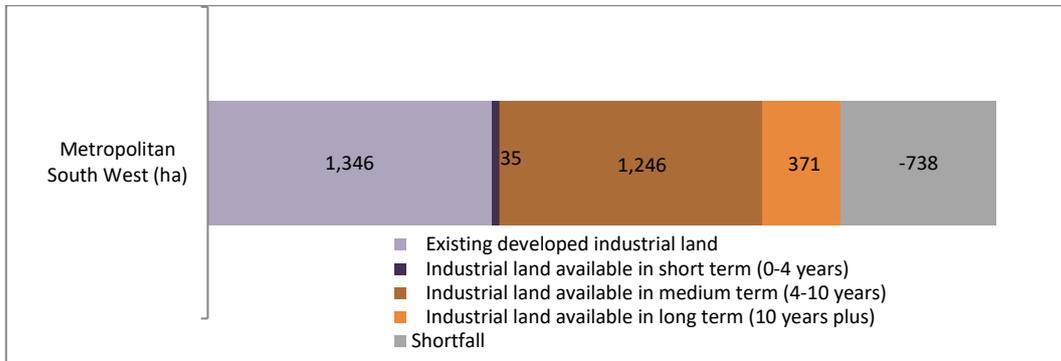
**Table 30.** Future land supply, Metropolitan South-East Sub-region

Metropolitan South-East		
Name	Sub-regional planning framework	Gross Area
<b>► Future short term industrial sites (0-4 years)</b>		
Metropolitan regional scheme undeveloped industrial land	Industrial	593 ha
<b>► Potential medium term non-heavy industrial sites (4-10 years)</b>		
South Forrestdale	Industrial expansion	180 ha
South Armadale	Industrial expansion	80 ha
<b>► Potential long term non-heavy industrial sites (strategic land bank sites) (10 years +)</b>		
NA		
<b>Total gross area</b>		<b>853 ha</b>

Source: Department of Planning, Lands and Heritage – Sub-regional Planning Framework 2018

The forecast demand for industrial land in the Metropolitan South-West Sub-region is 2,390 ha by 2050, and based on existing data on the available supply in the pipeline, the region will encounter a deficit of 738 ha of industrial land by 2050. The forecast take-up for the region is expected to be around an annual average of 30 per cent.

**Figure 39.** Future land supply, Metropolitan South-West Sub-region



Source: Department of Planning, Lands and Heritage – Sub-regional Planning Framework 2018, Economic and Employment Lands Strategy 2014

The Metropolitan South-West Sub-region has one additional industrial area that will have the capacity to cater 593 ha of industrial land in the short term. Furthermore, two sites (Latitude 32/Postans and Latitude 32 Future investigations area) have been identified.

**Table 31.** Future land supply, Metropolitan South-West Sub-region

**Metropolitan South-West**

Name	Sub-regional planning framework	Gross Area
<b>► Future short term industrial sites (0-4 years)</b>		
Metropolitan regional scheme undeveloped industrial land	Industrial	593 ha
<b>► Potential medium term non-heavy industrial sites (4-10 years)</b>		
Latitude32/Postans	Industrial expansion	1,780 ha
<b>► Potential long term non-heavy industrial sites (strategic land bank sites) (10 years +)</b>		
Latitude32 - Future investigation areas	Industrial investigation	480 ha
<b>Total gross area</b>		<b>2,903 ha</b>

Source: Department of Planning, Lands and Heritage – Sub-regional Planning Framework 2018

## Appendix 3: Indicative development staging

### Demand for industrial land in North-East Sub-region

This appendix provides a summary of the historical and potential future demand for industrial land in Perth's North-East Sub-region by type of use. This includes a breakdown of demand for land uses, which was used to inform discussions with service providers:

- approximate total demand in hectares for each proposed area/zone of the District Structure Plan
- approximate lot sizes
- employment density

**Table 32.** Historical and potential take up rates in Perth North-East corridor

	Share of Perth metro total take-up	Net take-up (ha)	Take-up scenario based on net developable area:			
			50%	60%	65%	70%
			Gross (ha)	Gross (ha)	Gross (ha)	Gross (ha)
<b>Historical take-up rate</b>	16%	10.45	20.90	17.42	16.08	14.93
<b>Accelerated demand</b>	26%	16.98	33.96	28.30	26.13	24.26
<b>Potential upper demand</b>	36%	23.51	47.03	39.19	36.17	33.59

Source: based on advice from Landcorp (2018)

