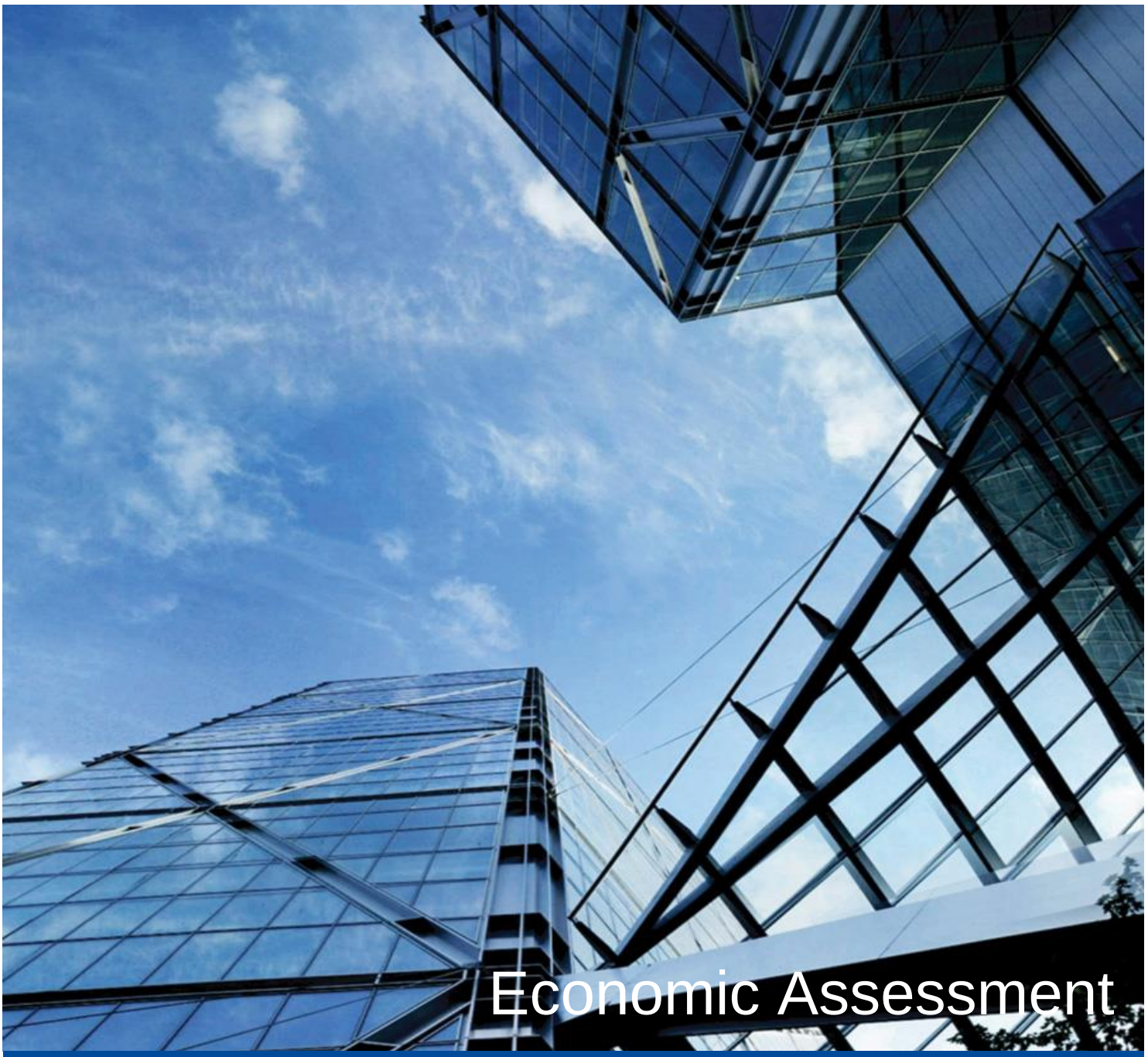

Economic Assessment

Hydro Aluminium, Kurri Kurri

June 2015

urbis

URBIS STAFF RESPONSIBLE FOR THIS REPORT WERE:

Director	Clinton Ostwald
Senior Consultant	Ryan McKenzie
Consultant	Rob McHugh
Job Code	SPE0510
Report Number	Final

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Executive Summary

The redevelopment of the Hydro Aluminium smelter at Kurri Kurri provides an opportunity for the release and development of a substantial amount of residential and employment generating uses.

The redevelopment of the smelter will provide approximately 375 hectares of additional developable land, and reserve 1,300 hectares as environmental conservation land.

This report considers the economic benefits of the proposed masterplan for the Hydro Aluminium smelter.

In summary, there appears to be a need for additional housing and employment land development within the Lower Hunter Region, to meet the housing and job targets outlined in the Lower Hunter Regional Strategy (LHRS) of:

- Provision of up to 115,000 new dwellings for a projected 160,000 new residents to 2031
- 69,000 of these new dwellings are targeted to be in greenfield locations
- Provide capacity to accommodate a projected 66,000 new jobs in the LHR by 2031.

It is estimated that the proposed masterplan for the Hydro smelter redevelopment will contribute the following housing and jobs to the LHRS targets:

- 2,100 new housing lots, representing 3% of the LHRS' detached housing target
- 6,900 new jobs, representing 10.5% of the LHRS' jobs target.

In addition to aligning with the LHRS targets above, there are a number of other underlying drivers for the land uses proposed in the masterplan. These reflect market conditions, and the demand for the different land uses in the proposed master plan.

The key drivers of residential demand on the subject site include:

- Primarily family households with children will demand the detached housing type within Cessnock and Maitland
- Strong population growth will underpin demand for housing
- The LHR population is expected to grow from 541,950 people in 2011 to 663,700 people in 2031
- The total increase in dwellings for the LHR to 2031 is forecast to be 63,600 (26.7%) or 3,180 new dwellings per annum.

The key drivers of employment land demand on the subject site include:

- Easy access to recently completed infrastructure such as the Hunter Expressway and F3 Freeway with access to the South Maitland Railway
- The network of TAFEs identified will also provide access to a workforce with qualifications compatible with the type of jobs accommodated on employment lands
- Poor take up of HEZ due to poor access to connecting infrastructure indicates that it is unable to support future jobs growth within the Cessnock LGA, requiring alternative englobo industrial land for development
- The Cessnock worker education and employment profile is highly compatible with industrial jobs development, which is reflected in Cessnock's existing employment base which consists mainly of manufacturing, mining and accommodation and food services

- Of the 45,459 new jobs expected to be created in the Lower Hunter between 2011 and 2031, approximately 3,528 of these are expected to be in industrial based sectors, with 902 of these jobs forecast for Cessnock LGA

- This will result in the take up of 176 hectares (8.8 hectares per annum) of additional industrial land in the LHR, 45 hectares (2.25 hectares per annum) of which are expected to be in the Cessnock LGA by 2031

- The 198 hectares of industrial zoned land on the subject site exceeds the Cessnock LGA's demand for industrial stock by 2031, as such the subject site's development will need to be staged over a period of time longer than the official employment forecasts

- Urbis estimates 5.3 - 8.4 (net) ha per annum is a feasible take up rate, resulting in a development timeframe of 24-37 years development timeframe as the subject will offer employment opportunities for residents in the whole of the LGA and potentially adjacent LGAs given the regional role the subject is likely play

- Given the site's location adjacent to the Hunter Expressway, ability to offer flexible lot sizes (due to its consolidated land ownership) the proposed employment lands on the site will likely cater to broader LHR demand for employment land (as opposed to purely local Cessnock businesses).

The economic benefits associated with the redevelopment of the Hydro Aluminium smelter at Kurri Kurri provides an opportunity for the release and development of a substantial amount of residential and employment generating uses:

- Ongoing jobs expansion of approximately 6,900 jobs

- Expansion of ongoing jobs will result in an additional $411 million worker income per annum

- Expansion of residential housing supply of up to 2,100 (according to the Draft Subdivision plan for the site)

- The expansion in population from the delivery of new housing and subsequent population growth is expected to expand local retail spend by $58.5 million at full development.

Introduction

The output of this assessment will be used to demonstrate the benefits of the development of the masterplan. The structure of this assessment is as follows:

- **Section 1** review the proposed masterplan, the site's locational context and surrounding land uses
- **Section 2** identifies and reviews the relevant policy documents pertinent to the redevelopment of the subject site
- **Section 3** analyses the drivers of demand for housing, and potential benefits associated with the development of additional housing on the subject site
- **Section 4** analyses the drivers of employment land development, and the subject site's characteristics that are compatible with employment land uses
- **Section 5** will provide indicative staging of the masterplan and the economic benefits from the project over time
- **Section 6** will provide a summary of the report and its findings.

1 Proposal, Site and Location

1.1 SUBJECT SITE

The subject site is located on Hart Road, Kurri Kurri, in the Lower Hunter Region (LHR) of New South Wales (NSW). The subject site contains the Hydro Aluminium Pty Ltd aluminium smelter, which ceased operations in September 2012 with long-term closure and decommissioning providing the opportunity to redevelop the smelter and associated buffer land.

The smelter began operations in 1969, and was a major employer within the Kurri Kurri community. While the closure of the smelter has resulted in loss of local jobs within Kurri Kurri, there is potential for future industrial land to attract businesses that will employ local workers.

The site encompasses approximately 60ha of disused smelter plant and some 2,000ha of buffer lands located on the border of both Maitland and Cessnock Local Government Areas (LGA).

1.2 PROPOSED REDEVELOPMENT

At completion the proposed redevelopment will yield the following housing and employment land outcomes.

The maximum potential employment benefits stemming from the redevelopment of the subject site are derived from both the ongoing operations of employment generating land uses and the construction of the land uses outlined in Table 1.1 below:

Ongoing Employment and Housing Benefits

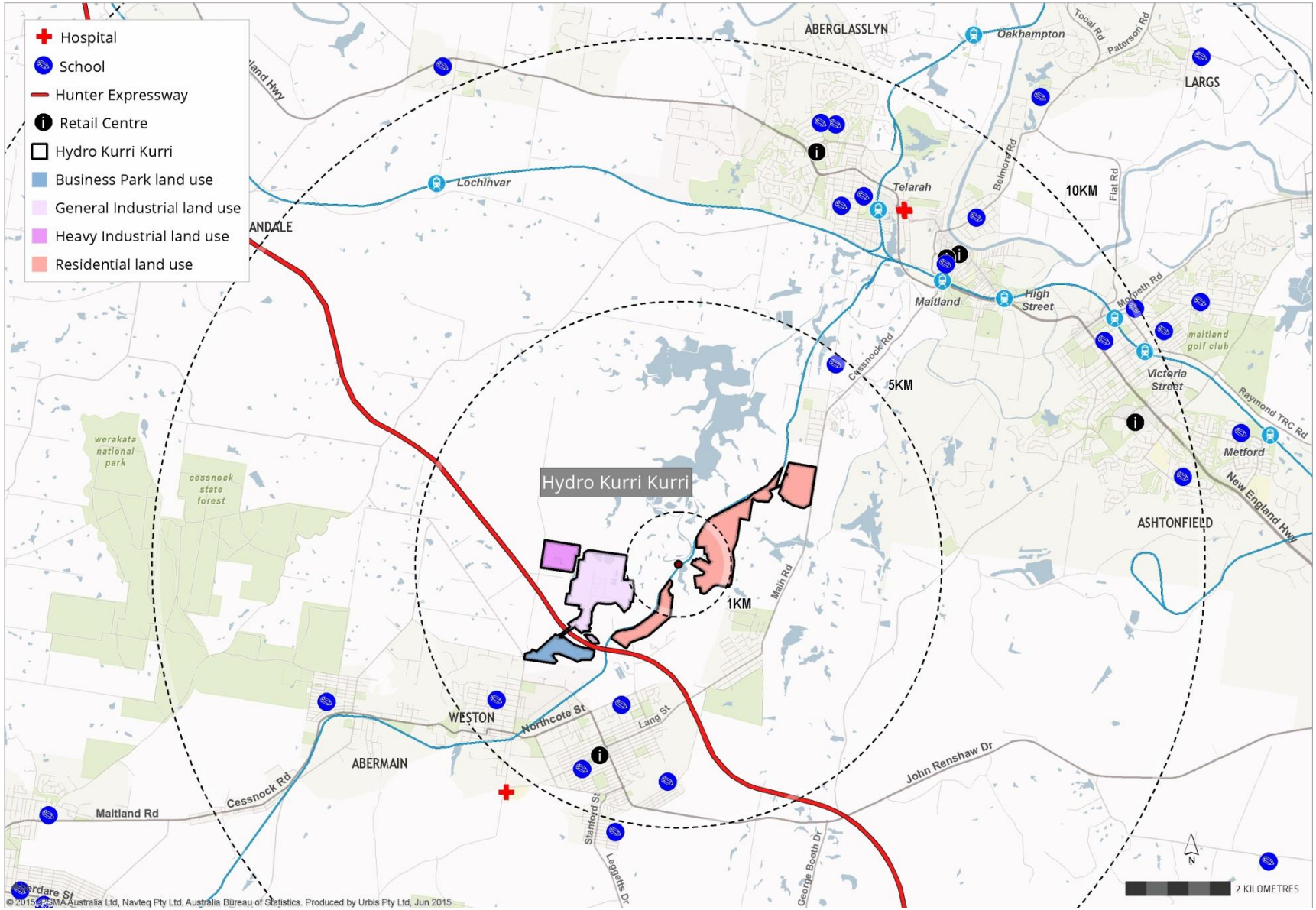
HYDRO ALUMINIUM MASTERPLAN — TABLE 1.1

LAND USE	LAND SIZE	GFA (SQM)	SQM PER JOB[1]	ONGOING EMPLOYMENT	HOUSING
Heavy Industrial	34.38ha	120,330	200	600	N/a
General Industrial	125.5ha	439,250	150	2,900	N/a
Business Park	38.18ha	133,630	40.5	3,300	N/a
Residential	128ha	1,275,700	N/A	N/a	2,100
Neighbourhood Centre	5,046m^2	2,523	25	100	N/a
Total				**6,900**	**2,100**

Source: Urbis; Hydro Aluminium; ABS

Urbis have estimated future population to be 5,460 based on Cessnock's 2011 household size of 2.6 applied to the 2,100 lots associated with the residential component of the proposed masterplan.

