

Future Population of Dubbo 2023-2043

North West Precinct Community Pty Ltd

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Demographic analysis by

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Executive summary

Over the course of the last two decades, Australia has witnessed a significant and rapid surge in its population. This profound increase in population has been predominantly concentrated within capital cities, accounting for a substantial three-quarters (74%) of the overall growth. Consequently, the mounting demand for accommodation and essential infrastructure has placed a considerable strain on existing capital city resources. These strains have become increasingly evident in the housing sector, where house prices and therefore housing affordability, have been driven up to the point where one in four households in Sydney (23%) and one in five households in Melbourne (19%) are reportedly experiencing mortgage stress.

Regional growth has historically been much lower and has been concentrated in the major regional centres or towns. For New South Wales, Dubbo is a key regional centre, along with Albury – Wodonga, Bathurst, and Bowral – Mittagong. Dubbo is a key inland town and western NSW service hub which has increased in population by over 20% over the past 20 years. For Dubbo, this growth has been driven primarily by its role as a regional service centre for the local farming community and to a growing extent the renewable energy and mining community, resulting in increases in government and professional services and their associated supports.

While historically Dubbo has grown at approximately 1.44% p.a., significant private sector investment, affordability challenges in Sydney and other major regional centres, increasing migration and the evolution of the employment landscape will likely induce significant population growth in Dubbo over the next 10-20 years. The presence of major Government economic initiatives, private organisations and large-scale infrastructure projects like the Murray Darling Basin Authority, the ARTC's Inland Rail, and the Central and Central West Orana Region Renewable Energy Zone, further indicates the interest and potential for growth and development in the area.

To accommodate this growth, it is crucial to address the specific housing needs of the various sectors, including ancillary services such as health, retail and hospitality. Collaborative efforts between the Dubbo Regional Council (DRC), NWPC Pty Ltd, and other developers will play a vital role in planning and implementing future residential developments to meet the housing demand.

Dubbo's strategic location and proximity to a range of major projects creates an exciting environment for current and future residents, and for Dubbo to continue to grow into a thriving city, provided sufficient housing can be delivered in support of this growth.

To estimate the potential housing requirements in Dubbo over the next 10 to 20 years, strategic demographic modelling has been undertaken. Two scenarios have been defined, both of which consider external factors and data points that would not have been captured or considered in NSW state-wide projections. Both scenarios consider a baseline population growth rate of approximately 1.31% per year in line with historical annual average. Scenario 1 considers the impact of the planned and funded investment that will grow job opportunities, the population and also dwelling requirements over the next 10 years. Scenario 2 builds incrementally on Scenario 1 and considers the planned investments plus an increase in net internal migration (i.e. a reduction in people leaving Dubbo to seek employment opportunities elsewhere).¹ Demographic Scenarios are set out below in Table ES1.

¹ Further detail on specific modelling assumptions is provided in Chapter 4.

Table ES1. Modelling scenario overview

	Scenario 1: Population forecast Incremental new development and ongoing jobs	Scenario 2: Population forecast Incremental new development / ongoing jobs + improved internal migrant retention
Rationale	This scenario accounts for the increase in population associated with the planned and funded investment in Dubbo that will be completed over the next 10 years. From 2034-2044 the modelling conservatively assumes a return to the long run historical population growth rate of 1.31%.	Scenario 2 builds incrementally on Scenario 1 and considers the impact on the future population of Dubbo if net internal migration could be improved by 20%, that is if 20% of the internal arrivals into Dubbo could be converted into residents.
Baseline population growth	1.31% (NSW annual average 2014-19)	1.31% (NSW annual average 2014-19)
New development and ongoing jobs	Table 5a and 5b	Table 5a and 5b
Assumed population retention for new development jobs	30%	30%
Assumed population retention for internal migrants	N/A	20%

Modelling of the two scenarios provided alternate population forecasts which were then used to estimate the potential housing requirements for Dubbo over the next 10-20 years, considering average household sizes and long-term occupancy rates. The Table ES2 below provides future population scenarios as projected.

Table ES2. Summary of future population scenarios

Year	2023 population	2033 population	2043 population
Baseline growth scenario at 1.31%		48,279	54,990
Scenario 1	Approx. 42,387	65,884	75,534
Scenario 2		67,156	77,238

The Table ES3 below summarises the housing requirements under each scenario. Based on the NSW baseline growth scenario by 2043 Dubbo will require approximately 25,000 dwellings (an increase of approximately 5,500 dwellings based on the existing 2023 dwelling estimate of 19,500). This is an annual increase of a range of approximately 250-320 dwellings per year for the next 20 years.

Under the two scenarios which consider the additional investment in the region over the next 10 years, the number of dwellings required by 2043 increases to approximately 35,000 (an increase of approximately 15,500 based on the existing dwelling estimates). This equates to over 730 houses to be delivered each year over the next 20 years (noting in the first 10 years significantly higher numbers are required i.e. over 1,000 new dwellings are required to accommodate the forecast growth). This is well above the historical rates of building approvals achieved in Dubbo, which between 2018 and 2022 hit a high of an average 323 new residential building approvals per year. Even at this highest rate for building approvals would still only allow less than 50% of the necessary houses to gain approval to be constructed.

Table ES3. Future dwelling requirements by year (aggregate)

Year	2033 dwellings required	2043 dwellings required
Baseline growth scenario	21,927	24,974
Scenario 1	29,922	34,305
Scenario 2	30,500	35,079

Note the Existing Dwellings Estimate in 2023 has been taken as approximately 19,500 dwellings.

Significant housing development is required over the next 20 years (and particularly within the next 10 years) to meet the forecast population growth in Dubbo. To ensure long-term sustainability and maintain a high level of liveability, strategic planning for Dubbo should consider how best to unlock additional housing supply and accelerate the planning, construction and delivery of a diverse range of housing stock to align with the needs of the new population.

The report concludes by outlining features of the future Dubbo across housing typologies, population mix, employment profile, education access, housing affordability and lifestyle that exists and could develop further in the growing service hub of Dubbo, NSW.

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1.0 Background and introduction

1.1 Research objective

In consultation with North West Precinct Community (NWPC) Pty Ltd, McCrindle have undertaken a demographic analysis of the township of Dubbo, NSW, within the state and national context to understand the future of population growth in the city. This research paper is one of a series of documents prepared by NWPC and the Dubbo Regional Council (DRC) to help highlight the need and driving forces to justify the documentation of a masterplan for the North West Precinct Urban Release Area (NWPURA) in Dubbo. The NWPURA masterplan is one of several planned Dubbo developments now proposed and outlines the case for the town plan to nominate land zones and appropriate types of modern well-designed houses to grow Dubbo from the current 42,400 residents (2023) to cater for 60,000 residents from 2030 to the possibility of 72,660 residents from 2040. The NWPURA Master Plan Vision series (Rev G) will cover land uses, housing styles, block size ranges, associated infrastructure, architecture, open space, social infrastructure and economics issues. This paper deals with the demographic issues of the potential planned growth.

The Dubbo Regional LGA is situated in inland central NSW. It forms part of the Orana Region which covers central and north-western areas of NSW up to the NSW/Qld border. Within this large area it contains the key townships and LGA of Dubbo and Wellington and the surrounding villages of Eumungerie, Wongarbon, Geurie, Stuart Town, Mumbil and Elong Elong. See Figure 1 in Section 2.1 for a map showing the Orana Region in NSW.

This study looks specifically at the township of Dubbo and explores historical trends and examines key factors that could drive future population growth of Dubbo. The report also presents two alternative population growth scenarios and considers the accommodation and housing needs of Dubbo over the next 20 years.

This study has been done in addition to a Research Report – Analysis of Short-Term Worker Accommodation Needs undertaken by Dubbo Regional Council (DRC) and Delos Delta in March 2023. DRC sponsored that report to understand the contributing factors of short-term worker accommodation in the region and explore possible solutions. For the purposes of that report, short-term worker accommodations refers to accommodation available for workers and their dependents to use in the Dubbo region for a short time frame (3-12 months) with minimal intention of settling permanently in the LGA. This report explores the new industries and projects coming to Dubbo and its surrounds and predicts alternate scenarios that add permanent population to the Dubbo city and determines potential population growth and housing needs for the next 20 years.

Other comparable regional centres in NSW, Queensland, and Victoria have also been selected to examine and assess how Dubbo might compare and trend in key liveability measures as the population of Dubbo continues to grow and change in line with new and continued opportunities provided by different industry sectors. Factors influencing population movement could also reveal insights into how Dubbo could experience a higher level of population growth in the future.

1.2 Australian Bureau of Statistics data

Demographic data used in this report is obtained from the Australian Bureau of Statistics' Census of Population and Housing 2011, 2016, and 2021. Data from the following releases have also been incorporated in the study:

- National, state and territory population
- Regional population by age and sex
- Overseas Migration
- Migration, Australia (Internal movement)
- Overseas Arrivals and Departures, Australia
- Labour Force, Australia

This report also includes an analysis of the current Federal Treasury's migration program (2023) identifying planning levels to assess the policy settings underpinning Australia's composition of permanent migration in recent years. The outcome of the migration program is also assessed.

Schooling data has been collated from the Australian Curriculum, Assessment and Report Authority (ACARA), NSW Department of Education, and individual schools' publications.

Labour force data used in this report is obtained from the Australia Bureau of Statistics' Census of Population and Housing 2011, 2016, and 2021, as well as from the NSW Department of Education, Skills and Employment's *Small Area Labour Markets and Employment Projections 2019, 2020*.

Children education and childcare data is obtained from Australian Children's Education & Care Quality Authority's national registers.

Future population projections data integrates the New South Wales Government's Department of Planning and Environment (DPE): *2022 NSW Population Projection*.

2.0 Population Growth in Australia

Australia's population has increased by 6.5 million over the past 20 years to the current estimate of 26.4 million people. This is equivalent to adding the entire population of Victoria in just two decades to the infrastructure requirements of Australia. The majority of this population growth (74% or 4.8 million people) has taken place in our states and territory's capital cities.

Sydney is a good example of this capital city-centric growth. With a population of 5.3 million, Sydney accounts for 65% of the NSW's total population of 8.2 million. Over the past 20 years, however, it has consistently captured just under 75% of the state's population growth. As a result, the population of Sydney is continuing to speed away from other areas of NSW, putting residents of Sydney under population growth pressure unmatched by regional centres. These pressures affect housing availability and affordability, and the increasing commute time to work and essential services.

Table 1 and Table 2 outline the significance of the pressure on Sydney's population and housing infrastructure compared to regional NSW. Over the past 20 years, Sydney added 1.16 million new residents at constant ten-year rates of 13% while the next 19 largest cities in NSW combined to add just 280,000. A quarter the population growth, spread across 19 cities.

In comparison to the constant population growth of Sydney, population growth in regional NSW has accelerated in recent years, from 7% during 2002 to 2012 to 9% for the period 2012 to 2022. In a number of ways, this is also a reflection of the population growth pressure that is impacting Sydney residents and is affecting the overall quality of their life in the city, as residents move away from Sydney in search of more affordable and liveable locations along the coastal fringe and in inland cities.