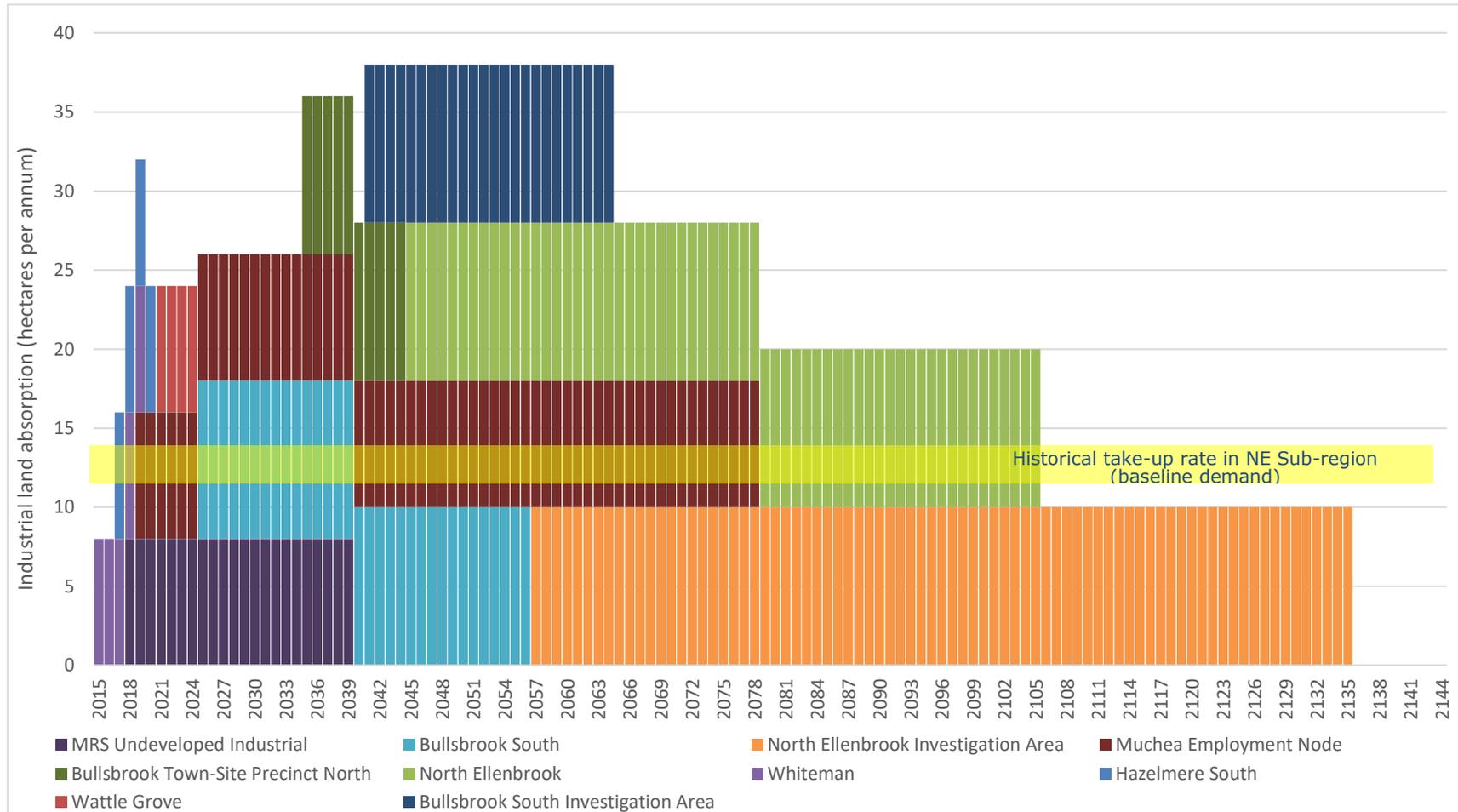
**Table 33.** Development rates, lot size cohorts and indicative employment

Main use	Demand		Lot size cohorts (by number of lots) m <sup>2</sup> based on existing established industrial areas					Employment density (jobs per net developable hectare)
	Hectares per annum (net land area)	Share of total (indicative)	<2,000	2,000 - 5,000	5,001 - 10,000	10,001 - 20,000	20,001 +	
Light industry	4 – 8	20%	45%	35%	18%	2%	0%	45
General industry	8 – 12	35%	22%	35%	32%	4%	7%	32
Freight & logistics	4 – 15	20%	0%	15%	38%	25%	22%	12
Value-added industry	4 – 10	15%	0%	30%	45%	20%	5%	20
Technology & business	8 – 12	10%	10%	30%	40%	15%	5%	30

Source: MacroPlan, based on analysis of WAPC Land Use and Employment Survey, CoreLogic RPData, and Landcorp advice

Note: the demand is based on 'active' development and sales phase for industrial estates

**Figure 40.** Potential timing of industrial land development (indicative) in North-East Sub-region and Muchea



Source: MacroPlan 2019, based on *indicative timing* from Landcorp and other stakeholders

## Appendix 4: Employment projections

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MacroPlan has prepared employment projections for the land area included in the Bullsbrook Freight and Industrial District Structure Plan. This assessment covers:

- Agree land use and employment figures and distribution with stakeholders for 2031 and 2041.
- Update report based on revised land use concepts and deliver the employment figures in a format compatible with MLUFS/ROM for 2031 and 2041 horizons.