Map 1.1 highlights the spatial distribution of the proposed land uses, and the existing land uses surrounding the subject site.


Hospital
School
Hunter Expressway
Retail Centre
Hydro Kurri Kurri
Business Park land use
General Industrial land use
Heavy Industrial land use
Residential land use
ABERGLASSLYN
Oakhampton
Tocal Rd
Paterson Rd
LARGS
Lochinvar
Telarah
Belmont Rd
10KM
Flat Rd
Maitland
High Street
Mcbeth Rd
maitland golf club
Victoria Street
Cessnock Rd
5KM
Raymond TRC Rd
Metford
New England Hwy
ASHTONFIELD
werakata national park
cessnock state forest
Hydro Kurri Kurri
1KM
Main Rd
WESTON
Northcote St
Lang St
ABERMAIN
John Renshaw Dr
Maitland Rd
Cessnock Rd
Stanford St
Leggetts Dr
George Booth Dr
2 KILOMETRES
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2 Employment and Housing Policy

The following section provides an overview of key policy documents relevant to the subject site at both a regional and local level.

2.1 LOWER HUNTER REGIONAL STRATEGY

The Lower Hunter Regional Strategy (LHRS) was released by the New South Wales Government (NSWG) in 2006 and sets the current strategic direction for the LHR between 2006 and 2031. This strategy is currently under revision and the revised strategy is forecast to be released later this year (2015).

The LHRS provides a 25 year land use strategy to inform and guide the five Local Government Areas (LGAs) within the LHR on their decisions relating to service and infrastructure delivery to ensure sufficient provision of housing and employment land. These LGAs include the areas of Cessnock, Lake Macquarie, Maitland, Newcastle, and Port Stephens.

The redevelopment of the Hydro Aluminium smelter at Kurri Kurri will contribute to the achievement of the LHRS, by delivering:

- 10.5% of the jobs outlined in the LHRS
- 3% of the new release housing outlined in the LHRS.

Lower Hunter Regional Strategy

2031 TARGET VS. HYDRO HOUSING AND JOBS YIELD TABLE 2.1

POLICY TARGETS	2031 TARGET	CONCEPT PLAN'S YIELD	PERCENTAGE OF LHRS TARGET
Housing (in new release areas)	69,000	2,100[1]	3%
Jobs	66,000	6,900[2]	10.5%

Source: LHRS 2006; Urbis

[1]New lots produced

[2]Ongoing jobs (excludes construction jobs)

HOUSING OVERVIEW

The LHRS sets out targets for the LHR's housing requirements to 2031:

- Provision of up to 115,000 new dwellings for a projected 160,000 new residents to 2031
- 60% of new dwellings to be provided in new release areas, whilst the remaining 40% to be provided within existing urban areas.

JOBS AND EMPLOYMENT CENTRES OVERVIEW

In addition to housing the LHRS identifies jobs and a subsequent requirement for additional employment lands by 2031:

- Provide capacity to accommodate a projected 66,000 new jobs in the LHR by 2031
- Foster the development of regional centres to improve access to employment, retail, sustainable transport, and utilisation of established infrastructure
- Strengthening of the existing hierarchy of centres, in which Newcastle is identified as a regional city of national and international importance, and the major regional centres include Charlestown, Maitland, Raymond Terrace, Cessnock, Glendale (emerging), and Morisset (emerging). Subsequent to this hierarchy will be specialised centres, ton centres, and neighbourhood centres
- Identification of five key renewal corridors which link key centres and are situated along strategic transport routes. These corridors include Maitland Road, Tudor Street, Brunker Road, Main Road (Edgeworth), and the Pacific Highway.

2.1.1 ENVIRONMENT OVERVIEW

- Identification of two major green corridors: The Watagan to Stockton Corridor, and the Wallarah Peninsula Corridor
- These corridors have been deemed by the NSWG as having significant environmental value and they will be managed for conservation purposed
- Waterways within the LHR are aimed to be enhanced through the implementation of stormwater management plans derived from the Catchment Action Plan developed by the Department of Environment and Conservation
- Additions to these reserves will be achieved through the transfer of government lands for management under the National Parks and Wildlife Act, as well as through the dedication by major landholders of significant additional lands.

2.2 CESSNOCK 2023 COMMUNITY STRATEGIC PLAN

Cessnock City Council (CCC) undertook community consultation during 2010 to develop Cessnock's original Community Strategic Plan (Cessnock 2020 Community Plan). During 2013 the vision, outcomes and objectives from the original document were confirmed with the community and the Cessnock 2023 Community Strategic Plan (CCSP). The document provides a plan for the future of the Cessnock LGA and it the strategic directions for the region over the next 10 years.

Cessnock 2023 identified five desired outcomes as the priorities for the local community:

- A connected, safe and creative community: Developing safe and connected neighbourhoods that support healthy and fulfilling lifestyles for all ages
- A sustainable and prosperous economy: Achieving long term economic security through a mix of diverse business and employment options
- A sustainable and healthy environment: Promoting a sustainable balance between development and preserving our natural environment
- Accessible infrastructure, services and facilities: Increasing the range and accessibility of the services we need along with investment in improved infrastructure
- Civic leadership and effective governance: Ensuring strong leadership and good governance and fostering community participation in decision-making.

3 Residential Analysis

In considering the need for additional housing in Cessnock, Maitland and the broader LHR, Urbis have reviewed the key drivers of housing demand as they relate to the redevelopment of the subject site.

We have identified four key drivers of residential housing demand relevant to the development.

Table 3.1provides a brief description of these drivers and implications for the subject site, which include broadly:

- Access to local amenities
- The profile and demographics of the LHR, Cessnock and Maitland LGA, and implications for housing demand
- Benefits of locating residential land with strong access to employment opportunities and road network
- Future population growth, which will impact underlying demand for housing.

Based on the following analysis, the subject site appears to have the fundamental elements which drive demand for residential development, and is suitable to accommodate the LHR's growing population.

Residential Development Drivers

CESSNOCK AND LHR

TABLE 3.1

FACTORS	COMMENTS	IMPLICATIONS FOR THE SUBJECT SITE
1. Access to amenities	Locations that have easy access to services, infrastructure, education and open space are sought after as residential locations.	There are a number of existing infrastructure assets and services that would help support residential development on the subject site. These include: ▪ 16 schools (within 10 km of the centre of the subject site) ▪ Maitland Hospital ▪ Kurri Kurri Hospital ▪ Retail centres in Kurri Kurri and Cessnock ▪ The recently constructed Hunter Expressway, improving the connection with Newcastle ▪ Cessnock Road, providing a connection to Maitland and other employment centres. New masterplanned communities of scale to a large extent bring their own amenity with them, building in community facilities and schools. This has the potential to add amenity to the local area.
2. Demographics	The residential market's demographic profile has significant ramifications for housing demand. It affects its location, type, design and price. It also has socio-economic implications relating to affordability.	▪ Cessnock and Maitland LGAs have a large proportion of 'Youth' (0-15) residents, indicating the presence of family households, with children ▪ Cessnock has a higher proportion of families with children than the LHR, indicating a greater need for detached housing ▪ This type of family profile typically requires larger detached housing, suitable for growing families and larger household sizes, the lack of supply of this type of housing usually results in families moving elsewhere to start families which impacts the retention of workers and local retail markets

FACTORS	COMMENTS	IMPLICATIONS FOR THE SUBJECT SITE
		▪ The majority of Cessnock workers are drawn within Cessnock and Maitland ▪ This indicates that a worker market for the residential release component of the masterplan potentially exist in both Maitland and Cessnock ▪ This will likely increase as the employment uses in the masterplan are developed and additional workers are employed within and beyond Cessnock.
3. Population growth	Population growth is a key indicator of demand for housing.	▪ The LHR population is expected to grow from 541,950 people in 2011 to 663,700 people in 2031, between 0.9% and 1% per annum ▪ Cessnock is expected to grow above the LHR average annual growth rate, between 1.1% and 1.3% per annum.
4. Housing Demand	Forecasting population and household size provides an indication of housing demand. Compared to the residential yield associated with the masterplan illustrates the need for additional housing to support population growth.	▪ Dwellings in the LHR are forecast to grow from 238,000 dwellings in 2011 to 301,600 dwellings in 2031 ▪ Cessnock is expected increase its demand for dwellings from 22,250 in 2011 to 28,950 in 2031, an increase of 6,700 dwellings ▪ The subject site will be able to accommodate approximately 3.3% of the regions housing demand moving forward, and 31% of Cessnock's housing demand (based on existing forecasts).

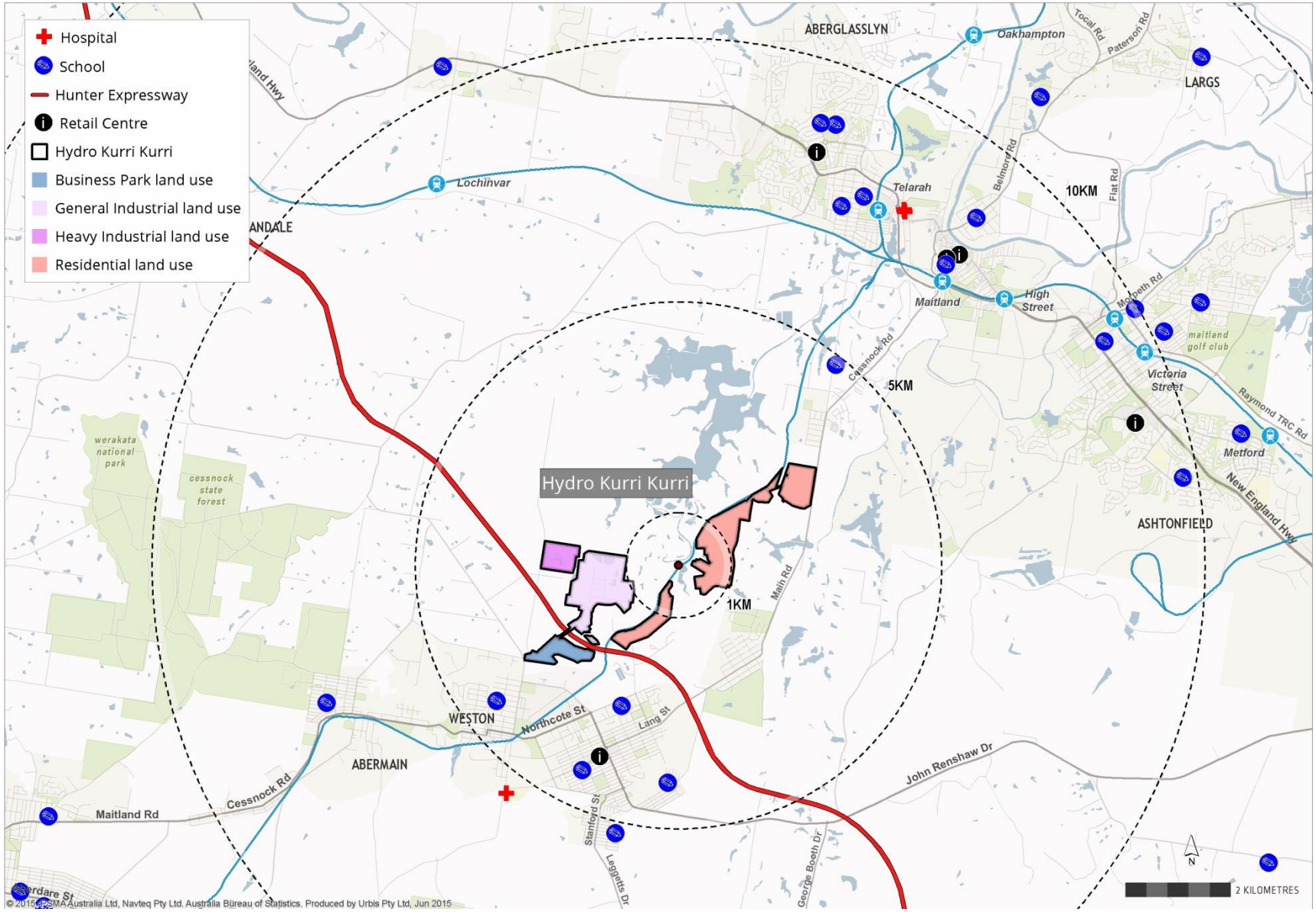
3.1 RESIDENTIAL AMENITY

New masterplanned communities to a large extent bring their own amenity with them, building in community facilities and schools. The Subdivision Design report prepared by PCB indicates the need to provide an additional:

- Schools
- Commercial and retail
- Community centre
- Open space for both active and passive uses.