Table 1. New South Wales population

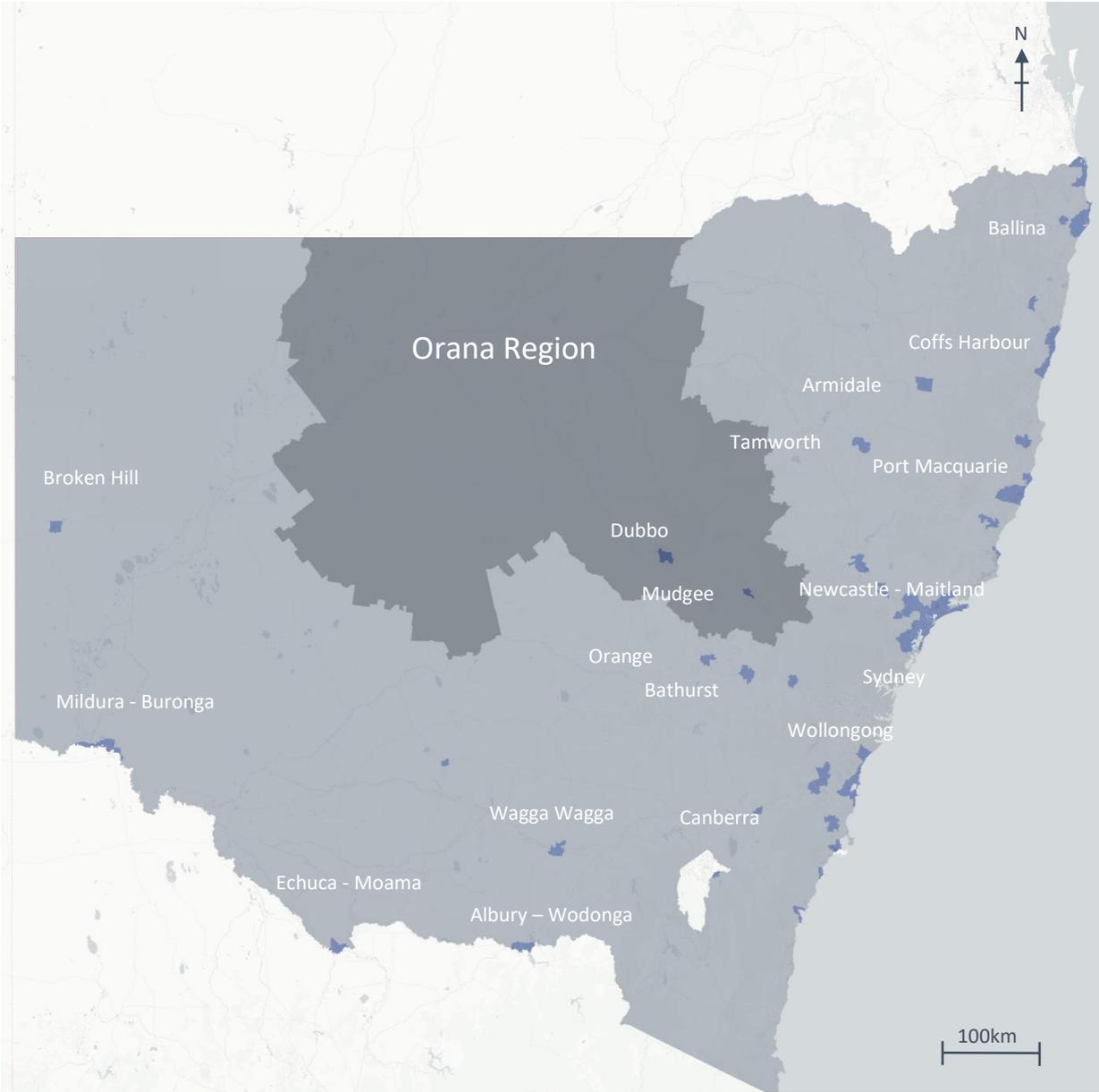
	2002	2012	2022	# 02-12	% 02-12	# 12-22	% 12-22
Greater Sydney	4,135,637	4,677,196	5,297,089	541,559	13%	619,893	13%
Regional NSW	2,445,170	2,627,048	2,859,297	181,878	7%	232,249	9%
NSW	6,580,807	7,304,244	8,156,386	723,437	11%	852,142	12%

2.1 Dubbo is a Significant Urban Area

Designed by the Australian Bureau of Statistics as a part of the Australian Statistical Geography Standard, Significant Urban Areas (SUAs) are the primary geographies of analysis in this study. SUAs represent urban centres, or groups of urban centres, that contain a population of 10,000 persons or more. With criteria in population and the built environment, SUAs are meaningful representations of regional cities across Australia. Figure 1 below shows the bulk of the SUAs in the state of NSW.

Located west of Sydney and Newcastle, Dubbo is centrally located in NSW and falls within the Orana Region and is designated as a SUA. Access to Dubbo through road, rail, and a regional airport makes Dubbo an important service hub for western NSW. Significant state rail and medical facilities investment has also been identified and built, further consolidating the role of Dubbo as a regional service hub for the growing population in and around Dubbo.

Figure 1. Significant Urban Areas in NSW outside of Sydney.



As outlined below (Table 2 Top 20 Urban Areas outside Sydney), Greater Sydney, Newcastle – Maitland and Wollongong account for the bulk of NSW’s population growth (total 1.31 million) between 2002 and 2022. Growing seaside locations such as Nowra – Bomaderry, Coffs Harbour, Port Macquarie, and Ballina are the next fastest growing. Amongst inland centres, Albury – Wodonga tops the list with a population of 98,600 and a growth of 21,178 (27%) over the past 20 years. Other growing inland cities include Wagga Wagga, Tamworth, Orange, Bowral – Mittagong, Bathurst and Dubbo, all with population increases between 7,500 and 7,900 over the past two decades. In percentage terms, population growth in these inland cities range from 16% in Wagga Wagga to 27% in Albury – Wodonga. Dubbo’s population has increased by 23% over the past 20 years.

Table 2. Top 20 Urban Areas outside Sydney

			2002	2022	# 02-22	% 02-22
1	Greater Sydney	Coastal	4,135,637	5,297,089	1,161,452	28%
2	Newcastle – Maitland	Coastal	416,251	517,811	101,560	24%
3	Wollongong	Coastal	262,951	309,345	46,394	18%
4	Albury – Wodonga	Inland	77,429	98,607	21,178	27%
5	Coffs Harbour	Coastal	59,317	75,016	15,699	26%
6	Wagga Wagga	Inland	49,492	57,368	7,876	16%
7	Port Macquarie	Coastal	38,090	51,154	13,064	34%
8	Ballina	Coastal	38,493	46,651	8,158	21%
9	Tamworth	Inland	37,122	44,947	7,825	21%
10	Orange	Inland	35,341	42,351	7,010	20%
11	Bowral – Mittagong	Inland	33,963	41,699	7,736	23%
12	Dubbo	Inland	33,477	41,299	7,822	23%
13	Nowra – Bomaderry	Coastal	30,468	39,418	8,950	29%
14	Bathurst	Inland	30,348	37,856	7,508	25%
15	Lismore	Inland	28,586	28,633	47	0%
16	Morisset – Cooranbong	Coastal	20,590	28,586	7,996	39%
17	Nelson Bay	Coastal	22,887	28,515	5,628	25%
18	Taree	Coastal	25,908	26,666	758	3%
19	Goulburn	Inland	21,370	24,829	3,459	16%
20	Armidale	Inland	22,869	24,155	1,286	6%

Examining the growth of inland cities more closely, as shown by Graph 1 and Table 3, Dubbo has been the second fastest growing inland SUA over the past decade. With an annual average growth rate of 1.44%, it lags just behind the growth of Albury – Wodonga (a town of 98,600) at 1.45%, which has a population size of more than twice that of Dubbo (41,300). In recent years, however, as shown by Graph 1, Dubbo has seen relatively large increases in population (2016 to 2018) but has also lost population due to an inability to provide permanent job opportunities and appropriate housing accommodation to convince people to make Dubbo their long-term home. Overseas migrants could also contribute to the temporary flux in population of Dubbo.

To ensure sustained long-term growth in Dubbo, there is a need to understand the types of long-term economic opportunities that exist in and around Dubbo as well as emerging future industries of employment that will drive the need for a growing labour force to reside in Dubbo.

Graph 1. Annual population growth rate of inland regional cities (SUA) in NSW

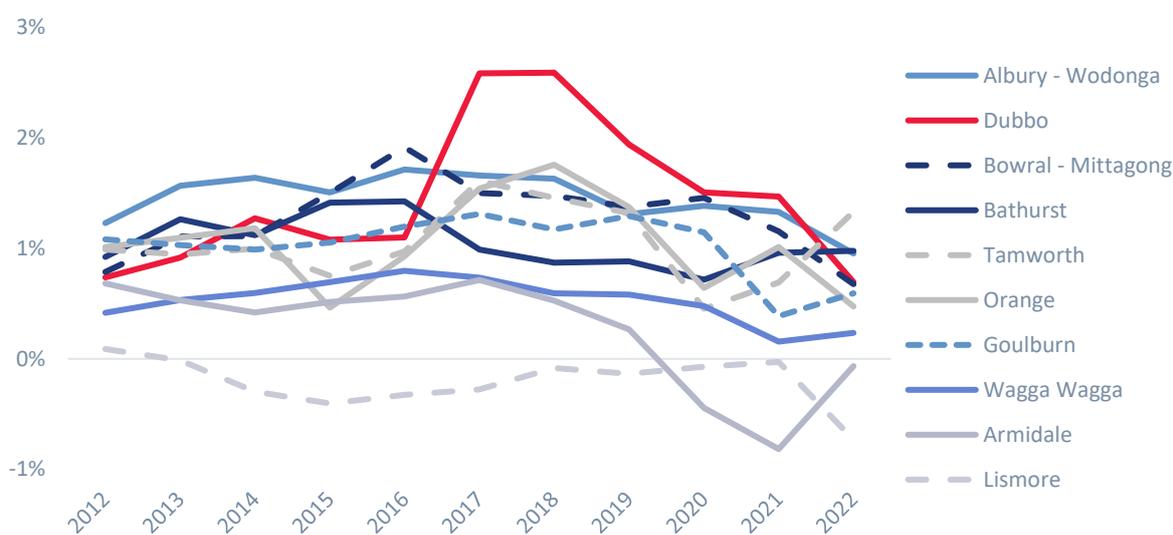
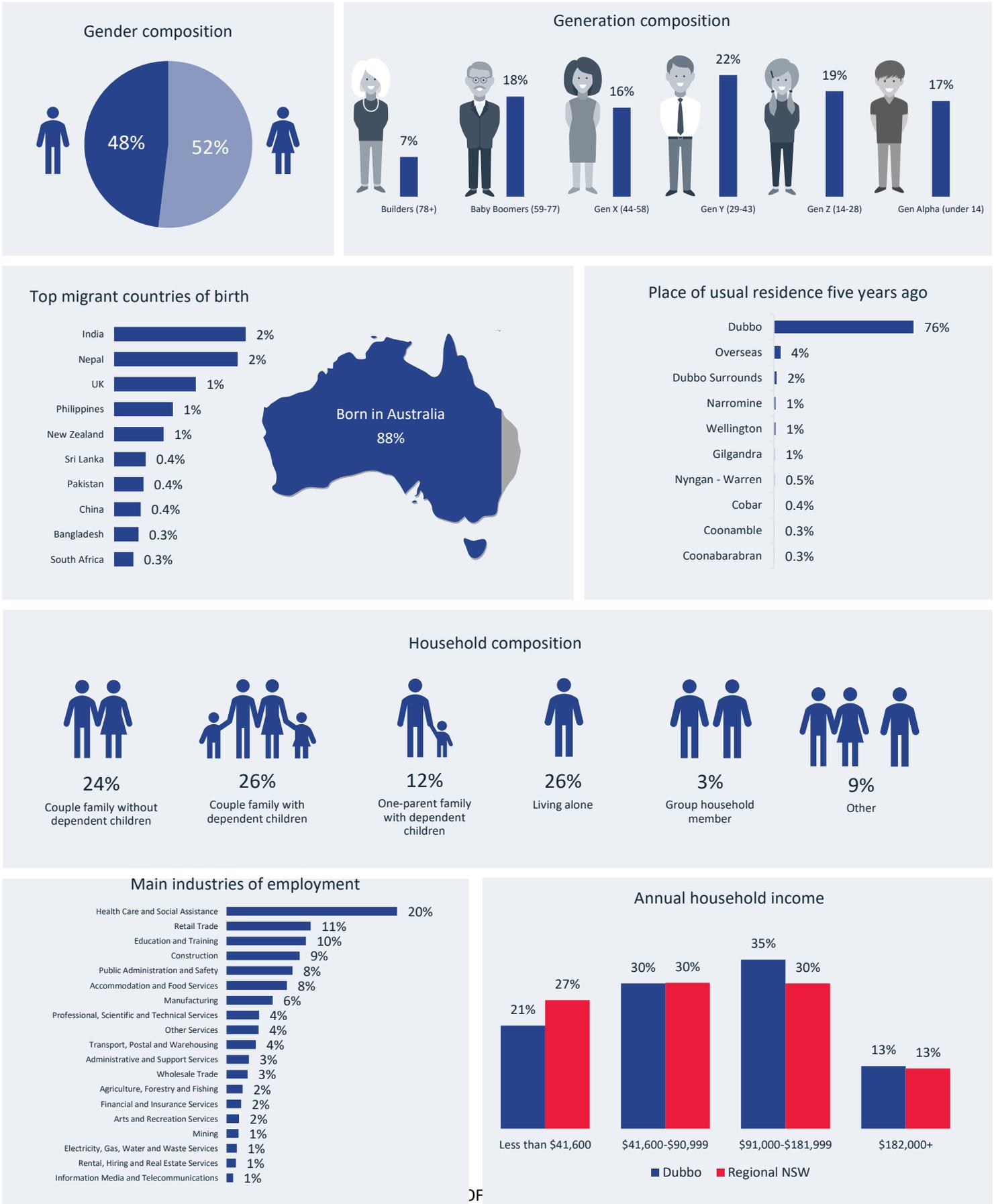