This assessment is informed by the planning investigations and consultation with the relevant stakeholders for the area covered by the Bullsbrook Freight and Industrial District Structure Plan. The purpose of that consultation was to establish indicative planning and development timeframes for each of the industrial precincts across the North East sub-region. This provides the context for the future demand timeframe for the industrial precincts within the BFIA. The outcomes of the consultation are included in **Appendix 3** of this report.

### A4.1 Methodology and assumptions

#### Methodology

MacroPlan's process for developing these employment projections was to:

1. Consult with stakeholders to determine through expert judgement and available quantifiable analysis, the most likely development and take-up rates for industrial land in Perth's North-east Sub-region.
2. Forecast the likely demand and development rate specific to each precinct of the Bullsbrook Freight and Industrial District Structure Plan area.
3. Determine the total area of each development precinct (A to G) and multiply by the likely developable ratio, net of land areas required for environmental, planning or infrastructure requirements.
4. Estimate the existing employment on each of the precincts using the current MLUFS projections (2019, series 1.4).

5. Determine the amount of industrial land to be developed by future Census year (2021, 2026, 2031, 2036 and 2041).
6. Calculate total industrial employment densities using data from the WAPC Land Use and Employment Survey for different types of industrial land relevant to the Bullsbrook Freight and Industrial District Structure Plan area.
7. Calculate the employment by industry from comparable areas in Perth drawing on 2016 Census data by place of employment. The areas used for this assessment include: Forrestfield, Kewdale-Welshpool, Malaga, Hazelmere, Midland and Carramar (Flynn Drive).
8. Confirm the overlap between the 2015-2017 Land Use and Employment Survey areas and the Bullsbrook Freight and Industrial District Structure Plan area as a basis for estimating the existing employment in the area.

## **Assumptions**

Note that the assessment makes the following assumptions:

1. The baseline employment projections are consistent with the MRS zoning and therefore consider land that is already zoned for industrial use (in this case, Bullsbrook South).
2. Land that is not currently zoned for an 'employment' use (including rural) in the MRS still has some level of employment uses although these are not significant in number. These uses are reflected in the final employment projections by industry.
3. The North-east Sub-region of Perth will have a significantly more important role in meeting the future demand for industrial land than it has had in the past. This is based on the consultation undertaken for this assessment and the build-out of other industrial areas (particularly those elsewhere in the North-East Sub-region and in the Central Sub-region).
4. Employment densities will be relatively stable over time and that new types of jobs will offset any structural changes in the economy that could mean significant reductions in employment densities for industrial precincts (ie. automated intermodal terminals).



The definition of the precincts within the Bullsbrook Freight and Industrial Area aligns with the boundaries used for the Bullsbrook Freight and Industrial District Structure Plan as well as taking into account the ROM and the STEM/MLUFS boundaries.

## A4.2 Take-up of industrial land

The take-up of industrial land depends on demand and is directed to different geographical areas depending on locational factors, suitable infrastructure and the availability of suitable land. This means that the zoning the BFIA for industrial uses, is only a part of the equation.

Implicit in this assessment is the assumption that the BFIA will compete with and absorb demand from other sub-regions of Perth. The following table indicates the average absorption (take-up) rate for land in the North-east sub-region of Perth.

**Table 34.** Historical and potential take up rates in Perth North-East corridor

	Share of Perth metro total take-up	Net take-up (ha)	Take-up scenario based on net developable area:			
			50%	60%	65%	70%
			Gross (ha)	Gross (ha)	Gross (ha)	Gross (ha)
<b>Historical take-up rate</b>	16%	10.45	20.90	17.42	16.08	14.93
<b>Accelerated demand</b>	26%	16.98	33.96	28.30	26.13	24.26
<b>Potential upper demand</b>	36%	23.51	47.03	39.19	36.17	33.59

Source: MacroPlan 2018 based on advice from Landcorp (2018)

## A4.3 Employment densities in industrial precincts

The following table summarises the average development rates per annum and employment densities relevant to the BFIA. As the land uses will vary across the BFIA precincts, each area will have a different average employment density.