The default open space rate is 2.83Ha per 1000 people, of which 1.81Ha per 1000 people is required for active open space for the likes of formal sports grounds and courts. Based on an estimated population of roughly 5,400 persons residing in the development, approximately 15ha of open space has been targeted for this subdivision.

In addition to this, there are a number of existing infrastructure and services that would support residential development on the subject site. These are outlined overleaf in Map 3.1, and include:


Hospital
School
Hunter Expressway
Retail Centre
Hydro Kurri Kurri
Business Park land use
General Industrial land use
Heavy Industrial land use
Residential land use
ABERGLASSLYN
Oakhampton
Tocal Rd
Paterson Rd
LARGS
Lochinvar
Telarah
Belmont Rd
Flat Rd
10KM
Maitland
High Street
Mcbeth Rd
maitland golf club
Victoria Street
Cessnock Rd
5KM
Raymond TRC Rd
Metford
New England Hwy
ASHTONFIELD
werakata national park
cessnock state forest
Hydro Kurri Kurri
1KM
Main Rd
WESTON
Northcote St
Lang St
ABERMAIN
Cessnock Rd
Maitland Rd
John Renshaw Dr
Stanford St
Leggetts Dr
George Booth Dr
N
2 KILOMETRES
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3.2 RESIDENT POPULATION DEMOGRAPHICS

3.2.1 POPULATION PROJECTIONS

The LHR population is expected to grow from 541,950 people in 2011 to 663,700 people in 2031. The table below outlines how each LGA within the LHR will grow.

- Lake Macquarie LGA is projected to remain the most populated LGA within the LHR, albeit the LGA is not forecast to grow as quickly as other LGA's
- Maitland LGA is projected to have the highest level of growth in population, registering a compounding annual growth rate (CAGR) for the period between 2001 and 2031 of 1.8 per cent
- Newcastle is projected to see the biggest nominal increase in population, with an estimated 34,500 new residents by 2031
- Maitland and Cessnock are expected to consistently grow above the LHR average, between 1.1% and 1.3% per annum.

Population Projections
LOWER HUNTER REGION TABLE 3.2

Nominal	2011	2016	2021	2026	2031
Cessnock	52,500	55,900	59,550	63,000	66,400
Lake Macquarie	196,800	201,500	207,500	212,800	217,850
Maitland	69,900	77,900	85,250	92,750	100,500
Newcastle	155,550	164,400	173,350	181,850	190,050
Port Stephens	67,200	73,850	79,150	84,200	88,900
LHR	541,950	573,550	604,800	634,600	663,700

Change		2011 - 2016	2016 - 2021	2021 - 2026	2026 - 2031
Cessnock	-	3,400	3,650	3,450	3,400
Lake Macquarie	-	4,700	6,000	5,300	5,050
Maitland	-	8,000	7,350	7,500	7,750
Newcastle	-	8,850	8,950	8,500	8,200
Port Stephens	-	6,650	5,300	5,050	4,700
LHR	-	31,600	31,250	29,800	29,100

CAGR		2011 - 2016	2016 - 2021	2021 - 2026	2026 - 2031
Cessnock	-	1.3%	1.3%	1.1%	1.1%
Lake Macquarie	-	0.5%	0.6%	0.5%	0.5%
Maitland	-	2.2%	1.8%	1.7%	1.6%
Newcastle	-	1.1%	1.1%	1.0%	0.9%
Port Stephens	-	1.9%	1.4%	1.2%	1.1%
LHR	-	1.1%	1.1%	1.0%	0.9%

Source: BTS; Urbis

3.2.2 AGE DISTRIBUTION

The table below illustrates the age distribution within each LGA across the LHR. Whilst the distribution is relatively consistent across the LGA, Newcastle has a higher proportion of residents aged between 20 and 29 years of age.

Age Distribution

LOWER HUNTER REGION TABLE 3.3

	Cessnock	Lake Macquarie	Maitland	Newcastle	Port Stephens	LHR
0-4 years	7.5%	6.0%	7.5%	6.1%	6.4%	6.4%
5-9 years	6.8%	6.0%	7.2%	5.6%	6.4%	6.2%
10-14 years	7.1%	6.6%	7.3%	5.4%	6.7%	6.4%
15-19 years	6.7%	6.9%	7.2%	6.1%	6.5%	6.6%
20-24 years	6.1%	5.7%	6.2%	8.7%	5.2%	6.6%
25-29 years	6.2%	5.2%	6.3%	8.0%	4.7%	6.1%
30-34 years	6.2%	5.2%	6.5%	6.9%	4.9%	5.9%
35-39 years	6.6%	6.2%	7.1%	6.8%	6.1%	6.5%
40-44 years	6.6%	6.6%	7.1%	6.6%	6.4%	6.7%
45-49 years	6.4%	6.8%	6.8%	6.6%	7.0%	6.8%
50-54 years	6.9%	7.1%	6.7%	6.6%	6.7%	6.8%
55-59 years	6.5%	6.7%	6.0%	5.9%	6.6%	6.3%
60-64 years	6.4%	6.5%	5.4%	5.3%	7.0%	6.1%
65-69 years	4.6%	5.4%	4.0%	4.1%	6.4%	4.9%
70-74 years	3.2%	4.2%	3.0%	3.3%	4.8%	3.8%
75-79 years	2.6%	3.4%	2.4%	2.8%	3.5%	3.0%
80-84 years	2.0%	2.8%	1.8%	2.6%	2.5%	2.5%
85-89 years	1.2%	1.8%	1.1%	1.8%	1.5%	1.6%
90-94 years	0.4%	0.6%	0.4%	0.7%	0.5%	0.6%
95-99 years	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
100 years +	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	100%	100%	100%	100%	100%	100%

Source: ABS; Urbis

The table below provides an indication of the relative size of different age cohorts in the LHR. Lake Macquarie and Newcastle accommodate the highest number of retiree (65+) residents. Port Stephens, Cessnock and Maitland have the largest proportion of 'Youth' (0-15) residents, indicating the presence of family households, with children. This type of age demographic typically requires larger detached housing, suitable for growing families and larger household sizes. The lack of supply of this type of housing usually results in families moving elsewhere to start families which impacts the retention of workers and local retail markets. The significant distribution of youth will lead to strong employment demand over the next 10-20 years.

Age Cohorts

LOWER HUNTER REGION TABLE 3.4

	Cessnock	Lake Macquarie	Maitland	Newcastle	Port Stephens	LHR
0-14 years (Youth)	10,864	35,171	14,822	25,305	12,633	98,795
15-64 years (Working Age)	32,818	118,990	44,097	100,287	39,652	335,844
65 years + (Retiree)	7,158	34,844	8,560	22,942	12,523	86,027
Total	50,840	189,005	67,479	148,534	64,808	520,666

	Cessnock	Lake Macquarie	Maitland	Newcastle	Port Stephens	LHR
0-14 years (Youth)	21.4%	18.6%	22.0%	17.0%	19.5%	19.0%
15-64 years (Working Age)	64.6%	63.0%	65.3%	67.5%	61.2%	64.5%
65 years + (Retiree)	14.1%	18.4%	12.7%	15.4%	19.3%	16.5%
Total	100%	100%	100%	100%	100%	100%

Source: ABS; Urbis

3.2.3 DWELLING STRUCTURE

The table below outlines the established dwelling structures within across the LHR by LGA.

- Detached dwelling stock is the dominant product within the LHR, representing at least 85 per cent of all stock within each LGA
- Newcastle has the highest proportion of apartment product, registering 14 per cent off all stock within the Newcastle LGA
- Nominally, Lake Macquarie LGA has the most dwellings across the LHR, with 77,030 recorded
- Cessnock has the largest proportion of detached housing, representing 95.9% of its housing stock, reflecting the high proportion of local family households.

Dwelling Structure
LOWER HUNTER REGION — TABLE 3.5

	Cessnock	Lake Macquarie	Maitland	Newcastle	Port Stephens	LHR
House	19,645	71,997	24,958	54,712	24,779	196,091
Unit	602	4,017	1,316	9,127	1,331	16,393
Other	239	1,016	254	565	770	2,844
Total	20,486	77,030	26,528	64,404	26,880	215,328

	Cessnock	Lake Macquarie	Maitland	Newcastle	Port Stephens	LHR
House	95.9%	93.5%	94.1%	85.0%	92.2%	91.1%
Unit	2.9%	5.2%	5.0%	14.2%	5.0%	7.6%
Other	1.2%	1.3%	1.0%	0.9%	2.9%	1.3%
Total	100%	100%	100%	100%	100%	100%

Source: ABS; Urbis

3.2.4 HOUSEHOLDS

The table below depicts the number of households within each LGA across the LHR by family composition.

- Families with children are the dominant class within the LHR, accounting for a minimum of 38 per cent of households across each LGA
- Cessnock has a higher proportion of families with children than the LHR, indicating a need for detached housing.

Households
LOWER HUNTER REGION — TABLE 3.6

	Cessnock	Lake Macquarie	Maitland	Newcastle	Port Stephens	LHR
Other	1,039	2,682	1,059	3,611	1,520	9,911
Group Household	466	1,652	568	3,879	546	7,111
Lone Person	4,348	16,829	5,182	17,268	5,886	49,513
Family with Children	9,496	34,432	12,893	24,425	11,060	92,306
Couple Family with No Children	5,137	21,436	6,825	15,221	7,868	56,487
Total	20,486	77,031	26,527	64,404	26,880	215,328

	Cessnock	Lake Macquarie	Maitland	Newcastle	Port Stephens	LHR
Other	5.1%	3.5%	4.0%	5.6%	5.7%	4.6%
Group Household	2.3%	2.1%	2.1%	6.0%	2.0%	3.3%
Lone Person	21.2%	21.8%	19.5%	26.8%	21.9%	23.0%
Family with Children	46.4%	44.7%	48.6%	37.9%	41.1%	42.9%
Couple Family with No Children	25.1%	27.8%	25.7%	23.6%	29.3%	26.2%
Total	100%	100%	100%	100%	100%	100%

Source: ABS; Urbis

3.2.5 PERSONAL INCOME

The table below depicts the personal income distribution for LGA residents across the LHR.

- The income brackets between $10,400 and $41,599 account for the majority of all personal incomes recorded across the LHR
- There are no major proportionate variations between the income distributions for each LGA.

Personal Income Distribution

LOWER HUNTER REGION TABLE 3.7

	Cessnock	Lake Macquarie	Maitland	Newcastle	Port Stephens	LHR
Negative income	0%	0%	0%	0%	0%	0%
Nil income	5%	5%	5%	5%	5%	5%
$1-$199 ($1-$10,399)	6%	6%	6%	6%	6%	6%
$200-$299 ($10,400-$15,599)	10%	10%	9%	9%	10%	10%
$300-$399 ($15,600-$20,799)	10%	10%	9%	10%	10%	10%
$400-$599 ($20,800-$31,199)	10%	11%	9%	10%	11%	10%
$600-$799 ($31,200-$41,599)	8%	8%	8%	8%	8%	8%
$800-$999 ($41,600-$51,999)	5%	6%	6%	7%	6%	6%
$1,000-$1,249 ($52,000-$64,999)	5%	6%	6%	6%	6%	6%
$1,250-$1,499 ($65,000-$77,999)	3%	4%	4%	5%	4%	4%
$1,500-$1,999 ($78,000-$103,999)	4%	5%	6%	6%	4%	5%
$2,000 or more ($104,000 or more)	4%	4%	5%	5%	3%	4%
Not stated	7%	5%	5%	6%	6%	6%
Not applicable	21%	19%	22%	17%	19%	19%
Total	100%	100%	100%	100%	100%	100%

Source: ABS; Urbis

3.2.6 JOURNEY TO WORK

The table below depicts the relationship between where LHR residents live and work.

- The majority of workers are drawn from Cessnock and Maitland
- Newcastle residents spread furthest from their local LGA, with over 50 per cent of residents working in a neighbouring or interstate LGA
- This indicates that a worker market for the residential release component of the masterplan potentially existing in both Maitland and Cessnock
- This may change as the employment uses in the masterplan are developed and additional workers are employed within Cessnock.

Journey to Work

LOWER HUNTER REGION TABLE 3.8

	LGA of Employment					
LGA of Residence	Cessnock	Lake Macquarie	Maitland	Newcastle	Port Stephens	LHR
Cessnock	64.9%	2.0%	9.2%	2.2%	2.0%	7.3%
Lake Macquarie	7.7%	68.4%	8.3%	30.1%	8.5%	33.5%
Maitland	11.6%	2.7%	56.2%	7.5%	8.6%	12.3%
Newcastle	6.6%	18.0%	11.7%	49.1%	14.9%	29.8%
Port Stephens	2.0%	1.7%	7.5%	6.0%	61.0%	11.1%
Other	7.2%	7.1%	7.0%	5.0%	5.0%	5.9%
Total	100%	100%	100%	100%	100%	100%

Source: ABS; Urbis

3.3 DWELLING PROJECTIONS

Dwellings in the LHR are forecast to grow from 238,000 dwellings in 2011 to 301,600 dwellings in 2031. The table below outlines how each LGA within the LHR will grow.