Table 3. Annual population growth rate of inland regional cities (SUA) in NSW

Inland regional cities in NSW	Average annual growth rate (2012-22)
Albury – Wodonga	1.45%
Dubbo	1.44%
Bowral – Mittagong	1.28%
Bathurst	1.05%
Tamworth	1.05%
Orange	1.04%
Goulburn	1.02%
Wagga Wagga	0.53%
Armidale	0.26%
Lismore	-0.21%

A summary of Dubbo’s current demographic profile is provided in Figure 2. This profile provides more general background about Dubbo’s make-up including a gender, generation and household composition, top migrant countries of birth, annual household income, and the current main industries of employment for the town of Dubbo.

Figure 2. Demographic profile of Dubbo



3.0 Drivers of Dubbo's Population Growth

This section examines two drivers of potential population growth in Dubbo. The first being the advent of new economic opportunities which will bring both development and ongoing jobs to Dubbo. The second is the changes in Australia's immigration program in the immediate future, which will help supply workers to meet Australia's and Dubbo's skill shortages.

3.1 Population Growth from New Economic Opportunities

NWPC has held discussions with colleagues, developers, specialist consultants and sourced publicly available information through government departments (including the Central West and Orana Regional Renewable Energy Zone that is supported by both the NSW and Commonwealth governments) to generate the following Table 5 which sets out a number of future projects already identified, committed and funded for the Dubbo region.

The majority of the projects listed on Table 5 have been documented in an Infrastructure Pipeline in the Dubbo Regional LGA. This raw list of potential infrastructure projects is provided in Appendix A of this report and identifies the Project Name, developer, a description of the type of project, its relative approval status, indicative Capital Cost (\$M) and potential funding source. It is acknowledged that this list is subject to constant change, but it does represent an estimate of projects likely to come to the Dubbo LGA and Orana regions.

In line with the Central West and Orana Regional Renewable Energy Zone (REZ) many electricity generation and transmission projects can be attributed to this sector and a number of jobs have been rolled together to produce a short-term estimate of 3,900 development jobs and 500 ongoing jobs to be generated over the next 20-30 years. These jobs will be generated from the example projects that are currently listed in the Infrastructure Pipeline list. Table 4a lists a number of these REZ projects that produce the estimate of 3,900 development jobs and 500 ongoing jobs. The projects highlighted by the Asterisk have estimated time schedules and corresponding numbers of employment opportunities. These projects have contributed on their own to the Table 5 build-up of Potential Projects in the Dubbo Region.

Table 4a. Potential REZ Projects in the Dubbo LGA and Orana REZ regions

Potential REZ Projects	Developer	Description	Status	Project Cost (\$M)	Funding Source
Apsley Battery Storage – 240MWh	ACE Energy	EG - Battery	Approved	TBA	Private
Maryvale Solar Farm – 230 MW	WIRSOL Energy	EG -Solar	Assessment	TBA	Private
Orana Battery Energy Storage System	Akaysha Energy	EG - Battery	Exhibition	TBA	Private
Uungula Battery Project	Squadron Energy	EG - Battery	Development	TBA	Private
Cobbora Solar farm 700MW + Storage 200MW	Marble Energy	EG – Solar	Development	TBA	Private
Forrest Glen Solar Farm 110MW	X-Elio	EG – Solar	Approved	TBA	Private
Burrendong Wind Farm 400MW	Ark Energy	EG – Wind	EIS	TBA	Private
Spicers Creek Wind Farm – 122 turbines*	Squadron Energy	EG – Wind	EIS	TBA	Private
Dubbo Firming Power Station *	Squadron Energy	EG - Hydrogen	EIS	TBA	Private
Wellington Battery Energy Storage 1000MWh	Ampyr Aust/Shell Energy	EG – Battery	Submissions	TBA	Private
Wellington Town Battery Energy Storage 180MW	RWE	EG – Battery	EIS	TBA	Private
Dapper Solar Farm 300MW	Origin Energy	EG -Solar	EIS	TBA	Private

Ungula Wind Farm – 93 turbines*	Squadron Energy	EG – Wind	Approved	820	Private
Sandy Creek Solar Farm 750MW	Lightsource BP	EG – Solar	EIS	600	Private
Wellington North Solar Farm 300MW	Lightsource BP/ AGL	EG – Solar	Construction	500	Private
Suntop Solar Farm 200MW	Canadian Solar	EG – Solar	Operational	286	Private
Wellington Solar Farm 180 MW	Lightsource BP	EG – Solar	Operational	265	Private
Geurie Solar Farm 6MW	ITP Renewables	EG – Solar	Approved	8.7	Private
Wellington Road Solar Farm	Dubbo Solar Projects	EG – Solar	Approved	7.1	Private
Bodangora Wind Farm 113MW – 33 turbines	Iberdrola Energy	EG – Wind	Operational	TBA	Private

Note EG = Electricity Generation

Likewise, NSW and Australian government funded projects as shown in Table 4b below also feature prominently in the Infrastructure Pipeline in the Dubbo Regional LGA. Again, the projects highlighted by the Asterix have estimated time schedules and corresponding numbers of employment opportunities. These projects have contributed on their own to the Table 5 build-up of Potential Projects in the Dubbo Region.

Table 4b. Potential Government Funded Projects in the Dubbo LGA and Orana REZ regions.

Potential Government Projects	Developer	Description	Status	Project Cost (\$M)	Funding Source
Central West Orana REZ Transmission	Energy Co	Electricity Supply	EIS	TBA	NSW Govt
Mindyarra Regional Rail Maintenance Facility*	Transport for NSW	Rail Maintenance	Construction	2800	NSW
Inland Rail – Narromine to Narrabri*	ARTC	Rail Line	Construction	1000	Australian
New Dubbo North Bridge*	Transport for NSW	Road	Construction	220	NSW
NSW Govt Office Hub*	NSW Govt	Building	Construction	48	NSW
Western Region Institute of Sport	NSW Govt	Sport	DA	44.5	NSW
Dubbo Police Academy	NSW Govt	Education	Planning	35	NSW
Taronga Western Plains Zoo – Platypus Centre	Taronga Zoo	Commercial	Construction	12.2	NSW
Old Dubbo Gaol Heritage Plaza	DRC	Commercial	Construction	5	NSW
Dubbo College South Campus	Dubbo Solar Projects	Education	DA	4.9	NSW
Wiradjuri Tourism Centre	DRC	Commercial	Planning	4.2	NSW

With note to Figure 2 - Demographic Profile of Dubbo the bar graph generated depicting the main industries of employment shows a combined 47% of jobs in the Dubbo region are supported and encouraged by the future growth potential of the projects listed in Table 4a and 4b by the following industry sectors:

- Health Care & Social Assistance (20%) (e.g at Dubbo Base Hospital, main hospital with associated facilities for the Far West)

-
- Construction (9%) (e.g. Inland Rail at Narromine to Narrabri, NSW Government Road & Rail projects (e.g. Mindyarra Regional Rail Maintenance Facility and the North Dubbo Bridge with Newell Highway extension)
 - Manufacturing (6%) (e.g. Furnrey Flour Mill Extrusion Building & Simmons Global)
 - Agriculture, Forestry & Fishing (2%) (e.g. continued local & regional development including the Bodangora Intensive Livestock Project)
 - Mining (1%) (e.g. Projects through the Critical Minerals hub such as the Tomingley Gold Mine, Toongi Rare Earth and the Bodangora Gold / Copper Mine)
 - Electricity, Gas, Water & Waste Services (1%) (e.g. Central West & Orana Regional Energy Zone Projects commencing with Transmissions Upgrades from 2023 and including projects from Table 4a)
 - Public Administration & Safety (8%) (e.g. Follow on from Construction, Manufacturing, Mining, Electricity, Gas, Water & Waste Services)

These projects are all listed in the Infrastructure Pipeline and match closely to industry sectors that are all either already present in Dubbo, or are industry sectors that through the change in the way that Australians are being called upon to live their future lives will grow in the sectors in response to the new demands, such as renewable energy, mining, construction of support infrastructure which leads to more people choosing to live in Dubbo, thus driving the need for more housing opportunity that ultimately drives the demand and necessity to supply cheaper housing opportunities.

As stated above Table 5 represents a summary of potential projects coming to Dubbo that have an approximate construction schedule and employment estimate associated with them that allows an analysis to be undertaken to determine potential population growth to be generated along with an estimate of additional housing that will be required to accommodate this growth.

Table 5. Potential Projects in the Dubbo Region

	Start	End	Development jobs created	Ongoing jobs created
Transport NSW Dubbo Bridge	2023	2026	350	
Mindyarra Regional Rail Maintenance Facility	2023	2024	220	60
Tomingley Gold Mine Expansion	2023	2024	150	375
Central West and Orana Region Renewable Energy Zone	2023	2053	3,900	500
Ungala Wind Farm - 93 turbines (Squadron)	2024	2026	650	
Dubbo Firming Power Station - Hydrogen (Squadron)	2024	2027	700	
Spicers Creek Wind Farm - 122 turbines (Squadron)	2025	2028	600	
Inland Rail (Narromine to Narrabri)	2023	2031	3,500	250
WaterNSW Infrastructure Maintenance Project	2023	2033		35
North West Precinct Housing Delivery	2023	2043	810	810
NSW Government Office Building Carrington Avenue	2023	2025	400	
Murray Darling Basin Authority	2024	2026		40
Furney Flour Mill Extrusion Building	2024	2026	120	50
Simmons Global (Narromine)	2024	2024	100	200
Hydrogen / Gas Plant Yarrandale Rd#	2024	2026		
Toongi Rare Earth	2025	2027	1,375	275
Bodangora Gold / Copper Mine	2031	2032	750	350
North West Precinct Commercial and School Delivery#			100	50
Department of Justice#				100
Fletcher International Exports#				400
Early Rise Bakery#				35
Total			13,725	3,530

An estimated 13,725 construction and development jobs could be created during the period 2023-2033. Once in operation, the listed projects would also generate approximately 3,530 ongoing jobs, all requiring professional management, skilled workers and support services.

Expanding on Table 5, NWPC has assumed a project development schedule by year and the long-term management and operation of these new works. Note the construction and development projects that cannot be quantified either with a starting and finishing year or with a number of development and/or ongoing jobs created have not been included in the calculated incremental analysis shown in Tables 5a and 5b. They are also shown with an Crosshatch after their name in Table 5.