**Table 35.** Development rates, lot size cohorts and indicative employment

Main use	Demand		Employment density (jobs per net developable hectare)
	Hectares per annum (net land area)	Share of total demand (indicative)	
Light industry	4 – 8	20%	45
General industry	8 – 12	35%	32
Freight & logistics	4 – 15	20%	12
Value-added industry	4 – 10	15%	20
Technology & business	8 – 12	10%	30

Source: MacroPlan 2018, based on analysis of WAPC Land Use and Employment Survey, CoreLogic RPData, and Landcorp advice

Note: the demand is based on 'active' development and sales phase for industrial estates

## A4.4 Baseline employment projections

This assessment has used the land development as the basis for projecting the employment within the Bullsbrook Freight and Industrial Area.

**Table 36.** Baseline employment by ROM zone

ROM zone	2016	2021	2026	2031	2036	2041
520	158	173	200	208	229	253
521	105	101	95	96	106	117
522	31	32	34	36	40	44
523	4	6	6	80	88	97
524	21	24	19	21	23	26
547	312	311	336	380	420	464
<b>Total</b>	<b>632</b>	<b>646</b>	<b>690</b>	<b>821</b>	<b>906</b>	<b>1,001</b>

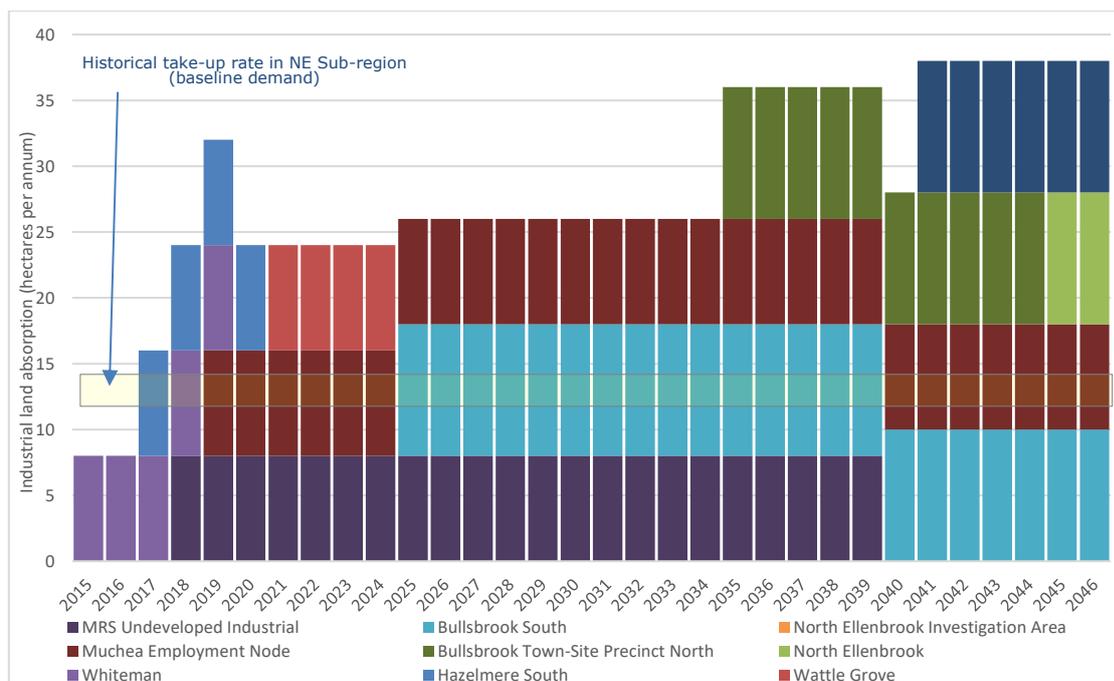
Source: DPLH Metropolitan Land Use Forecasting System 2016 v1.4 (2041 extrapolation)

## A4.5 Industrial land absorption

This section of the report outlines the project take-up of industrial land in the north-west sub-region of Perth by year. These projections favour the development of land that is already zoned industrial and is available for development. This includes vacant parcels within existing developed precincts/estates (termed 'MRS Undeveloped Industrial' in the figure below) and newly developing areas that are either on the market already (such as Muchea and Bullsbrook South) or are expansions of existing industrial precincts that have proven demand (ie. Hazelmere South).

The development of the Bullsbrook Freight and Industrial land will happen within this competitive context of other land developments in order to optimise the value of existing infrastructure and servicing before new sites are developed.

**Figure 42.** Industrial land take-up in the north-east sub-region- projections (to 2046)



Source: MacroPlan 2019, based on stakeholder consultation

Note that Appendix A includes a more detailed description of each of the industrial precincts in the sub-region and the timing and development rate of each precinct.