- Lake Macquarie currently has the most dwellings of any LGA across the LHR and is forecast to remain so in 2031
- Maitland is forecast to experience the strongest growth in dwellings, with a CAGR of 2.1 per cent to 2031
- Newcastle is predicted to have the largest nominal increase (17,300)
- The total increase in dwellings for the LHR to 2031 is forecast to be 63,600 (26.7%), or 3,180 new dwellings per annum
- The subject site will be able to accommodate approximately 3.3% of the regions housing demand moving forward, and 9.9% of Cessnock and Maitland's combined housing demand.

Dwelling Projections

LOWER HUNTER REGION — TABLE 3.9

Nominal	2011	2016	2021	2026	2031
Cessnock	22,250	23,950	25,700	27,300	28,950
Lake Macquarie	84,150	87,400	90,950	94,100	97,000
Maitland	27,900	31,550	34,950	38,400	41,950
Newcastle	70,750	75,200	79,700	83,900	88,050
Port Stephens	32,950	36,800	39,900	42,850	45,650
LHR	238,000	254,900	271,200	286,550	301,600

Change		2011 - 2016	2016 - 2021	2021 - 2026	2026 - 2031
Cessnock	-	1,700	1,750	1,600	1,650
Lake Macquarie	-	3,250	3,550	3,150	2,900
Maitland	-	3,650	3,400	3,450	3,550
Newcastle	-	4,450	4,500	4,200	4,150
Port Stephens	-	3,850	3,100	2,950	2,800
LHR	-	16,900	16,300	15,350	15,050

CAGR		2011 - 2016	2016 - 2021	2021 - 2026	2026 - 2031
Cessnock	-	1.5%	1.4%	1.2%	1.2%
Lake Macquarie	-	0.8%	0.8%	0.7%	0.6%
Maitland	-	2.5%	2.1%	1.9%	1.8%
Newcastle	-	1.2%	1.2%	1.0%	1.0%
Port Stephens	-	2.2%	1.6%	1.4%	1.3%
LHR	-	1.4%	1.2%	1.1%	1.0%

Source: BTS; Urbis

4 Employment Analysis

4.1 EMPLOYMENT DRIVERS

As discussed in section one there are a number of key development drivers that underpin industrial precinct's success. These include:

- **Infrastructure and surrounding land uses** – allows for efficiency of operations and efficiency of connections throughout the supply chain
  - Infrastructure – improving the precinct's access to customers / end users, connectivity and access to key transport routes (roads, rail, port facilities, suppliers, etc.) and accessibility to a local workforce
  - Surrounding land uses – which may impact the precinct's capacity to leverage economies of scale and operational efficiency.
- **Competing Employment Land** – sites that meet the demands of modern operations and offer an appropriate size and layout to the market and provide opportunities to leverage infrastructure and surrounding uses
- **Population growth and demographics** – this encompasses both the location of the customer base and the workforce
  - Worker demographic characteristics and journey to work patterns
  - Population growth.
- **Employment growth** – the number and type of jobs within the region
- **Future employment land demand** (based on jobs growth).

This section will assess the subject site against these drivers, as well as summarise quantitative measures in Table 4.1 overleaf (e.g. land use forecasts and estimated sales rate).

Employment Land Drivers

CESSNOCK AND LHR

TABLE 4.1

FACTOR	COMMENTS	IMPLICATIONS FOR THE SUBJECT SITE
1. **Infrastructure and Surrounding Land Uses**	Physical infrastructure improves the accessibility of industrial precincts, improving their viability and appeal to tenants. Transport and warehousing tenants especially require this type of infrastructure, given the high volume of heavy vehicles using their sites.	Locations that have easy access to new infrastructure such as the Hunter Expressway and F3 Freeway and access to South Maitland Railway. The network of TAFEs identified will also provide access to a workforce with qualifications compatible with the type of jobs accommodated on employment lands.
2. **Competing Employment Land**	The availability of alternative locations within Cessnock impact the requirement for additional industrial precincts.	Cessnock has two major industrial precincts: ▪ Hunter Economic Zone ▪ Weston. HEZ has experienced poor uptake. Physical/ecological constraints, poor agglomeration (it does not attach to existing industry), poor connectivity and a comparable lack of access by a relevant workforce have been the key drivers behind this. Urbis therefore considers HEZ's lack of competitiveness compared to other industrial precincts within the LHR as a barrier in attracting businesses into the Cessnock LGA. Weston is largely developed, and will not provide the market with the same greenfield industrial product as the subject site. Our analysis indicates that given the site's location adjacent to the Hunter Expressway, ability to offer flexible lot sizes (due to its consolidated land ownership) and the expected growth in the freight and logistics and construction sectors, that the site cater to larger warehouse and distribution operators while also providing smaller sized options aimed at supporting construction and mining.

3.	**Worker Demographics**	There is a strong connection between workforce, resident population and growth in employment / Cessnock's industrial base. Access to an appropriately skilled workforce is a key locational driver for businesses. As such industrial precincts need to be located close to workers or with good access to transport infrastructure that make them accessible.	▪ Cessnock's education profile indicates higher worker demand for blue collar jobs than white collar jobs ▪ Cessnock has a relatively higher proportion of residents with certificates at 20% of the resident population base, compared to other LGAs ▪ Local Cessnock jobs draw workers mainly from Maitland and Cessnock, both of which have mainly a blue collar workforce ▪ The prevalence of local blue collar workers would support the presence of industrial sector businesses rather than higher order white collar based employment ▪ This is reflected in Cessnock's existing employment base which consists mainly of manufacturing, mining and accommodation and food services.
4.	**Employment Growth**	Jobs growth provides an indication of the future demand for additional employment land.	Cessnock is expected to experience the highest annual jobs growth rate out of the LHR LGAs between 2011 and 2031, with 1.3% growth per annum. Accommodating this jobs growth requires appropriately zoned land. The specific type of land required, such as industrial, commercial and mixed use is largely determined by the industry sector that this growth occurs in. As such continued expansion of Cessnock's employment based will be dependent upon the provision of competitive employment lands, can attract additional share of regional employment growth.

5.	**Employment Land Demand**	Converting jobs growth to a specific land requirement provides an indication of the quantum of employment land that could be taken up by the market over time. It also provides an indication to government bodies how much land is required to meet employment policy targets.	Of the 45,459 new jobs expected to be created in the Lower Hunter between 2011 and 2031, approximately 3,528 of these are expected to be in industrial based sectors, with 902 of these jobs forecast for Cessnock LGA. This will result in the take up of 176 ha (8.8 ha per annum) of additional industrial land in the LHR, 45 ha (2.25 ha per annum) of which are expected to be by resident of Cessnock LGA by 2031. The 198 hectares of industrial zoned land on the subject site exceeds the LHR's Cessnock LGA's demand for industrial stock by 2031, however will be able to provide employment for the whole LHR given its strong connectivity. As such staged release of the precinct will likely occur over a period of time longer than the official employment forecasts. Urbis estimates between 5.3 - 8.4 hectares could be taken up per annum, resulting in a 24-37 years development timeframe. This is roughly in line with what was observed in the Cardiff Business Park, where 135 ha of industrial land took 20 years to be taken up (Subdivision Design Report, Hydro Aluminium Kurri Kurri 2013).

4.2 INFRASTRUCTURE AND SURROUNDING LAND USES

The subject site is poised to benefit from significant infrastructure projects existing, planned or under construction currently in the LHR.

Physical infrastructure and capital investment can provide a catalyst to the development of industrial precincts and the demand from industrial operators. It impacts a number of drivers associated with the success of industrial precincts:

- Access to customers/end users
- Connectivity and access to key transport routes (road, rail, port facilities, suppliers, etc.)
- Accessibility by workforce and population growth.

Physical infrastructure has a significant impact on these factors, providing greater accessibility to customers and workforce and reducing journey times. This section outlines relevant infrastructure that will service the subject site's employment lands.

These including:

- The Hunter Expressway (opened March 2014)
- South Maitland Railway.

In addition to this, there is a number of 'soft-infrastructure' or 'social infrastructure' assets that support the broader LHR economy. This primarily consists of the network of TAFEs throughout the LHR, including the Kurri Kurri campus located directly adjacent the subject site on McLeod Road, which contains a specialised Plant and Heavy Vehicle training centre.

Proximity to this infrastructure is a key factor in the successful redevelopment of the subject site within the LHR.

Given the site's location adjacent to the Hunter Expressway, ability to offer flexible lot sizes (due to its consolidated land ownership) and the expected growth in the freight and logistics and construction sectors, that the site cater to larger warehouse and distribution operators while also providing smaller sized options.

As such the combination of flexible lot sizes and transport infrastructure will increase the site's draw, and means it will likely cater to broader LHR demand for employment land (as opposed to purely local Cessnock businesses).

4.3 COMPETING EMPLOYMENT LANDS

The Cessnock LGA historically had a modest amount of industrial land. These were largely used for various urban services. More recently the addition of the Hunter Economic Zone (HEZ) has injected a large amount of vacant industrial zoned land into the LGA.

The major industrial areas in the Cessnock LGA are:

- Hunter Economic Zone
- Weston.

While most industrial zoned land is used for the purpose, the occupied lots in the B7 Business Park zoned area near Cessnock are currently being used for bulky goods retail, including a Bunnings Trade and auto servicing.

It is possible that not all of the current and proposed supply is seen as being suitable for servicing the demand which is expected to come mainly from the transport and storage, construction and mining

industries. These businesses typically require large land parcels, and access to transport routes is of course a key requirement for transport and storage, and mining businesses.

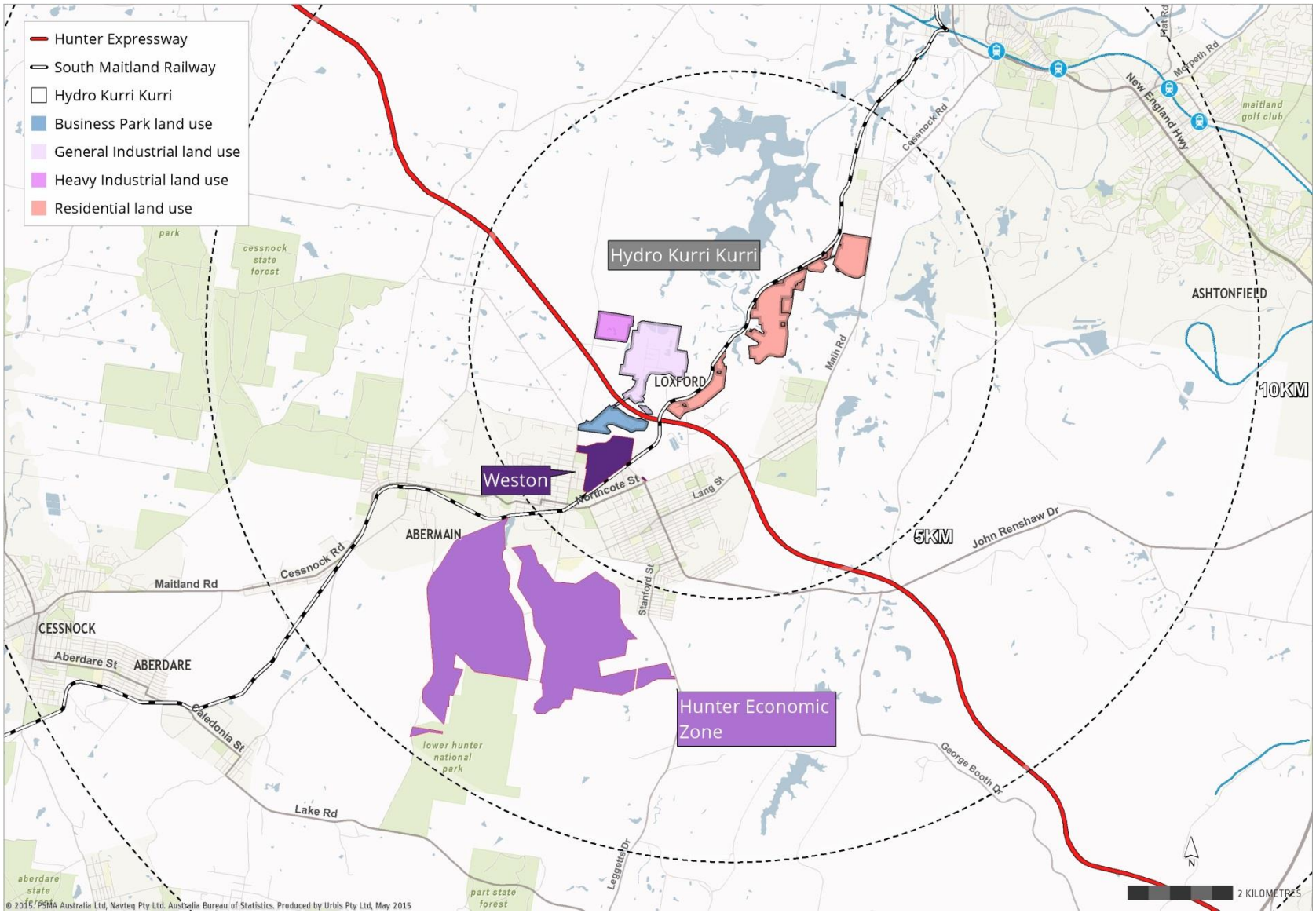
HEZ, due to its potential to provide large lots, was thought to be suitable to manufacturing and large logistics users. Despite this it has experienced poor uptake. Physical/ecological constraints, poor agglomeration (it does not attach to existing industry), poor connectivity and a comparable lack of access by a relevant workforce have been the key drivers behind this.