Table 5a outlines the potential population growth year-on-year that is associated with the new construction and development projects. For the analysis it is estimated that 30% of workers associated with development opportunities in Dubbo would remain in Dubbo on completion of the project with the balance of 70% moving on as FIFO workers or itinerant workers for other projects. Average household size of the workers relocating to Dubbo is assumed to be a long-term average of 2.4 persons per household, which is also adopted for the permanent ongoing jobs associated with these new projects.

Table 5a. Incremental new development jobs and associated population growth as a result of committed and funded new projects.

	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034-43
Transport NSW Dubbo Bridge	100	200	50									
Mindyarra Regional Rail Maintenance Facility	100	120										
Tomingley Gold Mine Expansion	50	100										
Central West and Orana Region Renewable Energy Zone	100	600	1,200	1,200	800							
Ungala Wind Farm - 93 turbines (Squadron)		190	200	260								
Dubbo Firming Power Station - Hydrogen (Squadron)		60	240	300	100							
Spicers Creek Wind Farm - 122 turbines (Squadron)			120	200	260	20						
Inland Rail (Narromine to Narrabri)	400	700	1,000	1,000	3,700	30						
North West Precinct Housing Delivery	100	500	210									
NSW Government Office Building Carrington Avenue	100	200	100									
Furney Flour Mill		40	60	20								
Simmons Global (Narromine)		100										
Toongi Rare Earth				650	650	75						
Bodangora Gold / Copper Mine									400	350		
Total new development jobs	950	2,810	3,180	3,630	2,180	125	0	0	400	350	0	0
Assumed population retention (30%)	285	843	954	1,089	654	38	0	0	120	105	0	0
Total population growth (2.4 person per household)	684	2,023	2,290	2,614	1,570	90	0	0	288	252	0	0

Table 5b. Incremental ongoing jobs and associated population growth as a result of committed and funded new projects

	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034-43
Tomingley Gold Mine Expansion			100	200	75							
Mindyarra Regional Rail Maintenance Facility		10	40	10								
Central West and Orana Region Renewable Energy Zone				50	100	100	150	100				
Inland Rail (Narromine to Narrabri)										100	150	
WaterNSW Infrastructure Maintenance Project	10	25										
North West Precinct Housing Delivery										200	400	210
Murray Darling Basin		5	5	20	10							
Furney Flour Mills				5	10	20	15					
Simmons Global (Narromine)			50	100	50							
Toongi Rare Earth						70	100	105				
Bodangora Gold / Copper Mine										50	300	
Total ongoing jobs	10	40	195	385	245	190	265	205	0	350	850	210
Total population growth (2.4 persons per household)	24	96	468	924	588	456	636	492	0	840	2,040	504

3.2 Changes in Internal Migration

Dubbo's current population of approximately 41,300 (from Table 2: 33,477 in 2002) has been driven primarily through natural change (births and deaths) and overseas migration in recent years. While the scale of movement between Dubbo and other parts of Australia is high (upwards of 5,000 arrivals and departures annually), since 2018, through internal migration Dubbo has lost more population to other parts of Australia than it has gained. This can be seen in both Graphs 1 and 2.

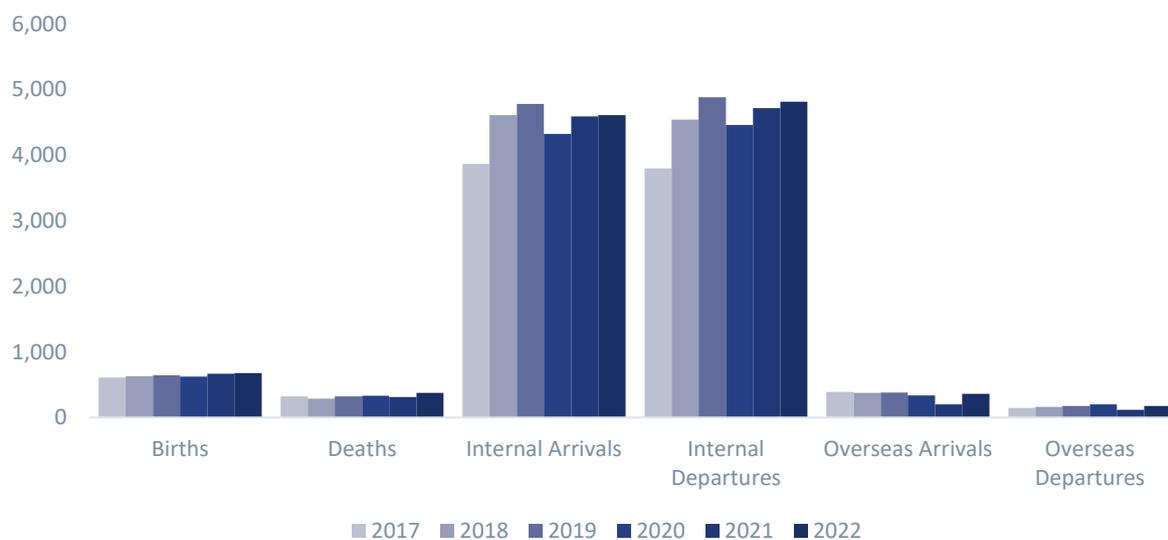
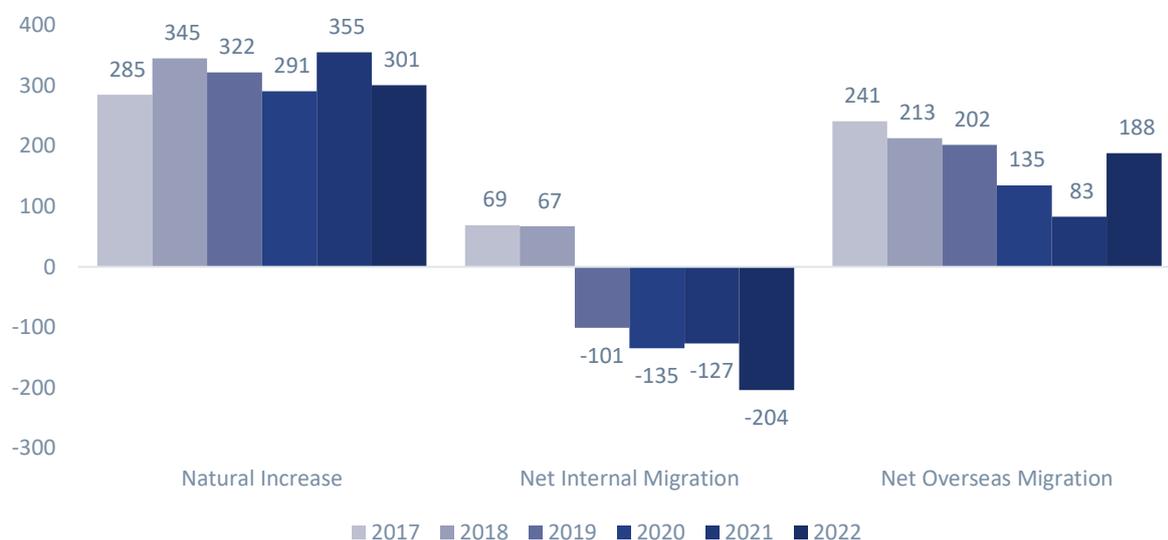
Breaking down the component of past population growth in Dubbo for the period from 2017 to 2022, births, deaths, overseas arrivals and departures have continued to increase Dubbo's population. Internal arrivals and departures, however, have been trending negatively, leading to population loss. This may indicate that Dubbo does not have the required infrastructure to house appropriately the otherwise increasing population of Dubbo.

If new employment opportunities and a growing network of population and community-supporting infrastructure can retain the outflow of migrant population from Dubbo, population growth will fare far more favourably than current estimates.

Graph 2 shows internal arrivals and departures to and from Dubbo are at five-year averages of 4,583 and 4,683 respectively, resulting in a net loss in population of 100 residents per annum. If the departure level was reduced by 20% in the future as shown in Graph 3, annual departures from Dubbo will be 3,746 residents, leading to a net gain in population of 837 per annum. Conservatively, assuming overseas migration and natural change remain at respective five-year averages, the population of Dubbo could increase by 1,300 per annum.

Graph 2. Components of population change in Dubbo during period 2017-2022

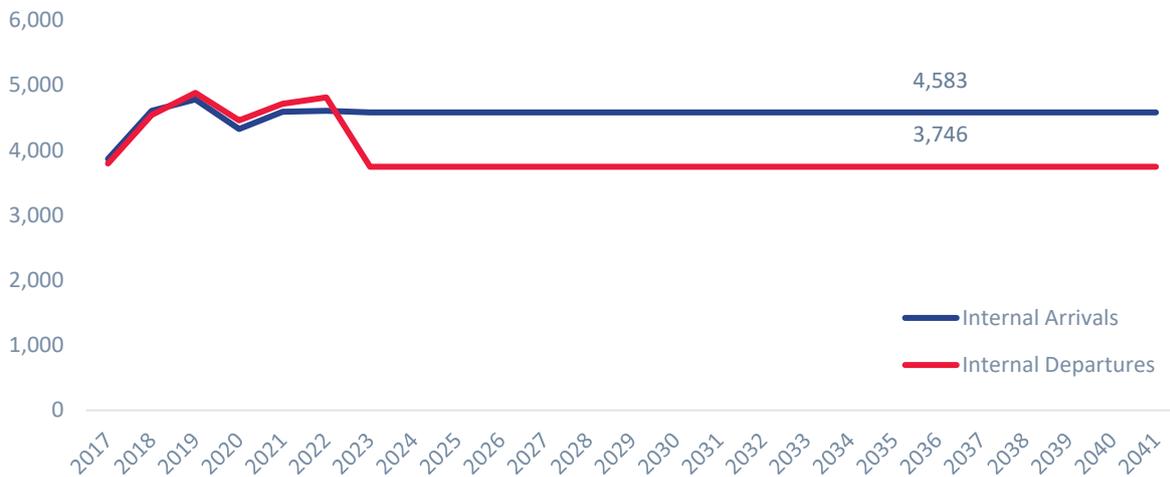
Natural increases (net of births and deaths), net internal migration (arrivals and departures to and from other parts of Australia), and net overseas migration (arrivals and departures to and from overseas).



	Births	Deaths	Internal Arrivals	Internal Departures	Overseas Arrivals	Overseas Departures
2017	609	324	3,866	3,797	388	147
2018	631	286	4,609	4,542	374	161
2019	643	321	4,782	4,883	379	177
2020	624	333	4,325	4,460	336	201
2021	668	313	4,590	4,717	202	119
2022	676	375	4,608	4,812	362	174

Graph 3. Internal arrivals and departures

Reducing internal departures to 80% of its long-term value would increase Dubbo’s population by nearly 1,300 people each year. This impact is shown in Graph 4 which follows.



Given the recent changes in federal level migration forecast and new infrastructure and energy projects occurring in and around Dubbo, the future population growth of Dubbo could exceed current projections. New employment opportunities with the advent of the Federal Government and NSW State Government support for the Orana Renewable Energy Zone and new significant precious mining opportunities could help bring the balance of population through internal migration back to the positive.

It should be noted that the Australian Government and Regional Development Australia Orana (RDA Orana) have reached agreement on the Orana Region Designated Area Migration Agreement (DAMA). This Orana DAMA runs an employer visa program allowing employers to sponsor skilled overseas workers in specified critical industries experiencing labour shortages to stay within the region. This incentive should offer great encouragement for workers to stay long-term in the Dubbo and Orana regions and grow future population counts.

In a recovering economy following the Covid Pandemic and an economy looking to transition from carbon-based energy production to renewables, overseas migration is also forecast to be above former historical levels. With Dubbo’s ability to produce affordable housing, renewable energy generation and transmission, mining capacity, strong roots in agriculture, growing construction hub support of roads and rail projects, together with a strong medical base and other associated industries population growth in Dubbo over the next 20 years could exceed forecast levels.