### A4.6 Land development forecasts by precinct

The following table indicates the forecast areas of land in the BFIA that are expected to be developed by future Census year. These are cumulative totals and therefore indicate the total land area expected to be developed at any point in time.

**Table 37.** Total hectares of industrial land developed in the BFIA - cumulative

Precinct	Gross land area	Developable ratio	Developable area	2016	2021	2026	2031	2036	2041	Ultimate
A1	271	65.0%	176	0	0	15	53	90	128	176
A2	244	65.0%	159	0	0	5	18	30	43	159
B1	160	65.0%	104	0	0	0	0	0	0	104
B2	153	65.0%	99	0	0	0	0	0	0	99
B3	268	65.0%	174	0	0	0	0	0	0	174
C	542	65.0%	352	0	0	0	0	0	0	352
D	298	65.0%	194	0	0	0	0	0	0	194
D1	258	65.0%	168	0	0	0	0	0	0	168
E	409	65.0%	266	0	0	0	0	0	0	266
F	414	65.0%	269	0	0	0	0	0	0	269
G	363	65.0%	236	0	0	0	0	0	0	236
<b>Total</b>	<b>3,380</b>	<b>65.0%</b>	<b>2,197</b>	<b>0</b>	<b>0</b>	<b>20</b>	<b>70</b>	<b>120</b>	<b>170</b>	<b>2,197</b>

Source: MacroPlan Dimasi 2019

The following table provides the forecast employment densities in each of the ROM zones. The reason for variation between zones is due to:

- The different employment nature of each precinct including general industry, freight and logistics, light industry, etc. These are based on the employment densities provided in the previous section of this report.
- Change of use over time as industrial precincts develop. For example the North Ellenbrook Industrial Precinct is planned to include a sub-precinct of light industry/service commercial which will develop at a later stage to the initial general industrial area. Therefore, ROM zone 524 is forecast to transition over time to a higher employment density.

**Table 38.** Employment density assumptions– jobs per hectare

Precinct	2016	2021	2026	2031	2036	2041	Ultimate
A1	22.00	22.00	22.00	22.00	22.00	22.00	22.00
A2	12.00	12.00	12.00	20.00	22.00	22.00	22.00
B1	22.00	22.00	22.00	22.00	22.00	22.00	22.00
B2	22.00	22.00	22.00	22.00	22.00	22.00	22.00
B3	32.00	32.00	32.00	35.25	35.25	35.25	35.25
C	22.00	22.00	22.00	22.00	22.00	22.00	22.00
D	22.00	22.00	22.00	22.00	22.00	22.00	22.00
D1	22.00	22.00	22.00	22.00	22.00	22.00	22.00
E	22.00	22.00	22.00	22.00	22.00	22.00	22.00
F	22.00	22.00	22.00	22.00	22.00	22.00	22.00
G	32.00	32.00	32.00	32.00	35.25	35.25	35.25
<b>Average (unweighted)</b>	<b>22.91</b>	<b>22.91</b>	<b>22.91</b>	<b>23.93</b>	<b>24.41</b>	<b>24.41</b>	<b>24.41</b>

Source: MacroPlan Dimasi 2019 based on employment densities from the WAPC Land Use and Employment Survey 2015-17

The following table indicates the new industrial employment in each precinct, solely as a result of the BFIDSP development. These employment numbers represent the previous two tables multiplied together (ie. hectares of land developed for industrial uses *times* the expected number of employees per hectare).

**Table 39.** *Industrial employment from the BFIA (not including baseline employment)*

Precinct	2016	2021	2026	2031	2036	2041	Ultimate
A1	0	0	330	1,155	1,980	2,805	3,875
A2	0	0	60	350	660	935	3,489
B1	0	0	0	0	0	0	2,288
B2	0	0	0	0	0	0	2,188
B3	0	0	0	0	0	0	6,141
C	0	0	0	0	0	0	7,751
D	0	0	0	0	0	0	4,261
D1	0	0	0	0	0	0	3,689
E	0	0	0	0	0	0	5,849
F	0	0	0	0	0	0	5,920
G	0	0	0	0	0	0	8,317
<b>Total</b>	<b>0</b>	<b>0</b>	<b>390</b>	<b>1,505</b>	<b>2,640</b>	<b>3,740</b>	<b>53,768</b>

Source: MacroPlan Dimasi 2019

Note: As the newly definition of zones 524 and 527 do not overlap with the industrial precincts, they are not included in the table above.

## A4.7 Employment projections by industry

This section covers the employment projections for each of the precincts A to G in the BFIDSP area. This includes all the existing (largely rural) uses on site and the transition to industrial development.