Urbis therefore considers HEZ's lack of competitiveness compared to other industrial precincts within the LHR as a barrier in attracting businesses into the Cessnock LGA.

Given the identified infrastructure and location attributes identified above in Section 4.2 the vacant HEZ industrial land is unlikely to compete significantly with the proposed industrial precinct at the subject site.

As such the existing employment lands within Cessnock may not have the attributes to attract sufficient industrial and business park tenant interest to sustain jobs growth within Cessnock or the broader LHR. This has economic development implications for the Cessnock LGA, and its capacity to attract additional industrial tenants.

By comparison the Hydro Aluminium site has a stronger connection to the Hunter Expressway, which makes it more accessible to workers, customers and other key pieces of infrastructure such as the Port of Newcastle.



Source: Hydro Aluminium Pty Ltd; Urbis

4.4 WORKER DEMOGRAPHICS

There is a strong connection between workforce, resident population and growth in employment / Cessnock's industrial base.

This subsequently has an impact on both the total quantum and type of employment land within Cessnock.

As such a review of the historic and forecast demographic profile of Cessnock and Lower Hunter workers will provide an indication of the type and required provision of employment lands within the LHR and Cessnock, to support ongoing economic development.

This section analyses worker's located within each LGA across the LHR and drivers behind demand for different types of land uses. It provides an indication of the type of workers available to the subject site.

4.4.1 AGE DISTRIBUTION

The table below illustrates the age distribution of workers within each LGA across the LHR.

- The majority of workers within the LHR are aged between 35 and 54 years of age (45.8%)
- Cessnock has the highest proportion of workers aged over 55 years of age (18.6%)
- Lake Macquarie has the highest proportion of workers aged under 24 years of age (19.5%), whilst Newcastle has the least (15.5%)
- 2.6 per cent of LHR workers are of retirement age (65 years) or older.

Age Distribution of Workers

LOWER HUNTER REGION TABLE 4.2

	Cessnock	Lake Macquarie	Maitland	Newcastle	Port Stephens	LHR
15-19 years	7.5%	8.9%	8.9%	5.3%	7.2%	7.0%
20-24 years	9.6%	10.6%	10.3%	10.2%	9.8%	10.3%
25-29 years	9.4%	9.3%	9.9%	10.7%	10.2%	10.1%
30-34 years	9.2%	8.6%	9.6%	10.3%	9.6%	9.6%
35-39 years	10.8%	10.2%	11.3%	11.3%	11.0%	11.0%
40-44 years	11.8%	10.9%	11.3%	11.8%	11.9%	11.5%
45-49 years	11.8%	11.6%	11.2%	11.9%	12.0%	11.8%
50-54 years	11.2%	11.5%	11.1%	11.9%	11.2%	11.6%
55-59 years	9.6%	9.6%	8.5%	9.1%	8.8%	9.2%
60-64 years	6.2%	5.7%	5.2%	5.1%	5.6%	5.4%
65-69 years	2.0%	2.0%	1.7%	1.6%	1.9%	1.8%
70-74 years	0.6%	0.6%	0.4%	0.5%	0.6%	0.5%
75-79 years	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
80-84 years	0.1%	0.1%	0.1%	0.0%	0.1%	0.1%
85-89 years	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
90-94 years	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
95-99 years	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
100 years +	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	100%	100%	100%	100%	100%	100%

Source: ABS; Urbis

4.4.2 WORKER EDUCATION

The table below depicts the highest year of school completed by workers of each LGA across the LHR.

- The majority of worker's across the LHR either completed year 12 (49.0%) or year 10 (34.2%)
- Newcastle has the highest proportion of workers who have completed year 12 (54.4%), whilst Cessnock has the least (40.4%).

Highest Year of School Completed (workers)

LOWER HUNTER REGION TABLE 4.3

	Cessnock	Lake Macquarie	Maitland	Newcastle	Port Stephens	LHR
Year 12 or equivalent	40.4%	45.2%	45.2%	54.4%	45.8%	49.0%
Year 11 or equivalent	7.6%	7.8%	8.0%	6.5%	8.8%	7.4%
Year 10 or equivalent	39.3%	36.3%	36.7%	31.0%	35.8%	34.2%
Year 9 or equivalent	8.4%	7.2%	6.7%	5.2%	6.5%	6.3%
Year 8 or below	2.4%	1.9%	1.9%	1.4%	1.8%	1.7%
Did not go to school	0.1%	0.1%	0.0%	0.1%	0.0%	0.1%
Not stated	1.8%	1.5%	1.4%	1.3%	1.3%	1.4%
Total	100%	100%	100%	100%	100%	100%

Source: ABS; Urbis

The table below depicts non-school qualifications completed by workers of each LGA across the LHR.

- 28.4 per cent of workers across the LHR have completed certificate training, with Port Stephens recording the highest certificate training completed (34.4%)
- 20.4 per cent of workers across the LHR have completed a bachelor degree or higher, with Newcastle having the highest bachelor degree or higher training (25.4%), and Cessnock having the least (14.7%)
- Cessnock has the lowest level of postgraduate qualifications completed (1.9%), whilst Newcastle has the highest (4.9%)
- This education profile indicates higher worker demand for industrial jobs than white collar jobs.

Non-School Qualifications

LOWER HUNTER REGION TABLE 4.4

	Cessnock	Lake Macquarie	Maitland	Newcastle	Port Stephens	LHR
Postgraduate Degree	1.9%	2.4%	2.6%	4.9%	2.4%	3.5%
Graduate Diploma and Graduate Certificate	1.4%	1.7%	1.8%	2.1%	1.2%	1.8%
Bachelor Degree	11.3%	13.0%	13.7%	18.4%	11.3%	15.1%
Advanced Diploma and Diploma	9.0%	9.3%	9.5%	10.8%	10.3%	10.1%
Certificate	29.9%	29.4%	29.0%	25.9%	34.0%	28.4%
Inadequately described	1.3%	1.3%	1.1%	1.3%	1.3%	1.3%
Not stated	3.1%	2.6%	2.6%	2.3%	2.4%	2.5%
Not applicable	41.9%	40.3%	39.6%	34.3%	37.1%	37.3%
Total	100%	100%	100%	100%	100%	100%

Source: ABS; Urbis

4.4.3 RESIDENT EDUCATION

The table below depicts the highest year of school completed by residents of each LGA across the LHR:

- Nominally, Newcastle and Lake Macquarie have the most year 12 graduates
- Cessnock has the lowest number of year 12 graduates both nominally (9,688) and proportionately (19%).

Highest Year of School Completed (Residents)

LOWER HUNTER REGION — TABLE 4.5

	Cessnock	Lake Macquarie	Maitland	Newcastle	Port Stephens	LHR
Year 12 or equivalent	19%	28%	26%	37%	25%	29%
Year 11 or equivalent	6%	5%	6%	5%	6%	5%
Year 10 or equivalent	29%	28%	28%	22%	28%	26%
Year 9 or equivalent	11%	9%	8%	7%	9%	9%
Year 8 or below	6%	5%	5%	4%	5%	5%
Did not go to school	0%	0%	0%	1%	0%	0%
Not stated	8%	6%	6%	7%	7%	6%
Not applicable	21%	19%	22%	17%	19%	19%
Total	100%	100%	100%	100%	100%	100%

Source: ABS; Urbis

The table below depicts non-school qualifications completed by residents of each LGA across the LHR:

- LGAs with a higher proportion of white collar based employment contain residents with higher education attainment, with 16 per cent of Newcastle and 11 per cent of Lake Macquarie residents having a bachelor degree (or higher)
- By comparison, 5 per cent of Cessnock residents hold a bachelor degree or higher, reflecting the higher proportion of its employment base in blue collar industry sectors
- Cessnock has a relatively higher proportion of residents with certificates at 20% of the resident population base, compared to other LGAs.

Non-School Qualifications

LOWER HUNTER REGION — TABLE 4.6

	Cessnock	Lake Macquarie	Maitland	Newcastle	Port Stephens	LHR
Postgraduate Degree	1%	2%	1%	3%	1%	2%
Graduate Diploma and Graduate Certificate	1%	1%	1%	1%	1%	1%
Bachelor Degree	4%	8%	7%	12%	6%	8%
Advanced Diploma and Diploma	4%	6%	6%	6%	6%	6%
Certificate	20%	19%	19%	16%	20%	19%
Inadequately described	1%	1%	1%	1%	1%	1%
Not stated	9%	7%	7%	8%	8%	8%
Not applicable	61%	55%	59%	52%	56%	56%
Total	100%	100%	100%	100%	100%	100%

Source: ABS; Urbis

4.4.4 INDUSTRY OF EMPLOYMENT

The table below depicts the industry of employment for LHR residents by LGA.

- Health care and social assistance is the largest industry of employment within the LHR due to large employment in both Lake Macquarie and Newcastle
- Manufacturing and retail trade are consistently large employment industries across the LHR
- Cessnock's workforce is focused on manufacturing, mining and accommodation and food services
- Manufacturing jobs may be skewed upwards slightly as the numbers were counted prior to the smelter shutting down.

Industry of Employment
LOWER HUNTER REGION TABLE 4.7

	Cessnock	Lake Macquarie	Maitland	Newcastle	Port Stephens	LHR
Agriculture, Forestry and Fishing	0.7%	0.1%	0.5%	0.1%	0.5%	0.3%
Mining	4.2%	1.2%	3.0%	0.8%	0.7%	1.5%
Manufacturing	5.1%	4.6%	5.4%	4.3%	4.3%	4.6%
Electricity, Gas, Water and Waste Services	0.5%	0.9%	0.7%	0.8%	0.4%	0.7%
Construction	3.1%	4.0%	3.8%	3.1%	3.5%	3.6%
Wholesale Trade	1.1%	1.4%	1.4%	1.3%	1.1%	1.3%
Retail Trade	4.7%	5.2%	5.3%	4.9%	4.8%	5.0%
Accommodation and Food Services	4.0%	2.8%	3.1%	3.7%	3.6%	3.3%
Transport, Postal and Warehousing	1.6%	1.9%	2.1%	1.9%	2.2%	1.9%
Information Media and Telecommunications	0.2%	0.4%	0.4%	0.6%	0.3%	0.4%
Financial and Insurance Services	0.6%	1.5%	1.0%	1.6%	0.8%	1.3%
Rental, Hiring and Real Estate Services	0.6%	0.6%	0.7%	0.7%	0.8%	0.7%
Professional, Scientific and Technical Services	1.4%	2.4%	2.3%	3.5%	1.9%	2.6%
Administrative and Support Services	1.4%	1.3%	1.5%	1.4%	1.3%	1.4%
Public Administration and Safety	1.7%	2.5%	2.7%	3.2%	4.3%	2.9%
Education and Training	2.0%	3.8%	3.3%	4.5%	2.6%	3.6%
Health Care and Social Assistance	4.5%	6.4%	5.4%	7.5%	4.6%	6.2%
Arts and Recreation Services	0.5%	0.5%	0.5%	0.7%	0.6%	0.5%
Other Services	2.1%	1.9%	2.3%	1.7%	1.8%	1.9%
Inadequately described	0.5%	0.5%	0.5%	0.4%	0.5%	0.5%
Not stated	0.5%	0.4%	0.4%	0.4%	0.4%	0.4%
Not applicable	58.9%	55.8%	53.8%	52.7%	58.9%	55.3%
Total	100%	100%	100%	100%	100%	100%

Source: ABS; Urbis

4.4.5 OCCUPATION

The table below depicts the occupation of LHR residents by LGA.

- Lake Macquarie, Maitland, and Newcastle have a much higher level of professionals than Cessnock and Port Stephens
- The majority of Cessnock and Port Stephens residents are employed in blue collar industries
- Technicians and trade workers is the highest employment industry for Cessnock, Maitland and Port Stephens
- The higher proportion of technicians and trade workers in the Cessnock LGA reflects the education outcomes noted previously, with a higher proportion of residents certificates rather than higher education qualifications.

Occupation

LOWER HUNTER REGION — TABLE 4.8

	Cessnock	Lake Macquarie	Maitland	Newcastle	Port Stephens	LHR
Managers	3.6%	4.3%	4.5%	4.7%	4.6%	4.4%
Professionals	4.4%	8.4%	7.7%	12.2%	5.8%	8.7%
Technicians and Trades Workers	7.8%	7.4%	8.4%	6.5%	7.7%	7.3%
Community and Personal Service Workers	4.3%	4.4%	4.2%	5.0%	4.6%	4.6%
Clerical and Administrative Workers	4.7%	6.7%	6.5%	6.7%	5.5%	6.3%
Sales Workers	4.0%	4.7%	4.6%	4.7%	4.4%	4.6%
Machinery Operators and Drivers	6.0%	3.3%	4.8%	2.8%	3.4%	3.6%
Labourers	5.5%	4.4%	4.8%	4.2%	4.4%	4.5%
Inadequately described	0.4%	0.4%	0.4%	0.4%	0.3%	0.4%
Not stated	0.4%	0.3%	0.3%	0.3%	0.3%	0.3%
Not applicable	58.9%	55.8%	53.8%	52.7%	58.9%	55.3%
Total	100%	100%	100%	100%	100%	100%

Source: ABS; Urbis

4.4.6 JOURNEY TO WORK

The table below depicts the relationship between where LHR residents live and work.