4.0 Population Growth Modelling Scenarios

For the purpose of this report and to estimate the potential shortfall in housing supply in Dubbo over the next 10 to 20 years, two modelling scenarios have been defined, these scenarios consider external factors and data points that would not have been captured or considered in the NSW statewide projections. They are summarised in the table below.

Table 6. Modelling scenario overview

	Scenario 1: Population forecast Incremental new development and ongoing jobs	Scenario 2: Population forecast Incremental new development / ongoing jobs + improved internal migrant retention
Rationale	This scenario accounts for the increase in population associated with the planned and funded investment in Dubbo that will be completed over the next 10 years. From 2034-2044 the modelling conservatively assumes a return to the long run historical population growth rate of 1.31%.	Scenario 2 builds incrementally on Scenario 1 and considers the impact on the future population of Dubbo if net internal migration could be improved by 20%, that is if 20% of the internal arrivals into Dubbo could be converted into residents.
Baseline population growth	1.31% (NSW annual average 2014-19)	1.31% (NSW annual average 2014-19)
New development and ongoing jobs	Table 5a and 5b	Table 5a and 5b
Assumed population retention for new development jobs	30%	30%
Assumed population retention for internal migrants	N/A	20%

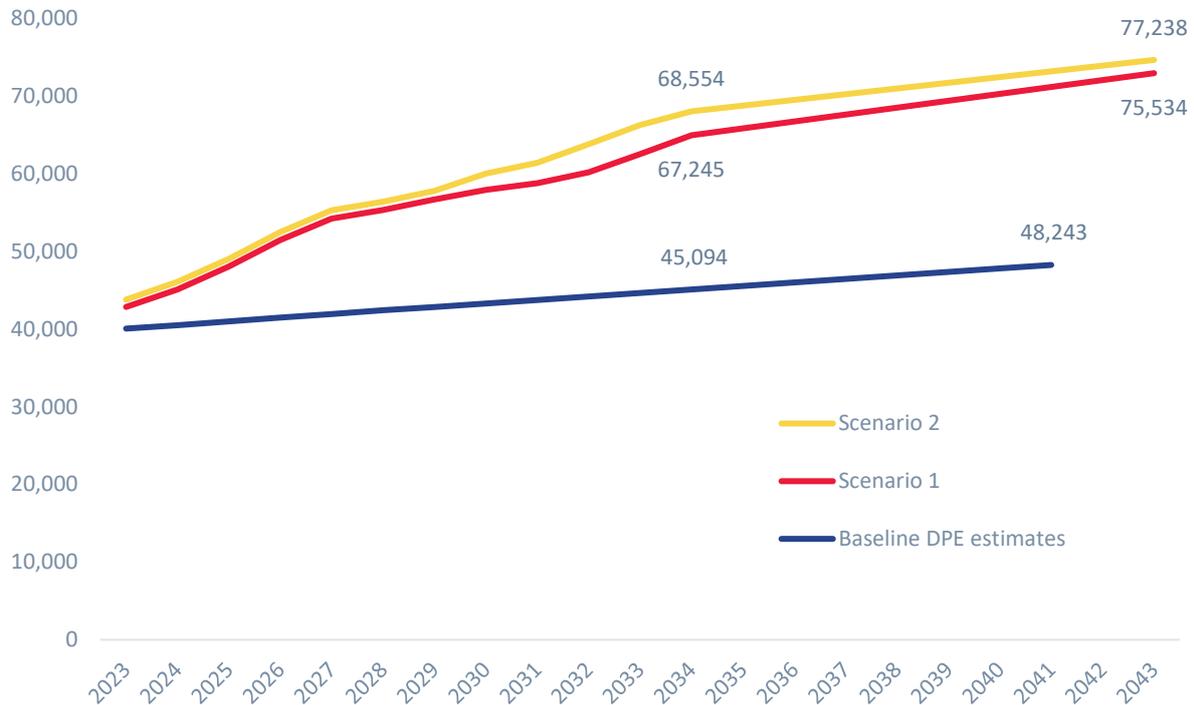
The results presented in the following sections consider these two additional scenarios against the Baseline Scenario of the future population projections data as supplied by the New South Wales Government's Department of Planning and Environment (DPE): *2022 NSW Population Projection*.

The combination of new construction and ongoing jobs and a continuation of the current growth rate (1.31%) as described in Scenario 1 could lead to a population of just over 67,000 by 2034. This implies a compound average annual growth rate of approximately 4.13% between 2023 and 2034. Conservatively the growth rate has been assumed to return to the long run trend of 1.31% for the period between 2034 and 2043, bringing the forecast growth rate per annum down to 2.85% over the next 20 years and a population of 75,534, significantly higher than the baseline projection. Under Scenario 2 which assumes a higher degree of migration retention, the population in Dubbo could reach over 68,000 by 2034, with a compound average annual growth rate of approximately 4.35%. If we again apply a conservative growth rate assumed for the period between 2034 and 2043, in 2043, the potential Dubbo population count will reach 77,238 people.

Table 7. Estimates of Dubbo’s Future Population Growth

Year	Population growth associated with new development and ongoing jobs	Scenario 1: Population forecast Incremental new development and ongoing jobs	Scenario 2: Population forecast Incremental new development / ongoing jobs + improved migrant retention
2023	708	43,095	44,044
2024	2,119	45,775	46,752
2025	2,758	49,127	50,133
2026	3,538	53,303	54,339
2027	2,158	56,154	57,221
2028	546	57,430	58,528
2029	636	58,813	59,944
2030	492	60,069	61,234
2031	288	61,138	62,337
2032	1,092	63,025	64,260
2033	2,040	65,884	67,156
2034	504	67,245	68,554
Forecast annual growth rate (2023 - 2034)	N/A	4.13%	4.35%
2043	0	75,534	77,238
Forecast annual growth rate (2023 - 2043)	N/A	2.85%	2.85%

Graph 4: Projected population of Dubbo



Elevated long-term growth could lead to a population of over 70,000 in Dubbo by 2043

Over the past decade, Dubbo's population growth has peaked at more than 2.5% p.a. for a number of years, far above the growth of comparable inland regional centres. Under the Baseline scenario (1.31% growth) by 2043 the population of Dubbo will have increased to just under 55,000. Based on the NSW Department of Planning and Environment's population projections, growth in Dubbo is projected to settle into a long-term rate of just 1% p.a. over the next 20 years, bringing the 2041 population count to 48,243 as shown in Graph 4. There are also other external factors that are pointing to elevated levels of population growth. Public and private commitment to the region's renewable energy zone is expected to generate ongoing interest and investment and result in increased population growth for Dubbo.

The table below summarises the alternate population scenarios presented in this report. All scenarios demonstrate the need for additional housing in Dubbo, Scenario 1 and 2 highlight that increased levels of private sector investment and migration are likely to exacerbate the need for additional housing particularly within the next 10 years.

Table 8. Summary of future population scenarios

Year	2023 population	2033 population	2043 population
Baseline growth scenario at 1.31%		48,279	54,990
Scenario 1	Approx. 42,387	65,884	75,534
Scenario 2		67,156	77,238

Scenario 1 which includes Baseline population growth plus 30% of development and ongoing jobs generated shows an increase of population over the Baseline Scenario provided by DPE.

Scenario 2 builds incrementally on Scenario 1 and considers the impact on the future population of Dubbo if net internal migration could be improved by 20%, that is if 20% of the internal arrivals into Dubbo could be converted into permanent residents.

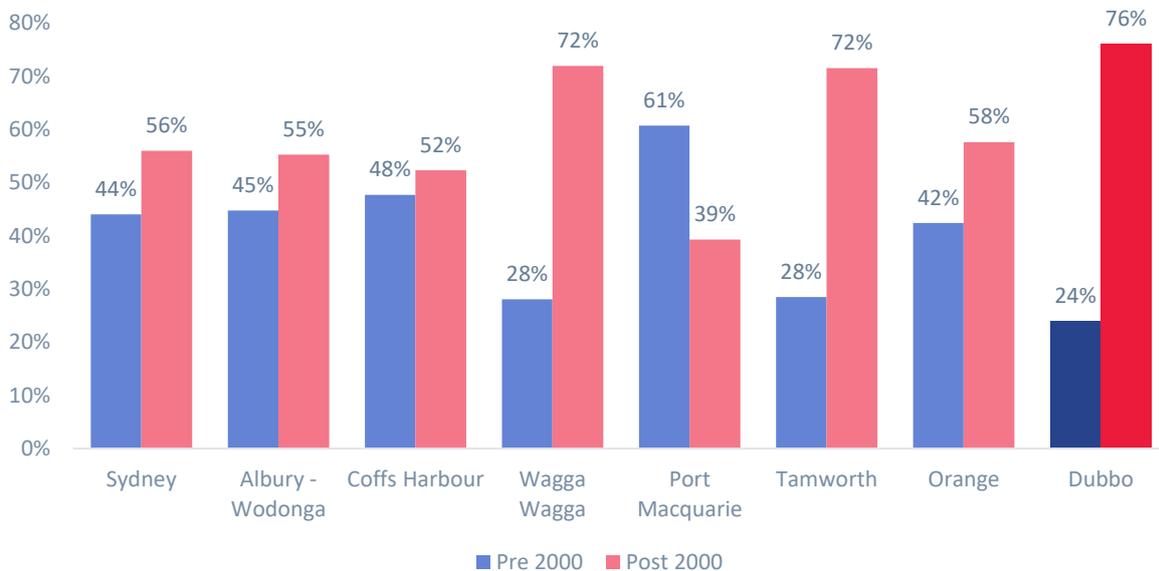
While Scenario 2 considered the better retention of internal migration (ie. Retaining 20% of internal migrants) what was not considered in the two scenarios detailed above (due to lack of available data) is the impact of elevated overseas migration may also drive higher levels of population growth over the next 10 years. This potential trend is discussed in the following section.

4.1 Elevated level of overseas migration

Overseas migration could become a major factor of population growth for Dubbo in the future. The history of overseas migration, however, has been brief with Graph 5 below outlining that for all Dubbo residents who were born overseas, more than three quarters (76%) arrived after the year 2000, making Dubbo’s history of migration one of the shortest across NSW. This points to a likely still formative suite of social and cultural infrastructure which could develop rapidly with an increasing number of residents who are from a culturally and linguistically diverse background. With this continued development of a range of job opportunities (renewable energy, mining, and infrastructure) being available in Dubbo and surrounds and migration returning in a post-COVID world, population growth through overseas migration could become a major factor for Dubbo.

Graph 5. Year of arrival for residents born overseas.

Proportion of overseas-born residents, 2021 Census of Population and Housing.



Forecast net overseas migration above historical level

The 2023-24 Federal Budget outlined an increased planning level for Australia’s permanent migration program, leading to an increased level of net overseas migration. Graph 6 outlines the forecast level of Net Overseas Migration, which comprises long term migrants, temporary workers and students, as well as Australian citizens, New Zealanders, and humanitarian migrants. It is projected that net overseas migration will reach 400,000 in 2022-23, almost twice as high as the historical annual average of 227,000 in the five years leading up to 2018-19. In 2023-24, this is projected to reduce to 315,000 as the post-pandemic surge in migration eases, before settling to a medium-term forecast level of 260,000 towards 2027.

Graph 6. Forecast level of net overseas migration

2023-24 Federal Budget.



Housing shortfall towards 2043

The emergence of associated industries and the construction boom during the development phase will likely drive growth through worker relocation.

With the NSW Department of Planning and Environment’s long-term trend of declining household size (down from 2.6 to 2.4 persons per household by 2041) and an estimated 91% occupancy rate, the demand for dwellings based on the NSW Department of Planning and Environment population estimate of 54,990 residents by 2043 is projected to be approximately 25,000 dwellings (actual number 24,974 dwellings by 2043), an increase of 5,750 from the estimated 19,250 dwellings at present. This is an annual increase of a range of approximately 250-320 dwellings per year for the next 20 years, which is well above the historical rate of building approvals achieved in Dubbo over its history. It is only in the past five years (2018 – 2022), that Dubbo LGA has been able to average 323 new residential building approvals per year.