The projections also include estimates for the new boundary definitions for zones 524 and 527. These do not include any planned industrial land and the employment projections for these two zones assume no change in zoning.

**Table 40.** Employment by industry by precinct - 2016

Ultimate	Agriculture	Mining	Manufacturing	Utilities	Construction	Wholesale	Retail	Transport	Communication	Finances	Public Admin.	Education	Health	Welfare and other	Entertainment-recreation	
Precinct / Zone	A	B	C	D	E	Fw	Fr	G	H	I	J	Ke	Kh	Ko	L	Total
A1	0	0	3	0	0	0	3	2	0	1	4	0	0	0	2	16
A2	0	0	1	0	0	1	0	14	0	0	0	0	0	0	0	16
B1	2	0	31	0	5	2	32	15	3	6	39	0	0	4	18	156
B2	0	0	2	0	0	0	2	1	0	0	2	0	0	0	1	9
B3	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	2
C	1	1	1	0	3	1	0	2	0	0	0	0	0	0	0	11
D	25	0	1	0	1	1	1	1	3	0	1	0	0	0	3	37
D1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
E	18	0	1	0	1	1	0	0	2	0	1	0	0	0	2	26
F	18	0	1	0	1	1	0	0	2	0	1	0	0	0	2	26
G	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	4
524	1	1	1	0	4	1	0	3	0	0	0	0	0	0	0	13
527	0	0	6	0	1	0	6	3	1	1	8	0	0	1	4	31
<b>Total</b>	<b>66</b>	<b>4</b>	<b>49</b>	<b>0</b>	<b>17</b>	<b>11</b>	<b>45</b>	<b>42</b>	<b>11</b>	<b>9</b>	<b>55</b>	<b>0</b>	<b>1</b>	<b>5</b>	<b>32</b>	<b>348</b>

Source: MacroPlan 2019

Note: Totals may not add due to rounding.

**Table 41.** Employment by industry by precinct - 2021

Ultimate	Agriculture	Mining	Manufacturing	Utilities	Construction	Wholesale	Retail	Transport	Communication	Finances	Public Admin.	Education	Health	Welfare and other	Entertainment-recreation	
Precinct / Zone	A	B	C	D	E	Fw	Fr	G	H	I	J	Ke	Kh	Ko	L	Total
A1	0	0	3	0	0	0	3	2	0	1	4	0	0	0	2	16
A2	0	0	1	0	0	1	0	14	0	0	0	0	0	0	0	16
B1	2	0	29	0	3	2	31	16	2	5	40	0	3	4	18	155
B2	0	0	2	0	0	0	2	1	0	0	2	0	0	0	1	9
B3	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	3
C	1	1	1	0	3	1	0	2	0	0	0	1	0	0	0	12
D	22	0	1	0	1	1	1	1	4	0	1	0	0	0	3	35
D1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
E	15	0	1	0	1	1	0	0	3	0	1	0	0	0	2	25
F	15	0	1	0	1	1	0	0	3	0	1	0	0	0	2	25
G	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	5
524	2	1	1	0	3	1	0	3	0	0	0	1	1	0	1	14
527	0	0	6	0	1	0	6	3	0	1	8	0	1	1	4	31
<b>Total</b>	<b>60</b>	<b>4</b>	<b>47</b>	<b>0</b>	<b>13</b>	<b>10</b>	<b>44</b>	<b>43</b>	<b>13</b>	<b>9</b>	<b>56</b>	<b>3</b>	<b>6</b>	<b>5</b>	<b>34</b>	<b>348</b>

Source: MacroPlan 2019

Note: Totals may not add due to rounding.

**Table 42.** Employment by industry by precinct - 2026

Ultimate	Agriculture	Mining	Manufacturing	Utilities	Construction	Wholesale	Retail	Transport	Communication	Finances	Public Admin.	Education	Health	Welfare and other	Entertainment-recreation	
Precinct / Zone	A	B	C	D	E	Fw	Fr	G	H	I	J	Ke	Kh	Ko	L	Total
A1	0	3	51	2	41	12	58	7	0	29	8	32	2	96	7	<b>347</b>
A2	0	12	7	0	11	7	10	24	0	5	0	0	1	0	1	<b>77</b>
B1	1	0	30	0	5	2	33	17	3	6	43	0	4	4	20	<b>168</b>
B2	0	0	2	0	0	0	2	1	0	0	3	0	0	0	1	<b>10</b>
B3	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	<b>3</b>
C	1	1	1	0	0	1	0	2	0	0	0	1	0	0	0	<b>9</b>
D	19	0	1	0	1	1	1	1	5	0	1	0	0	0	3	<b>33</b>
D1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<b>1</b>
E	14	0	0	0	1	1	0	0	4	0	1	0	0	0	2	<b>24</b>
F	14	0	0	0	1	1	0	0	4	0	1	0	0	0	2	<b>24</b>
G	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	<b>4</b>
524	2	1	1	0	0	1	0	3	0	0	0	1	1	0	1	<b>11</b>
527	0	0	6	0	1	0	7	3	1	1	9	0	1	1	4	<b>34</b>
<b>Total</b>	<b>54</b>	<b>18</b>	<b>101</b>	<b>2</b>	<b>61</b>	<b>28</b>	<b>111</b>	<b>60</b>	<b>16</b>	<b>43</b>	<b>65</b>	<b>35</b>	<b>9</b>	<b>100</b>	<b>42</b>	<b>745</b>