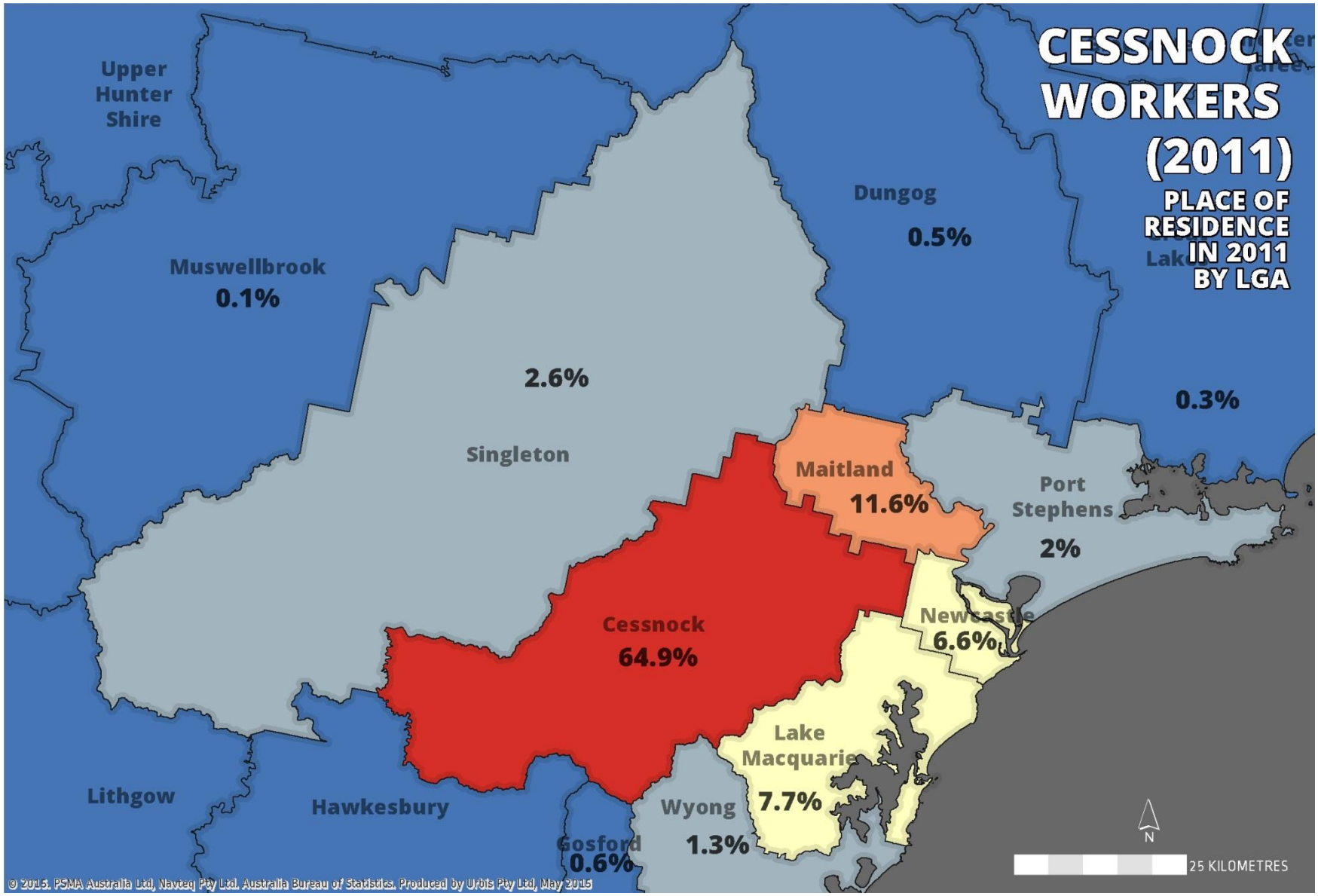
- The majority of residents work within their local LGA
- Newcastle residents spread furthest from their local LGA, with over 50 per cent of residents working in a neighbouring or interstate LGA
- This has ramifications for potential uses on the subject site for accessing a workforce, which will likely draw on a local workforce. This may preclude certain uses that rely on workers with higher education or typical 'white collar' backgrounds. The prevalence of local blue collar workers would support the presence of industrial sector businesses rather than higher order white collar based employment.

Journey to Work

LOWER HUNTER REGION — TABLE 4.9

	LGA of Employment					
LGA of Residence	Cessnock	Lake Macquarie	Maitland	Newcastle	Port Stephens	LHR
Cessnock	64.9%	2.0%	9.2%	2.2%	2.0%	7.3%
Lake Macquarie	7.7%	68.4%	8.3%	30.1%	8.5%	33.5%
Maitland	11.6%	2.7%	56.2%	7.5%	8.6%	12.3%
Newcastle	6.6%	18.0%	11.7%	49.1%	14.9%	29.8%
Port Stephens	2.0%	1.7%	7.5%	6.0%	61.0%	11.1%
Other	7.2%	7.1%	7.0%	5.0%	5.0%	5.9%
Total	100%	100%	100%	100%	100%	100%

Source: ABS; Urbis


CESSNOCK WORKERS (2011)
PLACE OF RESIDENCE IN 2011 BY LGA
Upper Hunter Shire
Muswellbrook
0.1%
2.6%
Singleton
Dungog
0.5%
0.3%
Maitland
11.6%
Port Stephens
2%
Newcastle
6.6%
Cessnock
64.9%
Lake Macquarie
7.7%
Wyong
1.3%
Gosford
0.6%
Lithgow
Hawkesbury
N
25 KILOMETRES
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4.5 EMPLOYMENT PROFILE AND PROJECTIONS

The existing profile of Cessnock's employment base can largely be described as 'blue collar', with a large proportion of:

- Labourers (13.2%)
- Machinery operators and drivers (9.0%)
- Manufacturing jobs (12.9%).

These jobs typically require specialised industrial buildings to operate effectively, requiring a provision of appropriately zoned employment land.

In addition to this, community and personal services workers comprise 13.4% of the local job base, reflected in the proportion of jobs in accommodation and food services (14.3%).

While this is exceeded by the traditional blue collar jobs base, it reflects diversity within the local economy that would benefit from a growing resident market brought on by population growth.

4.5.1 EMPLOYMENT PROFILE

The table below depicts the occupation of LHR workers by LGA.

- Whilst professionals are the majority occupation within the LHR (20.4%), this is largely derived from the amount of professionals employed within the Newcastle LGA (22,088; 25.1%)
- Cessnock has the highest proportion of community and personal service workers (13.4%), labourers (13.2%), and machinery operators and drivers (9.0%).

Occupation
LOWER HUNTER REGION TABLE 4.10

	Cessnock	Lake Macquarie	Maitland	Newcastle	Port Stephens	LHR
Managers	11.2%	9.8%	10.7%	10.2%	12.2%	10.5%
Professionals	15.2%	17.3%	18.6%	25.1%	14.3%	20.4%
Technicians and Trades Workers	14.6%	15.7%	16.1%	13.1%	22.1%	15.2%
Community and Personal Service Workers	13.4%	11.4%	9.5%	9.5%	10.3%	10.4%
Clerical and Administrative Workers	10.9%	14.2%	15.0%	18.2%	12.6%	15.7%
Sales Workers	11.7%	13.7%	12.7%	8.6%	10.0%	10.8%
Machinery Operators and Drivers	9.0%	6.9%	7.2%	6.4%	8.2%	7.0%
Labourers	13.2%	10.4%	9.5%	8.1%	9.3%	9.3%
Inadequately described	0.6%	0.6%	0.5%	0.7%	0.8%	0.7%
Not stated	0.2%	0.1%	0.2%	0.1%	0.2%	0.1%
Not applicable	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	100%	100%	100%	100%	100%	100%

Source: ABS; Urbis

The table below depicts the industry of employment for LHR workers by LGA.

Cessnock employs one of the largest proportions of blue collar workers within the LHR, with accommodation and food services (14.3%), retail trade (13.7%) and manufacturing (12.9%) being the largest employment contributors.

Industry of Employment

LOWER HUNTER REGION TABLE 4.11

	Cessnock	Lake Macquarie	Maitland	Newcastle	Port Stephens	LHR
Agriculture, Forestry and Fishing	2.3%	0.3%	1.0%	0.2%	1.3%	0.6%
Mining	4.2%	3.0%	2.3%	0.7%	0.6%	1.7%
Manufacturing	12.9%	10.2%	9.0%	9.6%	18.8%	11.0%
Electricity, Gas, Water and Waste Services	0.4%	1.3%	1.5%	2.4%	0.7%	1.7%
Construction	7.1%	7.7%	7.9%	5.4%	6.8%	6.6%
Wholesale Trade	1.7%	3.1%	2.5%	3.6%	2.0%	3.0%
Retail Trade	13.7%	15.7%	14.7%	9.3%	10.9%	12.1%
Accommodation and Food Services	14.3%	8.0%	7.2%	6.6%	9.1%	7.8%
Transport, Postal and Warehousing	2.7%	3.2%	4.0%	5.2%	4.4%	4.3%
Information Media and Telecommunications	0.4%	0.7%	0.7%	1.4%	0.5%	1.0%
Financial and Insurance Services	1.1%	3.3%	2.2%	4.2%	1.2%	3.2%
Rental, Hiring and Real Estate Services	1.6%	1.6%	2.2%	1.5%	1.9%	1.7%
Professional, Scientific and Technical Services	3.0%	4.6%	5.8%	8.2%	4.3%	6.2%
Administrative and Support Services	2.6%	2.6%	3.5%	2.7%	2.1%	2.7%
Public Administration and Safety	4.9%	4.3%	5.5%	6.3%	16.7%	6.8%
Education and Training	8.7%	8.8%	8.7%	9.1%	5.5%	8.5%
Health Care and Social Assistance	11.1%	14.6%	13.2%	18.1%	7.0%	14.9%
Arts and Recreation Services	1.4%	1.1%	0.9%	1.1%	1.4%	1.2%
Other Services	4.8%	4.9%	6.2%	3.7%	3.9%	4.4%
Inadequately described	0.9%	0.9%	1.0%	0.8%	0.9%	0.9%
Not stated	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Not applicable	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	100%	100%	100%	100%	100%	100%

Source: ABS; Urbis

4.5.2 EMPLOYMENT PROJECTIONS

While Newcastle and Lake Macquarie Council areas are expected to attract the majority of employment growth amongst LHR LGAs, Cessnock is expected to experience the highest annual growth in jobs growth between 2011 and 2031, with 1.3% growth per annum.

Employment Projections

LOWER HUNTER REGION TABLE 4.12

	2011	2016	2021	2026	2031	Jobs Growth (2011-31)	Annual Growth (2011-31)
Cessnock	17,738	18,905	20,191	21,550	23,062	5,324	1.3%
Lake Macquarie	65,013	66,860	69,456	72,533	75,428	10,415	0.7%
Maitland	27,734	28,311	29,900	31,711	33,425	5,691	0.9%
Newcastle	106,812	111,299	117,363	122,193	125,621	18,809	0.8%
Port Stephens	28,046	28,809	30,172	31,748	33,256	5,210	0.9%
Total	**245,343**	**254,184**	**267,082**	**279,735**	**290,792**	**45,449**	**0.9%**

Source: BTS; Urbis

Accommodating this jobs growth requires appropriately zoned land. The specific type of land required, such as industrial, commercial and mixed use is largely determined by the industry sector that this growth occurs in.

Table 4.13 overleaf illustrates that future jobs growth in Cessnock is focused in services sector, with retail trade (+795 jobs) and accommodation and food services (+923 jobs) comprising the largest growth in jobs.

Despite this there are a number of other industry sectors that would require employment land and business park lands, such as:

- Manufacturing (+373 jobs)

- Construction (+518 jobs)
- Transport, Postal and Warehousing (+327 jobs)
- Professional, Scientific and Technical Services (+303 jobs).

Change in Employment by Industry (Jobs) – 2011 to 2031

LOWER HUNTER REGION TABLE 4.13

	Cessnock	Lake Macquarie	Maitland	Newcastle	Port Stephens
Agriculture, Forestry & Fishing	119	-3	42	229	56
Mining	-60	-180	246	-203	-12
Manufacturing	373	849	690	-1,073	358
Electricity, Gas, Water & Waste Services	107	52	88	119	24
Construction	518	1,475	611	1,538	428
Wholesale Trade	160	-289	68	-618	79
Retail Trade	795	967	786	2,098	872
Accommodation & Food Services	923	992	408	2,405	608
Transport, Postal & Warehousing	327	493	214	993	123
Information Media & Telecommunications	18	52	-20	715	12
Financial & Insurance Services	10	499	-9	1,113	-45
Rental, Hiring & Real Estate Services	56	142	42	504	152
Professional, Scientific & Technical Services	303	368	46	3,442	127
Administrative & Support Services	168	322	68	433	183
Public Administration & Safety	324	690	358	2,022	484
Education & Training	334	656	591	1,488	529
Health Care & Social Assistance	516	2,408	1,187	2,457	743
Arts & Recreation Services	6	114	34	300	153
Other Services	266	775	254	850	277
Unclassified	61	34	-10	1	60
Total	5,324	10,416	5,694	18,813	5,211

Green – top third, Yellow – middle third, Red – bottom third (of LGA)

Source: BTS; Urbis

Jobs growth in these sectors however is dependent upon the provision of competitive employment lands, can attract additional share of regional employment growth.