Table 9 below summarises the housing requirements under each of the three scenarios considered in this report. This highlights the need for between 2,676, 10,350 and 10,497 new dwellings within the next 10 years for the Baseline Scenario, Scenario 1 and Scenario 2 and a requirement of 5,724, 14,733 and 15,076 new dwellings over the next 20 years based respectively on the Baseline growth scenario, Scenario 1 and Scenario 2. Note the Existing Dwellings Estimate in 2023 has been taken as approximately 19,500 dwellings.

Table 9. Future dwelling requirements by year (aggregate) (using 2.4 persons/household & 91% Occupancy rate)

Year	2033 dwellings required	2043 dwellings required
Baseline growth scenario	21,927	24,974
Scenario 1	29,922	34,305
Scenario 2	30,500	35,079

Table 10a and b below considers these growth rates over the next 10 and 20 years and considers the number of new dwellings that would be required on an annual basis. As highlighted it demonstrates a significant demand for additional housing in the region, under the scenarios which consider the private sector investment the rate of construction particularly over the next 5 years is almost 5 and 6 times the Baseline growth scenario and the Dubbo long term historical average.

Table 10a. Future dwelling requirements by year to 2033 (10 years)

	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Baseline growth scenario (2,676)	252	255	259	262	266	269	273	276	280	284
Scenario 1 (10,352)	1,217	1,523	1,897	1,295	580	628	571	485	857	1,299
Scenario 2 (10,497)	1,230	1,536	1,910	1,309	594	643	586	501	873	1,315

Table 10b. Future dwelling requirements by year from 2034 to 2043 (10 years)

	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Baseline growth scenario (3,050)	287	291	295	299	303	307	311	315	319	323
Scenario 1 (4,383)	618	397	402	407	413	418	424	429	435	440
Scenario 2 (4,579)	635	415	420	426	432	438	444	450	456	463

Significant housing development is required over the next 20 years under all three scenarios to ensure the long-term demand for housing in Dubbo is met. The table below summarises the total additional dwellings required over the next 20 years across all three scenarios.

Table 11 below shows the aggregate numbers of dwellings required to be constructed in Dubbo over the next 20 years.

Table 11. Future dwelling requirements to 2043

	2023-2043 dwellings required including Occupancy Rate estimated at 0.91
Baseline growth scenario	5,724
Scenario 1	14,735
Scenario 2	15,076

To ensure long-term sustainability and maintain a high level of liveability, strategic planning for Dubbo should consider how best to unlock additional housing supply and accelerate the planning, construction and delivery of a diverse range of housing stock to align with the needs of the new population.

5.0 Features of the future of Dubbo

5.1 Affordable and suitable housing

The current housing affordability challenge is putting a damper on Australians' home ownership aspiration. This is particularly affecting Sydney, Melbourne and Brisbane. As shown in Graph 7, with their rapid population growth and housing supply struggling to keep pace, almost one in four mortgage-paying households in Sydney (23%) and one in five in Melbourne (19%) are in mortgage stress, where mortgage repayments are more than 30% of household income. Brisbane residents are less likely to experience housing affordability pressure with just 13% of households in mortgage stress. This, however, remains higher than the average of just above 10% across most regional cities. In Dubbo, just 11% of mortgage-paying households have repayments above 30% of household income. Graph 8 shows rental affordability of Dubbo also outperforms other cities, with just 29% of households spending more than 30% of their income on rental payment.

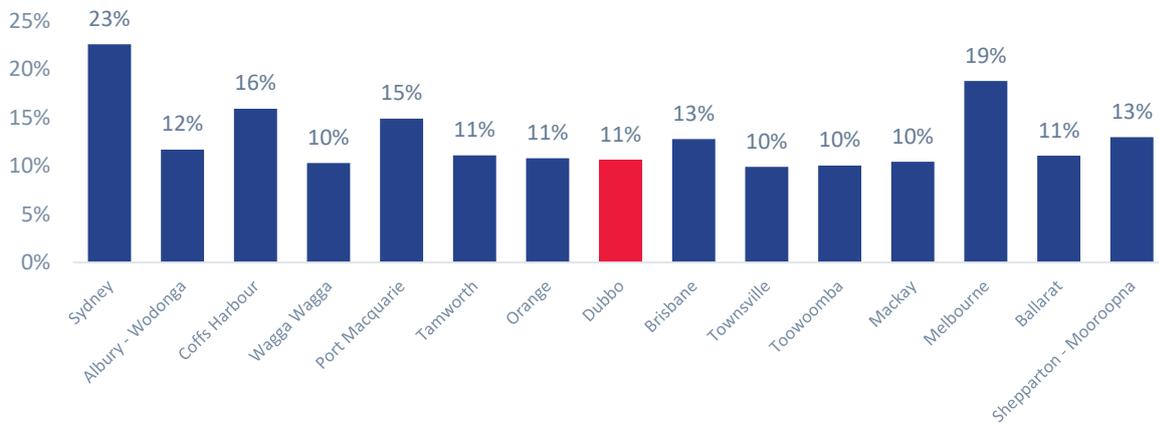
The redistribution of population growth more evenly across capital cities and regional areas could provide relief to the already stressed housing supply of places like Sydney and Melbourne and create opportunities for regional areas to provide a range of housing types and more affordable housing for more Australians.

Another sign of a stressed housing supply system, dwellings that are suitable for its occupants are more common in regional cities. To identify whether a dwelling is under or over-utilised, the housing suitability indicator which accounts for the number of bedrooms in a dwelling as well as household demographics (i.e. number of occupants, their age and relationship to each other). The suitability indicator is able to determine whether housing is suitable for each household. Graph 9 shows that in Sydney, the rate of over-utilised households where more bedrooms are needed (6%) is almost twice as high as regional cities. Melbourne (4%) and Brisbane's (3%) dwelling mix appears more appropriate than that of Sydney with a lower rate of over-utilisation.

In Dubbo, only 3% of households are over-utilised. This, however, remains an indicator that more dwellings and dwellings of different typology will be needed for Dubbo to attract additional population while keeping the balance of housing supply and demand and Dubbo's housing market affordable and suitable. Based on SQM Research data, the rental vacancy rate of Broken Hill-Dubbo is 1.2% in May 2023. In the highly publicised tight rental market of Sydney, vacancy rate is a higher 1.5%, demonstrating the need for more dwellings to be built in order to maintain availability and affordability for any additional population in Dubbo.

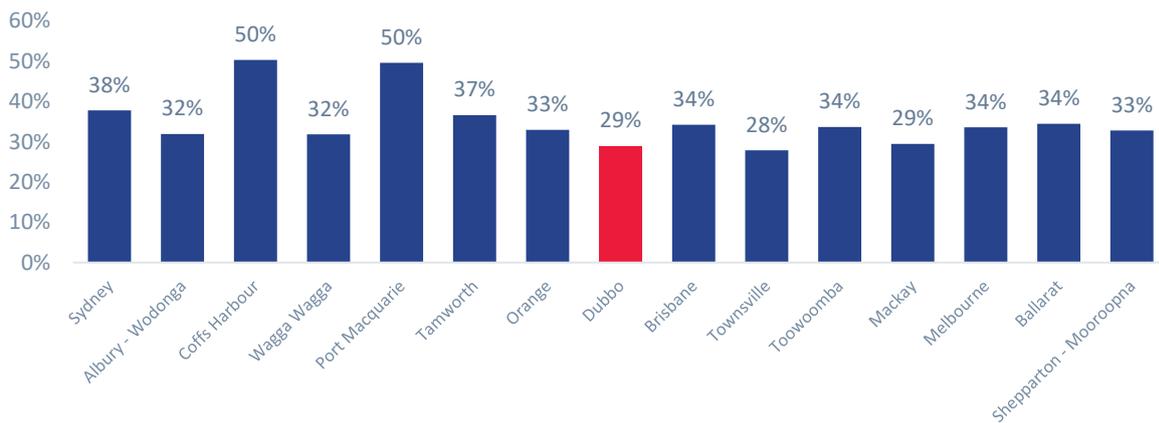
Graph 7. Mortgage affordability

Households where mortgage repayments are more than 30% of household income, 2021 Census of Population and Housing.



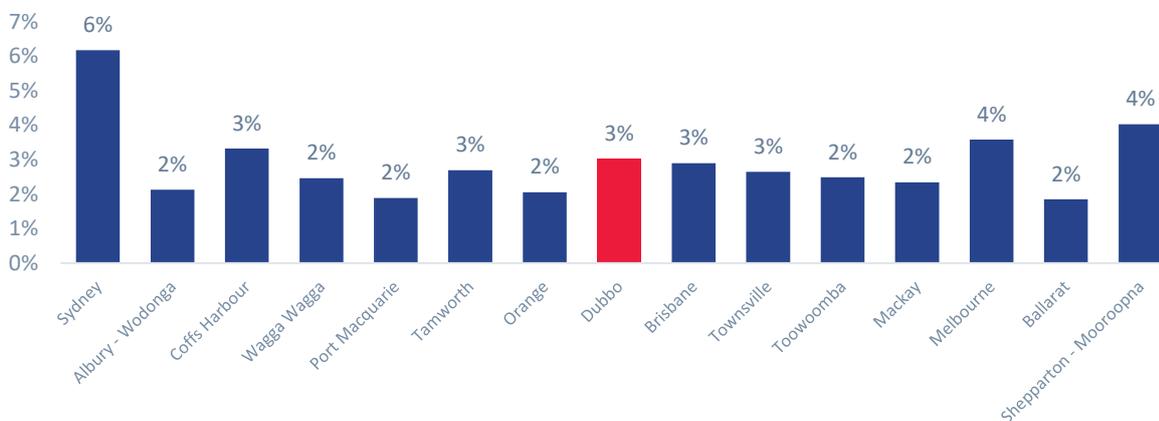
Graph 8. Rental affordability

Households where rental payments are more than 30% of household income, 2021 Census of Population and Housing.



Graph 9. Housing suitability

Proportion of over-utilised dwellings, 2021 Census of Population and Housing.



5.2 Lifestyle and Liveability

A number of economic and lifestyle factors also support the future population growth of Dubbo.

Across regional cities in New South Wales, Queensland, and Victoria, a great majority offer similar housing opportunities as capital cities while maintaining a much higher degree of liveability.

In Table 12 a range of regional cities are shown spanning Queensland, NSW and Victoria. In NSW, a range of mid-size regional cities within a 5-hours commute time to Sydney offer affordable housing and high quality of life. With sufficient social infrastructure and economic opportunity, population growth in these areas can enable more Australians to have access to a greater quality of life and create more vibrant communities across NSW.

Larger cities in Queensland and Victoria are good examples of this. Populations in Townsville, Toowoomba, Mackay, Ballarat, and Shepparton are large and steadily growing (average of just under 2% per annum), offering a growing number of Australians more affordable and liveable lifestyles outside of our rapidly growing capital cities.

As the energy infrastructure of Australia transitions to renewable sources, many of which also requires critical minerals, regional centres can also expect to spearhead this transformation. Linked opportunities such as upgrading of road and rail networks, medical facilities and support services including fire, police, education and child minding, that emerge from the construction and operation of a new energy grid will also lead to population growth in our regional cities.