Source: MacroPlan 2019

Note: Totals may not add due to rounding.

**Table 43.** Employment by industry by precinct - 2031

Ultimate	Agriculture	Mining	Manufacturing	Utilities	Construction	Wholesale	Retail	Transport	Communication	Finances	Public Admin.	Education	Health	Welfare and other	Entertainment-recreation	
Precinct / Zone	A	B	C	D	E	Fw	Fr	G	H	I	J	Ke	Kh	Ko	L	Total
A1	0	10	167	6	134	43	200	16	1	126	17	102	5	324	22	<b>1,174</b>
A2	0	68	36	0	65	33	59	59	0	36	0	1	4	0	7	<b>368</b>
B1	1	0	30	0	11	2	37	17	3	7	48	1	4	5	24	<b>190</b>
B2	0	0	2	0	1	0	2	1	0	0	3	0	0	0	1	<b>11</b>
B3	1	0	1	0	34	1	0	0	0	0	0	0	0	1	2	<b>40</b>
C	1	1	1	0	0	1	0	3	0	0	0	1	0	0	1	<b>11</b>
D	17	0	1	0	1	2	1	1	6	1	1	0	0	0	4	<b>33</b>
D1	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	<b>12</b>
E	12	0	1	0	1	1	1	0	4	0	1	0	0	0	3	<b>24</b>
F	12	0	1	0	1	1	1	0	4	0	1	0	0	0	3	<b>24</b>
G	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	<b>4</b>
524	2	2	1	0	1	1	1	3	0	1	0	1	1	0	1	<b>13</b>
527	0	0	6	0	2	0	7	3	1	1	10	0	1	1	5	<b>38</b>
<b>Total</b>	<b>48</b>	<b>83</b>	<b>246</b>	<b>6</b>	<b>261</b>	<b>85</b>	<b>309</b>	<b>105</b>	<b>19</b>	<b>173</b>	<b>80</b>	<b>107</b>	<b>16</b>	<b>332</b>	<b>71</b>	<b>1,942</b>

Source: MacroPlan 2019

Note: Totals may not add due to rounding.

**Table 44.** Employment by industry by precinct - 2036

Ultimate	Agriculture	Mining	Manufacturing	Utilities	Construction	Wholesale	Retail	Transport	Communication	Finances	Public Admin.	Education	Health	Welfare and other	Entertainment-recreation	
Precinct / Zone	A	B	C	D	E	Fw	Fr	G	H	I	J	Ke	Kh	Ko	L	Total
A1	0	17	285	10	230	73	341	27	1	216	25	175	9	555	37	<b>2,001</b>
A2	0	128	68	0	122	61	112	98	0	67	0	3	7	1	13	<b>680</b>
B1	2	1	33	0	13	2	40	19	3	8	53	1	5	5	26	<b>210</b>
B2	0	0	2	0	1	0	2	1	0	0	3	0	0	0	2	<b>13</b>
B3	1	0	1	0	37	1	0	0	0	0	1	0	0	1	2	<b>44</b>
C	1	2	1	0	1	1	1	3	0	1	0	1	1	0	1	<b>12</b>
D	19	0	1	0	1	2	1	1	7	1	1	0	0	0	4	<b>37</b>
D1	0	0	0	0	11	0	0	0	0	0	0	0	0	0	1	<b>13</b>
E	13	0	1	0	1	1	1	0	5	0	1	0	0	0	3	<b>26</b>
F	13	0	1	0	1	1	1	0	5	0	1	0	0	0	3	<b>26</b>
G	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	<b>5</b>
524	2	2	1	0	1	1	1	3	0	1	0	1	1	0	1	<b>14</b>
527	0	0	7	0	3	0	8	4	1	2	11	0	1	1	5	<b>42</b>
<b>Total</b>	<b>53</b>	<b>151</b>	<b>399</b>	<b>10</b>	<b>420</b>	<b>145</b>	<b>508</b>	<b>159</b>	<b>21</b>	<b>296</b>	<b>96</b>	<b>181</b>	<b>24</b>	<b>564</b>	<b>97</b>	<b>3,123</b>

Source: MacroPlan 2019

Note: Totals may not add due to rounding.