Employment Projections

LOWER HUNTER REGION

TABLE 4.14

	2011		2016		2021		2026		2031		2011 - 2031	
Industry Sector	#	%	#	%	#	%	#	%	#	%	Total Change	Annual Growth
Agriculture, Forestry & Fishing	1,470	0.6%	1,654	0.7%	1,755	0.7%	1,834	0.7%	1,913	0.7%	443	1.3%
Mining	4,522	1.8%	3,912	1.5%	4,058	1.5%	4,191	1.5%	4,313	1.5%	-209	-0.2%
Manufacturing	26,731	10.9%	26,632	10.5%	27,245	10.2%	27,624	9.9%	27,928	9.6%	1,197	0.2%
Electricity, Gas, Water & Waste Services	4,129	1.7%	3,761	1.5%	3,978	1.5%	4,277	1.5%	4,519	1.6%	390	0.5%
Construction	16,997	6.9%	17,969	7.1%	19,135	7.2%	20,324	7.3%	21,567	7.4%	4,570	1.2%
Wholesale Trade	7,235	2.9%	7,278	2.9%	7,036	2.6%	6,829	2.4%	6,635	2.3%	-600	-0.4%
Retail Trade	29,335	12.0%	31,041	12.2%	32,308	12.1%	33,652	12.0%	34,853	12.0%	5,518	0.9%
Accommodation & Food Services	19,421	7.9%	20,536	8.1%	21,997	8.2%	23,359	8.4%	24,757	8.5%	5,336	1.2%
Transport, Postal & Warehousing	10,724	4.4%	10,968	4.3%	11,463	4.3%	12,153	4.3%	12,874	4.4%	2,150	0.9%
Information Media & Telecommunications	2,421	1.0%	2,756	1.1%	3,012	1.1%	3,118	1.1%	3,198	1.1%	777	1.4%
Financial & Insurance Services	7,347	3.0%	7,591	3.0%	7,987	3.0%	8,473	3.0%	8,915	3.1%	1,568	1.0%
Rental, Hiring & Real Estate Services	3,860	1.6%	4,131	1.6%	4,403	1.6%	4,589	1.6%	4,756	1.6%	896	1.0%
Professional, Scientific & Technical Services	14,564	5.9%	15,044	5.9%	16,458	6.2%	17,836	6.4%	18,850	6.5%	4,286	1.3%
Administrative & Support Services	6,717	2.7%	6,987	2.7%	7,387	2.8%	7,619	2.7%	7,891	2.7%	1,174	0.8%
Public Administration & Safety	16,089	6.6%	16,491	6.5%	17,529	6.6%	18,787	6.7%	19,967	6.9%	3,878	1.1%
Education & Training	20,093	8.2%	20,731	8.2%	22,049	8.3%	22,999	8.2%	23,691	8.1%	3,598	0.8%
Health Care & Social Assistance	35,534	14.5%	38,076	15.0%	39,817	14.9%	41,647	14.9%	42,845	14.7%	7,311	0.9%
Arts & Recreation Services	2,794	1.1%	2,994	1.2%	3,117	1.2%	3,265	1.2%	3,401	1.2%	607	1.0%
Other Services	10,518	4.3%	10,869	4.3%	11,501	4.3%	12,224	4.4%	12,940	4.4%	2,422	1.0%
Unclassified	4,833	2.0%	4,758	1.9%	4,848	1.8%	4,938	1.8%	4,979	1.7%	146	0.1%
Total	245,334	100%	254,179	100%	267,083	100%	279,738	100%	290,792	100%	45,458	0.9%

Source: BTS; Urbis

4.6 FUTURE EMPLOYMENT LAND DEMAND

The change in jobs by land use is highlighted below.

Of the 45,459 new jobs expected to be created in the Lower Hunter between 2011 and 2031, approximately 3,528 of these are expected to be in industrial based sectors, with 902 of these jobs forecast for Cessnock LGA.

Change in Employment by Land Use (Jobs) – 2011 to 2031

LOWER HUNTER REGION TABLE 4.15

	Cessnock	Lake Macquarie	Maitland	Newcastle	Port Stephens	LHR
Industrial	902	1,084	1,356	-463	649	3,528
Office	1,244	3,113	878	9,069	1,341	15,642
Retail	979	1,061	823	2,365	952	6,180
Education	317	623	561	1,414	502	3,418
Health	465	2,167	1,068	2,211	668	6,580
Other	753	950	380	2,280	637	5,002
Off-site	495	1,180	504	1,443	353	3,977
Home	168	239	124	491	108	1,130

Green – top third, Yellow – middle third, Red – bottom third (of LGA)

Source: BTS; Urbis

This will result in the take up of 176 ha (8.8 ha per annum) additional industrial land in the LHR, 45 ha (2.25 ha per annum) which are expected to be generated by residents of Cessnock LGA by 2031.

The 198 hectares of industrial zoned land (38.2 hectares of Business Park, 34 hectares of heavy industrial, 125.5 hectares of general industrial land) on the subject site exceeds the Cessnock LGA's demand for industrial stock by 2031, however it will play a role in servicing employment demand in the whole LHR.

As such staged release of the precinct will likely occur over a period of time longer than the official employment forecasts.

Change in Required Land Use (Hectares) – 2011 to 2031

LOWER HUNTER REGION TABLE 4.16

	Cessnock	Lake Macquarie	Maitland	Newcastle	Port Stephens	LHR
Industrial	45	54	68	-23	32	176
Office	10	24	7	70	10	120
Retail	12	13	10	30	12	77
Education	6	11	10	26	9	62
Health	5	24	12	25	7	73
Other	11	14	5	33	9	71
Off-site	-	-	-	-	-	-
Home	-	-	-	-	-	-

Green – top third, Yellow – middle third, Red – bottom third (of LGA)

Source: BTS; Urbis

In an Industrial Land Supply Analysis report provided to Hydro Aluminium previously, Urbis estimated the subject site could potentially attract an annual take-up of 5-10 hectares of net area. This translates to approximately 20-40 years to take up, and between 60-95% of the total demand for employment land in the LHR in the previous report.

Since then a revision of employment forecasts by the NSW Bureau of Transport Statistics (BTS) as well as additional analysis of 2011 base period Census Place of Work data has predicted a slower employment growth rate. The impact is likely a take up rate close to the low end range forecast in our previous report.

Maintaining the subject site's share of LHR's of future employment land demand (60-95% as staged on the previous page) estimated previously, this would now result in 5.3-8.4 ha per annum, 24-37 years development timeframe.

This is roughly in line with what was observed in the Cardiff Business Park, where 135 ha of industrial land took 20 years to be taken up (Subdivision Design Report, Hydro Aluminium Kurri Kurri 2013).

This will form the basis of the staging of Urbis' take up rate and staging of economic benefits in the following section of this report.

5 Economic Benefits

This section of the report looks at the economic benefits arising from the redevelopment of the Hydro Aluminium smelter site over time.

The maximum potential employment benefits stemming from the redevelopment of the subject site are derived from both the ongoing operations of employment generating land uses and the construction of the land uses outlined in Table 5.1 below:

Ongoing Employment Per Land Use

HYDRO ALUMINIUM MASTERPLAN TABLE 5.1

LAND USE	LAND SIZE	GFA (SQM)	SQM PER JOB[1]	ONGOING EMPLOYMENT
Heavy Industrial	34.38ha	120,330	200	600
General Industrial	125.5ha	439,250	150	2,900
Business Park	38.18ha	133,630	40.5	3,300
Residential	128ha	1,275,700	N/A	N/a
Neighbourhood Centre	5,046m^2	2,523	25	100
Total				**6,900**

[1] *Urbis employment benchmarks*

Source: Hydro Aluminium; ABS; Urbis

5.1 CONSTRUCTION STAGING

Urbis have identified the following staging assumptions to inform the timeframe outlined in Tables 5.2 and 5.3:

- Employment land take up between 5.3 and 8.2 hectares per annum, derived from the employment projections in Section 4.6. The employment lands are expected to be taken up at the following years:
  - **Low case scenario:** 37 years, at 5.3ha per annum
  - **High case scenario:** 23 years, at 8.2ha per annum.
- Residential take up of between 50 and 80 lots per annum, from comparable residential projects in the LHR. The residential land is expected to be taken up in:
  - **Low case scenario:** 41 years, at 50 lots per annum
  - **High case scenario:** 26 years, at 80 lots per annum.

Residential take up rates take into account the competing residential precincts surrounding Hydro Kurri Kurri, and are in line with sales rates at comparable residential releases areas (e.g. Mirvac's Gillieston Heights project has achieved an average of 70 lots per annum).

The sequencing of the employment land uses being developed is based on the Subdivision Design Report prepared by Pulver, Coopler & Blackley (PCB), where the Business Park land developed in stages

1 and 2, General Industrial in stages 3 to 8 and the Heavy Industrial is developed in stage 9. It is likely that these stages will be run concurrently at different points of time, as the three industrial land uses serve different tenant markets.

Employment Land Take Up

LOW AND HIGH CASE SCENARIO TABLE 5.2

Low Case Scenario 5.3 ha per annum	**0-5**	**5-10**	**10-15**	**15-20**	**20-25**	**25-30**	**30-35**	**35-40**
Heavy Industrial	0	0	0	0	8	16	24	34
General Industrial	13	15	41	67	86	104	123	126
Business Park	13	38	38	38	38	38	38	38
Total	**26**	**53**	**79**	**106**	**132**	**158**	**185**	**198**
High Case Scenario 8.4 ha per annum	**0-5**	**5-10**	**10-15**	**15-20**	**20-25**	**25-30**	**30-35**	**35-40**
Heavy Industrial	0	0	0	4	34	34	34	34
General Industrial	21	46	88	126	126	126	126	126
Business Park	21	38	38	38	38	38	38	38
Total	**42**	**84**	**126**	**168**	**198**	**198**	**198**	**198**

Source: Urbis; BTS

Residential and Neighbourhood Centre Take Up

LOW AND HIGH CASE SCENARIO TABLE 5.3

Low Case Scenario 50 lots per annum	**0-5**	**5-10**	**10-15**	**15-20**	**20-25**	**25-30**	**30-35**	**35-40**	**40-45**
Residential Lots	250	500	750	1,000	1,250	1,500	1,750	2,000	2,072
Resident Population	650	1,300	1,950	2,600	3,250	3,900	4,550	5,200	5,387
Resident Spend ($ million, per annum)	$7.0	$13.9	$20.9	$27.8	$34.8	$41.7	$48.7	$55.6	$57.6
Hectares									
Residential	21	42	64	85	106	127	149	170	176
Neighbourhood Centre	0.0	0.1	0.2	0.2	0.3	0.4	0.4	0.5	0.5
Total	**21**	**43**	**64**	**85**	**106**	**128**	**149**	**170**	**177**
High Case Scenario 80 lots per annum	**0-5**	**5-10**	**10-15**	**15-20**	**20-25**	**25-30**	**30-35**	**35-40**	**40-45**
Residential Lots	400	800	1200	1600	2000	2072	2072	2072	2072
Resident Population	1,040	2,080	3,120	4,160	5,200	5,387	5,387	5,387	5,387
Resident Spend ($ million, per annum)	$11.1	$22.3	$33.4	$44.5	$55.6	$57.6	$57.6	$57.6	$57.6
Hectares									
Residential	34	68	102	136	170	176	176	176	176
Neighbourhood Centre	0.0	0.2	0.3	0.4	0.5	0.5	0.5	0.5	0.5
Total	**34**	**68**	**102**	**136**	**170**	**177**	**177**	**177**	**177**

Source: Urbis

5.2 RESIDENTIAL STAGING

The jobs associated with the residential component of the Hydro Aluminium masterplan are derived largely from construction and the ongoing employment in the neighbourhood centres.

Ongoing jobs in the neighbourhood centres have been estimated to be 102 jobs at full development. Under the low case scenario this is expected to occur in year 26, and year 41 under the high case scenario.

Construction jobs are divided into direct jobs and indirect jobs.

Indirect supplier jobs stem from an increased demand for materials, services and products from a whole range of suppliers, as a result of increased consumption generated by the wages of new employees.

In economic terms, it represents the absorption of excess supply in other parts of the economy driven by an increase in aggregate demand in the retail industry.

Indirect employment impacts are measured using employment multipliers derived from the Australian National Accounts Input-Output tables, 1996-97. When using these multipliers, a number of issues need to be kept in mind:

- The multipliers reflect how the economy was structured in 1996-97. Since then, the structure of the economy has changed, and the actual impacts are likely to have changed.
- The multipliers are based on a static view of the economy, and do not consider price changes driven by changes in demand. This means that results from Input-Output multiplier analysis are likely to represent the upper bound of employment impacts.
- The multipliers are national multipliers, not regional. Therefore, while many of the directly created jobs will be filled by locals, many of the indirect jobs are likely to be filled elsewhere.

Urbis have estimated that the capital expenditure associated with the construction of the above uses to be approximately $193 million.

The impact of the two staging scenarios simply affects when the construction jobs will occur. Under the low case scenario, the construction jobs are spread out, while the high case scenario because it is being built faster results in larger construction jobs at any one point of time.