Table 12. Estimated Resident Population by Significant Urban Area (SUA), 2022

State	Regional cities	Population
NSW/Vic	Albury - Wodonga	98,607
NSW	Coffs Harbour	75,016
NSW	Wagga Wagga	57,368
NSW	Port Macquarie	51,154
NSW	Tamworth	44,947
NSW	Orange	42,351
NSW	Dubbo	41,299
Qld	Townsville	184,313
Qld	Toowoomba	146,955
Qld	Mackay	86,890
Vic	Ballarat	114,103
Vic	Shepparton - Mooroopna	54,280

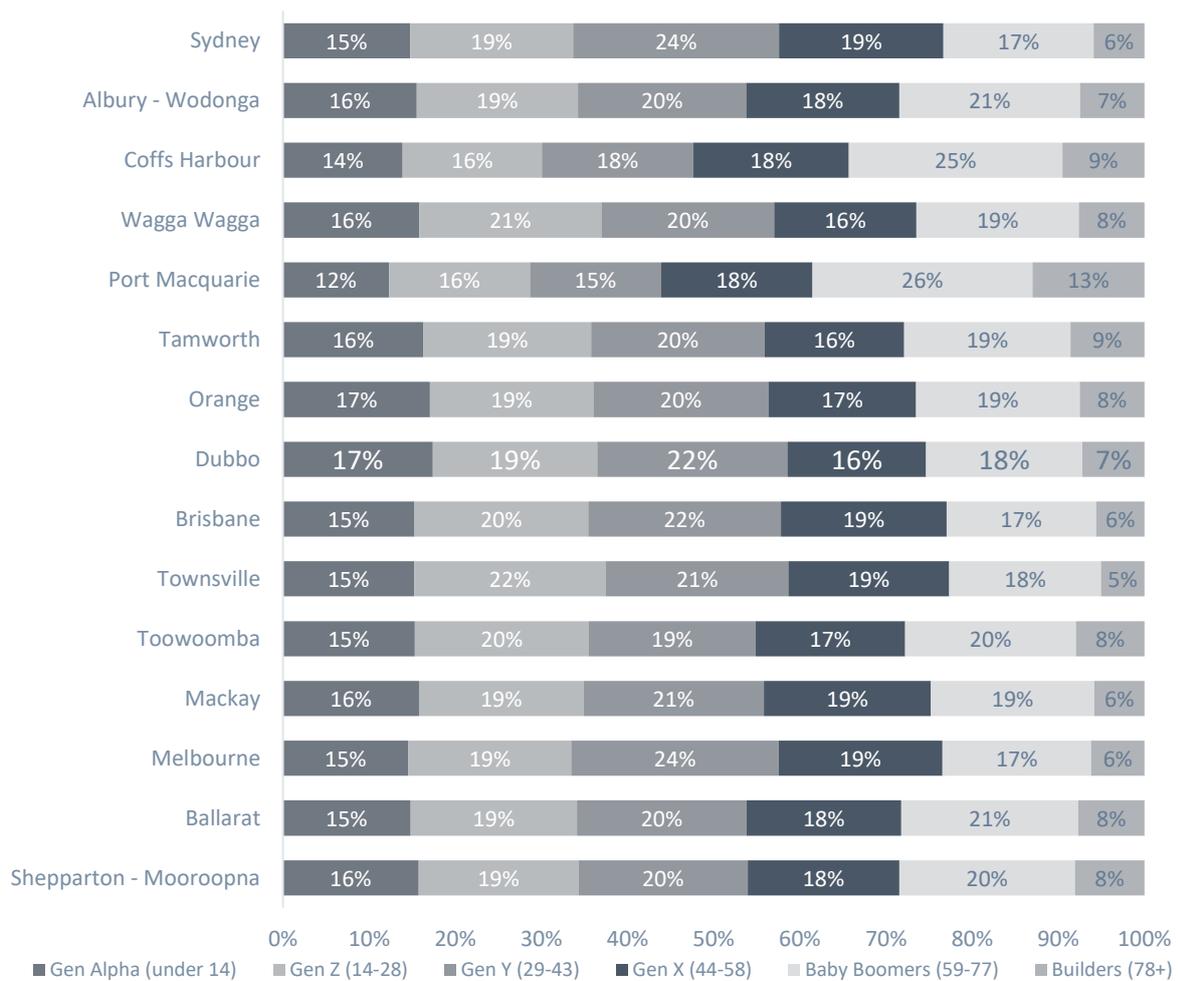
5.3 High proportion of Generation Y in Dubbo

As shown in Figure 2: Demographic Profile of Dubbo and extended in Graph 10. Typical Generation Profiles the age profile of Australia’s regional cities is not too dissimilar to their capital city counterparts, contesting the popular perception that the regions are retirement-centric areas of decline. In many areas, Baby Boomers and Builders aged 59 or above comprise less than 30% of the overall population, comparable to that of Sydney, Melbourne, and Brisbane (23%).

In Dubbo, 22% of the overall population belong in Generation Y, just behind that of Sydney and Melbourne (24%) and is on par with Brisbane (22%). Aged between 29 and 43, Gen Y form a large proportion of the workforce, indicating that a large and diversified and productive labour force currently live in Dubbo. The diversity of the Dubbo main industries is also shown in Figure 2, where a range of industries are identified. Dubbo’s agriculture roots (2% of the workforce) as well as the emerging renewable energy and related precious metal mining projects will also benefit from the high proportion Gen Y workers in the region.

Graph 10. Typical Generation Profiles

Proportion of residents within each generation profile, 2021 Census of Population and Housing.



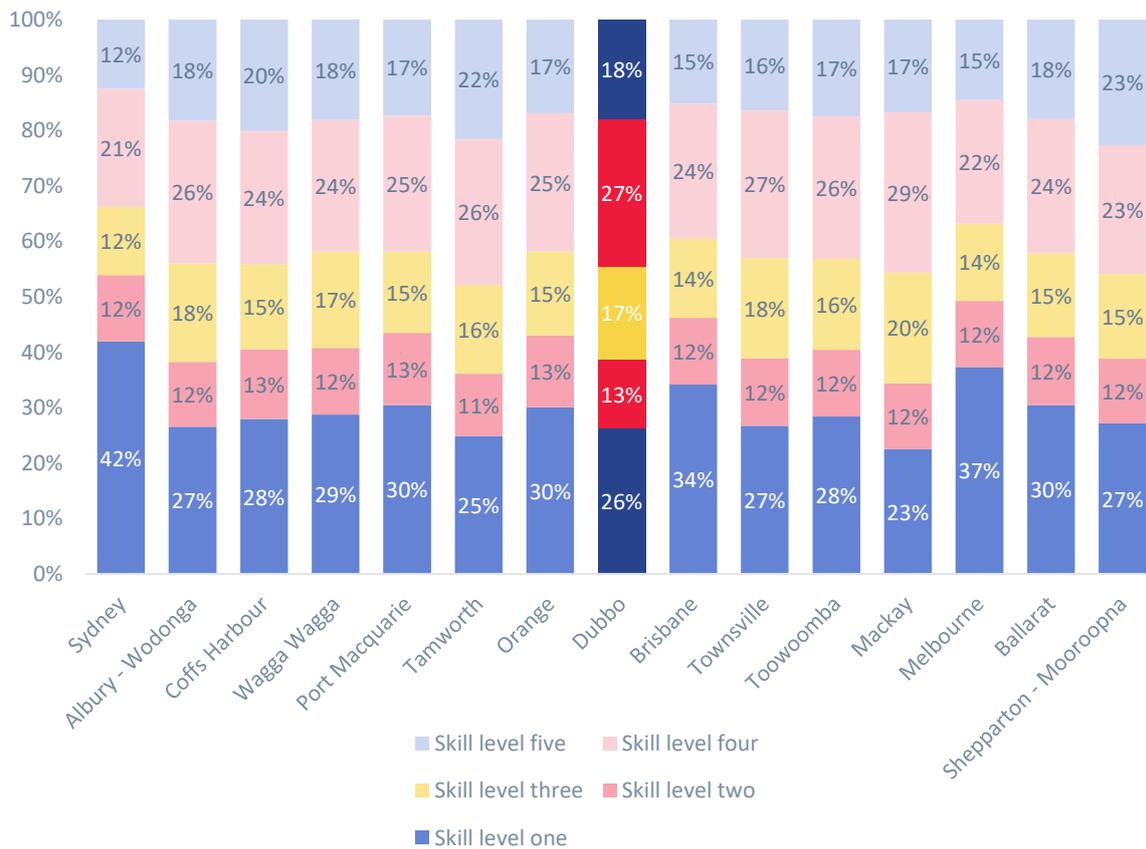
Professional workforce needs to increase in Dubbo

Characteristics of capital city economy, highly skilled occupations are more represented in Sydney, Brisbane, and Melbourne. The proportion of the workforce employed within the professional service sector and finance sector in Sydney and Melbourne is more than three times that of regional areas. As shown in Graph 11, this highly skilled capital city workforce with almost half falling into occupational skill level one and two, which is characteristic of manager and professional occupations.

In Dubbo, workers in Skill Levels one and two are approximately 10 percentage points lower than that of capital cities. The large amounts of work to be done in the renewable energy and precious metals mining sectors could drive the need for more high-level managers and professional services providers to lessen the current gap. The average proportion of Professional, Scientific and Technical Services and Financial and Insurance Services are shown respectively on Graph 12 and 13.

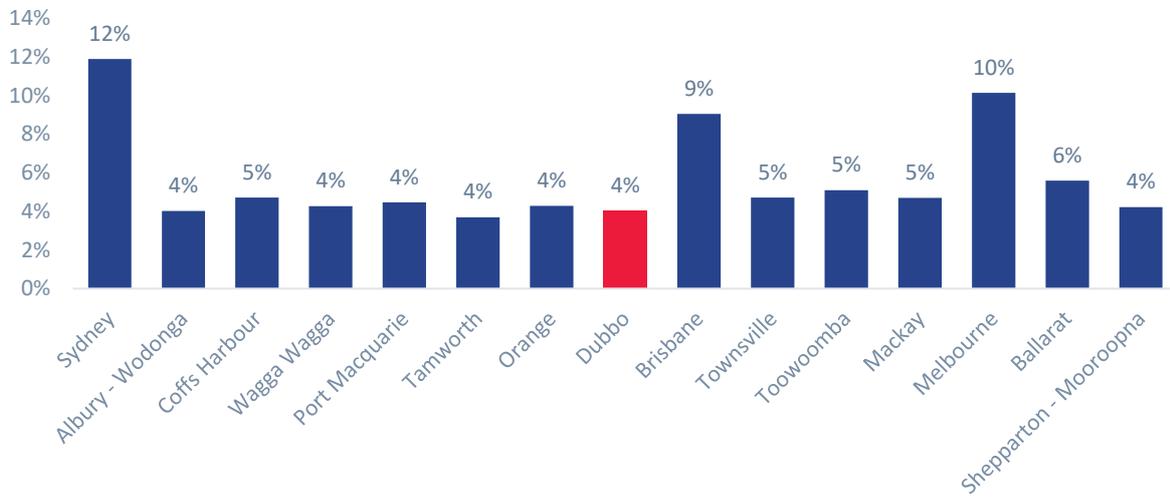
Graph 11. Occupational skill level

Proportion of workers based on occupational skill levels, 2021 Census of Population and Housing.



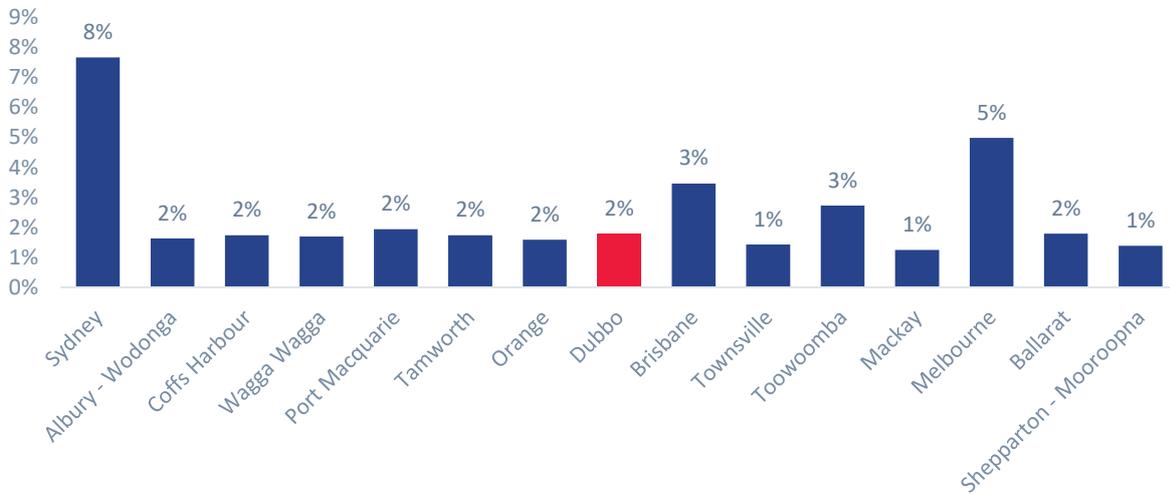
Graph 12. Professional, Scientific and Technical Services

Proportion of total workforce, 2021 Census of Population and Housing.