**Table 45.** Employment by industry by precinct - 2041

Ultimate	Agriculture	Mining	Manufacturing	Utilities	Construction	Wholesale	Retail	Transport	Communication	Finances	Public Admin.	Education	Health	Welfare and other	Entertainment-recreation	
Precinct / Zone	A	B	C	D	E	Fw	Fr	G	H	I	J	Ke	Kh	Ko	L	Total
A1	0	24	402	15	325	104	482	38	1	306	34	247	12	786	52	<b>2,828</b>
A2	0	182	95	0	173	86	159	133	0	95	0	4	10	1	18	<b>957</b>
B1	2	1	36	0	14	2	45	21	3	8	59	1	5	6	29	<b>232</b>
B2	0	0	2	0	1	0	3	1	0	1	4	0	0	0	2	<b>14</b>
B3	2	0	1	0	41	1	0	0	0	0	1	0	0	1	2	<b>49</b>
C	2	2	1	0	1	1	1	3	0	1	0	1	1	0	1	<b>13</b>
D	21	0	1	0	1	2	1	1	7	1	1	0	0	0	5	<b>41</b>
D1	0	0	0	0	12	0	0	0	0	0	0	0	0	0	1	<b>15</b>
E	15	0	1	0	1	1	1	1	5	0	1	0	0	0	3	<b>29</b>
F	15	0	1	0	1	1	1	1	5	0	1	0	0	0	3	<b>29</b>
G	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	<b>5</b>
524	2	2	1	0	1	1	1	4	0	1	0	1	1	0	1	<b>16</b>
527	0	0	7	0	3	0	9	4	1	2	12	0	1	1	6	<b>46</b>
<b>Total</b>	<b>58</b>	<b>212</b>	<b>549</b>	<b>15</b>	<b>574</b>	<b>202</b>	<b>701</b>	<b>208</b>	<b>23</b>	<b>415</b>	<b>112</b>	<b>255</b>	<b>31</b>	<b>796</b>	<b>121</b>	<b>4,273</b>

Source: MacroPlan 2019

Note: Totals may not add due to rounding.

**Table 46.** Employment by industry by precinct – ultimate development

Ultimate	Agriculture	Mining	Manufacturing	Utilities	Construction	Wholesale	Retail	Transport	Communication	Finances	Public Admin.	Education	Health	Welfare and other	Entertainment-recreation	
Precinct / Zone	A	B	C	D	E	Fw	Fr	G	H	I	J	Ke	Kh	Ko	L	Total
A1	0	33	554	20	449	144	664	52	2	422	45	342	17	1,086	70	<b>3,898</b>
A2	0	679	353	0	647	318	593	444	0	354	0	14	37	3	69	<b>3,511</b>
B1	4	1	419	0	526	104	183	1,103	20	32	60	1	5	12	51	<b>2,520</b>
B2	0	18	313	11	253	81	375	29	1	238	26	193	9	613	40	<b>2,202</b>
B3	12	222	1,240	97	639	857	665	1,154	134	864	63	25	14	102	102	<b>6,189</b>
C	10	2	1,297	0	1,734	346	471	3,666	56	80	3	1	1	22	75	<b>7,764</b>
D	25	0	713	0	954	191	260	2,015	38	44	3	0	0	12	45	<b>4,302</b>
D1	141	267	250	267	94	127	160	2,000	16	319	0	53	0	0	8	<b>3,704</b>
E	15	428	2,495	0	1,278	7	289	150	126	6	131	28	0	634	292	<b>5,878</b>
F	15	433	2,525	0	1,294	7	293	151	128	6	132	28	0	641	295	<b>5,949</b>
G	1	78	1,690	111	1,202	1,084	1,279	342	66	1,742	10	77	66	134	439	<b>8,322</b>
524	2	2	1	0	1	1	1	4	0	1	0	1	1	0	1	<b>16</b>
527	0	0	7	0	3	0	9	4	1	2	12	0	1	1	6	<b>46</b>
<b>Total</b>	<b>224</b>	<b>2,163</b>	<b>11,858</b>	<b>506</b>	<b>9,074</b>	<b>3,268</b>	<b>5,242</b>	<b>11,113</b>	<b>587</b>	<b>4,111</b>	<b>485</b>	<b>764</b>	<b>152</b>	<b>3,262</b>	<b>1,492</b>	<b>54,302</b>

Source: MacroPlan 2019

Note: Totals may not add due to rounding.

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