Residential Staging

LOW CASE SCENARIO (CONSTANT $ 2015) TABLE 5.4

Low Case Scenario 50 lots per annum	**0-5**	**5-10**	**10-15**	**15-20**	**20-25**	**25-30**	**30-35**	**35-40**	**40-45**
Residential Lots	250	500	750	1,000	1,250	1,500	1,750	2,000	2,072
Resident Population	650	1,300	1,950	2,600	3,250	3,900	4,550	5,200	5,387
Resident Spend ($ million, per annum)	$7.0	$13.9	$20.9	$27.8	$34.8	$41.7	$48.7	$55.6	$57.6
Hectares									
Residential	21	42	64	85	106	127	149	170	176
Neighbourhood Centre	0.0	0.1	0.2	0.2	0.3	0.4	0.4	0.5	0.5
Total	**21**	**43**	**64**	**85**	**106**	**128**	**149**	**170**	**177**
Gross Floor Area (GFA)									
Residential	13,074	26,149	39,223	52,298	65,372	78,446	91,521	104,595	108,518
Neighbourhood Centre	0	614	922	1,229	1,536	1,843	2,151	2,458	2,550
Total	**13,074**	**26,763**	**40,145**	**53,526**	**66,908**	**80,290**	**93,671**	**107,053**	**111,067**
Ongoing Jobs									
Residential	0	0	0	0	0	0	0	0	0
Neighbourhood Centre	0	25	37	49	61	74	86	98	102
Total	**0**	**25**	**37**	**49**	**61**	**74**	**86**	**98**	**102**
Worker Spend ($ million per annum)	$0.0	$2.2	$3.3	$4.4	$5.5	$6.6	$7.7	$8.8	$9.1
Capital Expenditure ($ million)									
Residential	$23	$23	$23	$23	$23	$23	$23	$23	$7
Neighbourhood Centre	$0.0	$0.9	$0.5	$0.5	$0.5	$0.5	$0.5	$0.5	$0.1
Total	**$23**	**$24**	**$23**	**$23**	**$23**	**$23**	**$23**	**$23**	**$7**
Direct Construction Jobs									
Residential	99	99	99	99	99	99	99	99	30
Neighbourhood Centre	0	4	2	2	2	2	2	2	1
Total	**99**	**103**	**101**	**101**	**101**	**101**	**101**	**101**	**30**
Indirect Construction									
Residential	15	15	15	15	15	15	15	15	4
Neighbourhood Centre	0	1	0	0	0	0	0	0	0
Total	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**4**

Source: Urbis

Residential Staging

HIGH CASE SCENARIO (CONSTANT $ 2015) TABLE 5.5

High Case Scenario 80 lots per annum	**0-5**	**5-10**	**10-15**	**15-20**	**25-30**	**30-35**
Residential Lots	400	800	1,200	1,600	2,000	2,072
Resident Population	1,040	2,080	3,120	4,160	5,200	5,387
Resident Spend ($ million, per annum)	$11.1	$22.3	$33.4	$44.5	$55.6	$57.6
Hectares						
Residential	34	68	102	136	170	176
Neighbourhood Centre	0.0	0.2	0.3	0.4	0.5	0.5
Gross Floor Area (GFA)						
Residential	20,919	41,838	62,757	83,676	104,595	108,361
Neighbourhood Centre	0	983	1,475	1,966	2,458	2,546
Total	**20,919**	**42,821**	**64,232**	**85,642**	**107,053**	**110,907**
Ongoing Jobs						
Residential	0	0	0	0	1	2
Neighbourhood Centre	0	39	59	79	98	102
Total	**0**	**39**	**59**	**79**	**99**	**104**
Worker Spend ($ million per annum)	$0.0	$2.8	$4.1	$5.5	$6.9	$7.3
Capital Expenditure ($ million)						
Residential	$37	$37	$37	$37	$37	$7
Neighbourhood Centre	$0.0	$1.7	$0.9	$0.9	$0.9	$0.2
Total	**$37**	**$38**	**$37**	**$37**	**$37**	**$7**
Direct Construction Jobs						
Residential	158	158	158	158	158	28
Neighbourhood Centre	0	7	4	4	4	1
Total	**158**	**165**	**161**	**161**	**161**	**29**
Indirect Construction Jobs						
Residential	23	23	23	23	23	4
Neighbourhood Centre	0	1	1	1	1	0
Total	**23**	**24**	**24**	**24**	**24**	**4**

Source: Urbis

5.3 EMPLOYMENT LAND STAGING

The heavy and general industrial areas are expected to support a combined 3,500 jobs. The business park is expected to generate 3,300. In total approximately 6,800 jobs are expected to be accommodated on the subject site's employment lands (in addition to the neighbourhood centre jobs identified above).

The staging of the employment lands has the effect of bringing forward full-employment in the high case scenario at full-development of the subject site in 23 years, while the low case scenario is expected to take 37 years to develop fully.

Employment Land Staging

LOW CASE SCENARIO TABLE 5.6

Low Case Scenario 5.3 ha per annum	**0-5**	**5-10**	**10-15**	**15-20**	**20-25**	**25-30**	**30-35**	**35-40**
Heavy Industrial	0	0	0	0	8	16	24	34
General Industrial	13	15	41	67	86	104	123	126
Business Park	13	38	38	38	38	38	38	38
Total	**26**	**53**	**79**	**106**	**132**	**158**	**185**	**198**
Gross Floor Area (GFA)								
Heavy Industrial	0	0	0	0	27,720	55,440	83,160	120,330
General Industrial	46,200	51,170	143,570	235,970	300,650	365,330	430,010	439,250
Business Park	46,200	133,630	133,630	133,630	133,630	133,630	133,630	133,630
Total	**92,400**	**184,800**	**277,200**	**369,600**	**462,000**	**554,400**	**646,800**	**693,210**
Ongoing Jobs								
Heavy Industrial	0	0	0	0	139	277	416	602
General Industrial	308	341	957	1,573	2,004	2,436	2,867	2,928
Business Park	1,141	3,300	3,300	3,300	3,300	3,300	3,300	3,300
Total	**1,449**	**3,641**	**4,257**	**4,873**	**5,442**	**6,012**	**6,582**	**6,829**
Worker Income ($ 2015 million per annum)	$87.4	$220.7	$256.6	$292.4	$325.5	$358.7	$391.8	$406.2
Capital Expenditure ($ million)								
Heavy Industrial	$0	$0	$0	$0	$28	$28	$28	$37
General Industrial	$46	$5	$92	$92	$65	$65	$65	$9
Business Park	$83	$157	$0	$0	$0	$0	$0	$0
Total	**$129**	**$162**	**$92**	**$92**	**$92**	**$92**	**$92**	**$46**
Direct Construction Jobs								
Heavy Industrial	0	0	0	0	119	119	119	160
General Industrial	199	21	398	398	279	279	279	40
Business Park	358	678	0	0	0	0	0	0
Total	**557**	**699**	**398**	**398**	**398**	**398**	**398**	**200**
Indirect Construction Jobs								
Heavy Industrial	0	0	0	0	44	44	44	59
General Industrial	73	8	145	145	102	102	102	15
Business Park	131	248	0	0	0	0	0	0
Total	**204**	**256**	**145**	**145**	**145**	**145**	**145**	**73**

Source: Urbis; BTS

Employment Land Staging

HIGH CASE SCENARIO — TABLE 5.7

High Case Scenario 8.2 ha per annum	**0-5**	**5-10**	**10-15**	**15-20**	**20-25**
Hectares					
Heavy Industrial	0	0	13	25	34
General Industrial	21	46	75	105	126
Business Park	21	38	38	38	38
Total	**42**	**84**	**126**	**168**	**198**
Gross Floor Area (GFA)					
Heavy Industrial	0	0	44,100	88,200	120,400
General Industrial	73,500	160,370	263,270	366,170	439,250
Business Park	73,500	133,630	133,630	133,630	133,630
Total	**147,000**	**294,000**	**441,000**	**588,000**	**693,280**
Ongoing Jobs					
Heavy Industrial	0	0	221	441	602
General Industrial	490	1,069	1,755	2,441	2,928
Business Park	1,815	3,300	3,300	3,300	3,300
Total	**2,305**	**4,369**	**5,275**	**6,182**	**6,830**
Worker Income ($ 2015 million per annum)	$145.4	$277.1	$341.6	$406.2	$452.4
Capital Expenditure ($ million)	**0-5**	**5-10**	**10-15**	**15-20**	**20-25**
Heavy Industrial	$0	$0	$44	$44	$32
General Industrial	$74	$87	$103	$103	$73
Business Park	$132	$108	$0	$0	$0
Total	**$206**	**$195**	**$147**	**$147**	**$105**
Direct Construction Jobs					
Heavy Industrial	0	0	190	190	139
General Industrial	317	374	443	443	315
Business Park	570	466	0	0	0
Total	**886**	**840**	**633**	**633**	**453**
Indirect Construction Jobs					
Heavy Industrial	0	0	69	69	51
General Industrial	116	137	162	162	115
Business Park	208	170	0	0	0
Total	**324**	**307**	**231**	**231**	**166**

Source: Urbis; BTS

5.4 SUMMARY OF BENEFITS

At full development the Hydro Aluminium masterplan is expected to deliver.

- Ongoing jobs expansion of approximately **6,900 jobs**
- Expansion of ongoing jobs will result in an additional **$448.6 million worker income per annum**
- The expansion in population from the delivery of new housing and subsequent population growth is expected to expand local retail spend by **$58.4 million** at full development.

The low and high case staging will impact when these benefits are realised:

- **37 years** under the low case employment lands, at **5.3 ha per annum**
- **23 years** under the high case employment lands, at **8.4 ha per annum.**

Under the residential staging scenarios, the 2,072 residential lots will be delivered along with the associated neighbourhood centres by:

- **41 years** under the low case residential land at **50 lots per annum**
- **26 years** under the high case residential land at **80 lots per annum.**

6 Conclusion and Summary

The LHRS sets out the need for additional housing and employment land development within the Lower Hunter Region, to meet the housing and job targets outlined in the Lower Hunter Regional Strategy (LHRS) of:

- Provision of up to 115,000 new dwellings for a projected 160,000 new residents from 2011 to 2031
- Provide capacity to accommodate 66,000 new jobs in the LHR from 2011 to 2031.

It is estimated that the proposed masterplan for the Hydro smelter redevelopment will contribute the following housing and jobs to the LHRS targets:

- 2,100 new housing lots, representing 3% of the LHRS' detached housing target
- 6,900 new jobs, representing 10.5% of the LHRS' jobs target.

Of the 45,459 new jobs expected to be created in the Lower Hunter between 2011 and 2031, approximately 3,528 of these are expected to be in industrial based sectors, with 902 of these jobs forecast for Cessnock LGA.

This will result in the take up of 176 ha (8.8 ha per annum) of additional industrial land in the LHR, 45 ha (2.25 ha per annum) of which are expected to be located in the Cessnock LGA by 2031.

The 198 hectares of industrial zoned land on the subject site exceeds the Cessnock LGA's demand for industrial stock by 2031.

Despite this, Urbis' analysis indicates that given the site's location adjacent to the Hunter Expressway, ability to offer flexible lot sizes (due to its consolidated land ownership) and the expected growth in the freight and logistics and construction sectors, that the site cater to larger warehouse and distribution operators while also providing smaller sized options. As such it would be expected to draw on LHR demand for employment land, as it would offer employment opportunities for residents in the whole of the LHR.

While the development of the site will be staged, this will likely occur over a period of time longer than the official employment forecasts.

Urbis expects this to occur at a 5.3 - 8.4 hectare per annum rate, resulting in a 24-37 years development timeframe.

This is roughly in line with what was observed in the Cardiff Business Park, where 135 ha of industrial land took 20 years to be taken up (Subdivision Design Report, Hydro Aluminium Kurri Kurri 2013).

At full development the Hydro Aluminium masterplan is expected to deliver.

- Ongoing jobs expansion of approximately 6,900 jobs
- Expansion of ongoing jobs will result in an additional $448.6 million worker income per annum
- The expansion in population from the delivery of new housing and subsequent population growth is expected to expand local retail spend by $58.4 million at full development.

Under the residential staging scenarios, the 2,072 residential lots will be delivered along with the associated neighbourhood centres by:

- 41 years under the low case residential land at 50 lots per annum
- 26 years under the high case residential land at 80 lots per annum.

Disclaimer

This report is dated June 2015 and incorporates information and events up to that date only and excludes any information arising, or event occurring, after that date which may affect the validity of Urbis Pty Ltd's (**Urbis**) opinion in this report. Urbis prepared this report on the instructions, and for the benefit only, of Hydro Aluminium Pty Ltd (**Instructing Party**) for the purpose of Economic Assessment (**Purpose**) and not for any other purpose or use. To the extent permitted by applicable law, Urbis expressly disclaims all liability, whether direct or indirect, to the Instructing Party which relies or purports to rely on this report for any purpose other than the Purpose, and to any other person which relies or purports to rely on this report for any purpose whatsoever (including the Purpose).

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Sydney
Tower 2, Level 23, Darling Park
201 Sussex Street Sydney, NSW 2000
t +02 8233 9900
f +02 8233 9966

Brisbane
Level 7, 123 Albert Street
Brisbane, QLD 4000
t +07 3007 3800
f +07 3007 3811

Melbourne
Level 12, 120 Collins Street
Melbourne, VIC 3000
t +03 8663 4888
f +03 8663 4999

Perth
Level 1, 55 St Georges Terrace
Perth, WA 6000
t +08 9346 0500
f +08 9221 1779

Australia • Asia • Middle East
w urbis.com.au **e** info@urbis.com.au