Graph 13. Financial and Insurance Services

Proportion of workforce, 2021 Census of Population and Housing.



5.4 Employment profile

Low unemployment

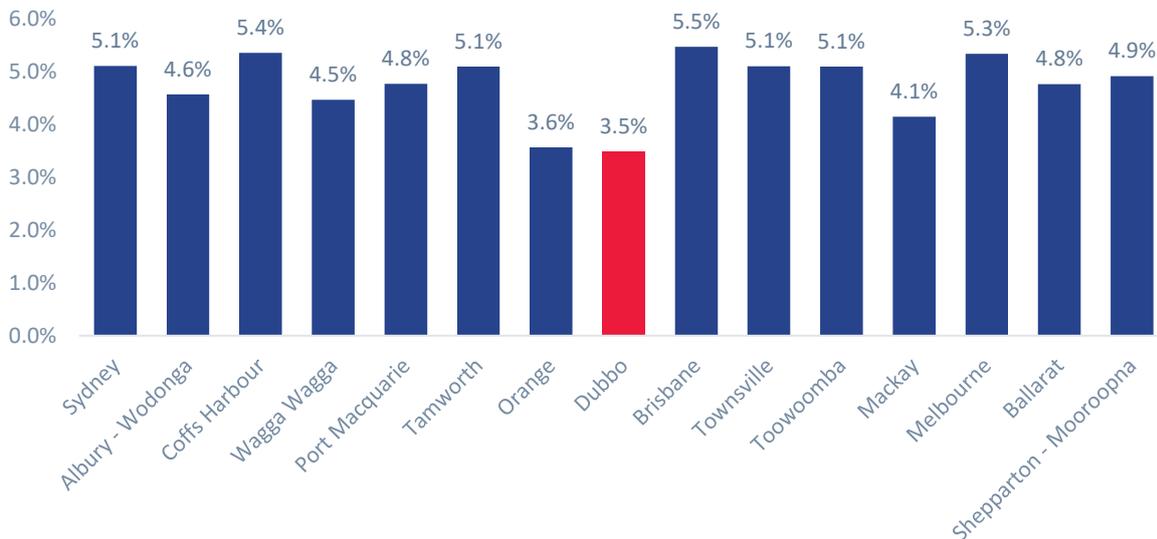
Another strong pull factor for regional cities is its low unemployment rate driven by a demand for workers. Many regional cities across New South Wales, Queensland, and Victoria have regionally distinct industries. These key industries become economic pillars for the local community (Mining in Mackay and Orange, Defence in Townsville, food production in Shepparton). Other regional cities such as Dubbo, however, have diverse economies where major employing industries are in core population-serving sectors (health care, education, retail, construction). Agriculture, mining, and renewable energy and associated industries will also create major employment for regional areas such as Dubbo. Skilled workers in these sectors are in demand in regional cities. The challenge is to aid in community and family formation for relocating workers. Dubbo’s unemployment rate (Graph 14) is the lowest compared to other comparable regions and cities.

A balanced economy

The composition of Dubbo’s economy is diverse. Almost all industries are represented in Dubbo’s economy. This diversity is shown in Graphs 15 and 16 and Table 13. As the development of renewable energy accelerates, construction and engineering professionals will also be increasingly common. Over the past five years, almost all industries in Dubbo have also seen job growth with new employment opportunities. Health care and social assistance has been particularly fast growing, increasing by 49% in just five years. At present, more than one in five jobs in Dubbo are in health care and social assistance.

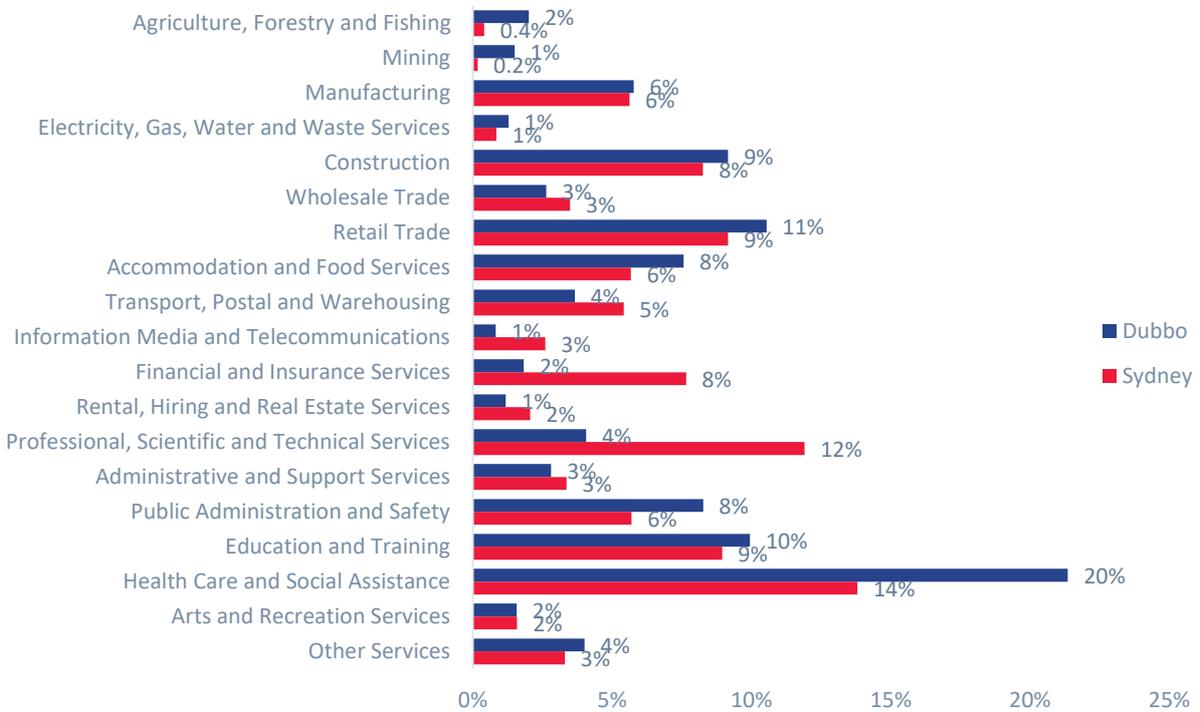
Graph 14. Unemployment rate

Proportion of labour force that is unemployed, 2021 Census of Population and Housing.



Graph 15. Labour force profile

Industry composition by proportion of total employment, Dubbo compared to Sydney.



Graph 16. Dubbo's change in labour force profile

Change in number of employment within industry, 2016 to 2021.

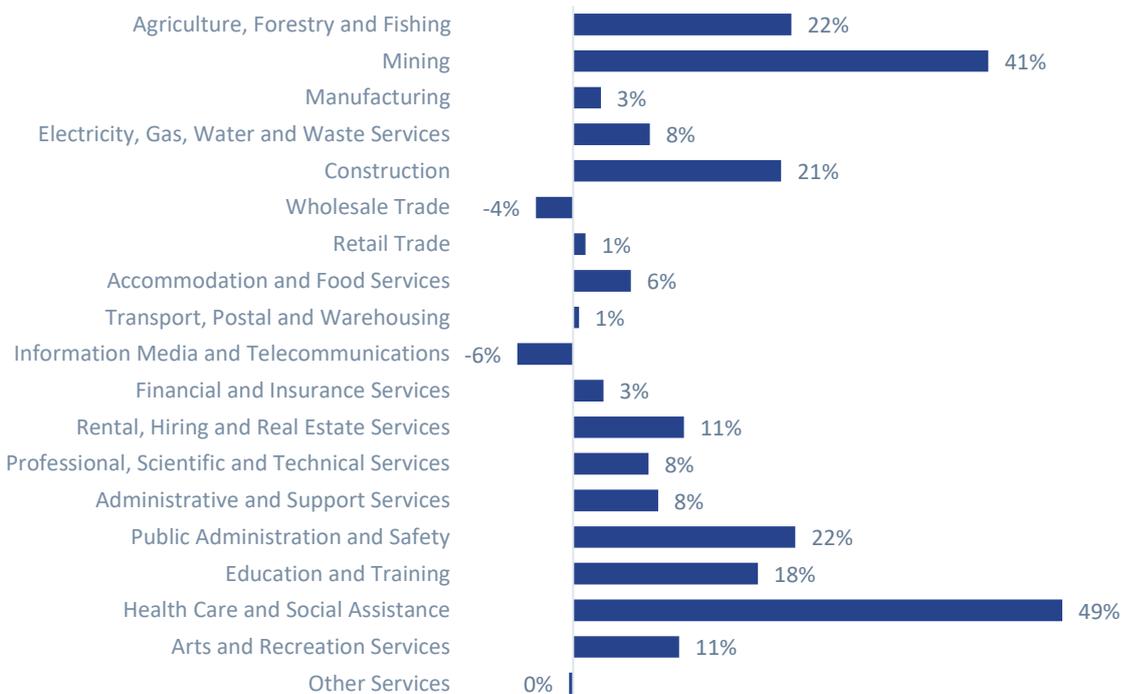


Table 13. Labour force profile

Key employment segments

	Top	Second	Third
Agriculture, Forestry and Fishing	Sheep Farming (Specialised)	Beef Cattle Farming (Specialised)	Grain-Sheep or Grain-Beef Cattle Farming
Mining	Gold Ore Mining	Copper Ore Mining	Coal Mining
Manufacturing	Meat Processing	Bread Manufacturing (Factory based)	Prepared Animal and Bird Feed Manufacturing
Electricity, Gas, Water and Waste Services	Water Supply	Electricity Distribution	Gas Supply
Construction	Electrical Services	House Construction	Carpentry Services
Wholesale Trade	Agricultural Product Wholesaling	Grocery Wholesaling	Commission-Based Wholesaling
Retail Trade	Supermarket and Grocery Stores	Clothing Retailing	Car Retailing
Accommodation and Food Services	Takeaway Food Services	Cafes and Restaurants	Accommodation
Transport, Postal and Warehousing	Road Freight Transport	Courier Pick-up and Delivery Services	Postal Services
Information Media and Telecommunications	Telecommunications Network Operation	Libraries and Archives	Newspaper Publishing
Financial and Insurance Services	Banking	Auxiliary Finance and Investment Services	General Insurance
Rental, Hiring and Real Estate Services	Real Estate Services	Residential Property Operators	Heavy Machinery and Scaffolding Rental and Hiring
Professional, Scientific and Technical Services	Accounting Services	Legal Services	Computer System Design and Related Services
Administrative and Support Services	Building and Other Industrial Cleaning Services	Employment Placement and Recruitment Services	Gardening Services
Public Administration and Safety	State Government Administration	Local Government Administration	Correctional and Detention Services
Education and Training	Primary Education	Secondary Education	Combined Primary and Secondary Education
Health Care and Social Assistance	Hospitals (except Psychiatric Hospitals)	Social Assistance Services	Aged Care Residential Services
Arts and Recreation Services	Zoological and Botanical Gardens Operation	Nature Reserves and Conservation Parks Operation	Horse and Dog Racing Activities
Other Services	Automotive Repair and Maintenance	Hairdressing and Beauty Services	Automotive Body, Paint and Interior Repair

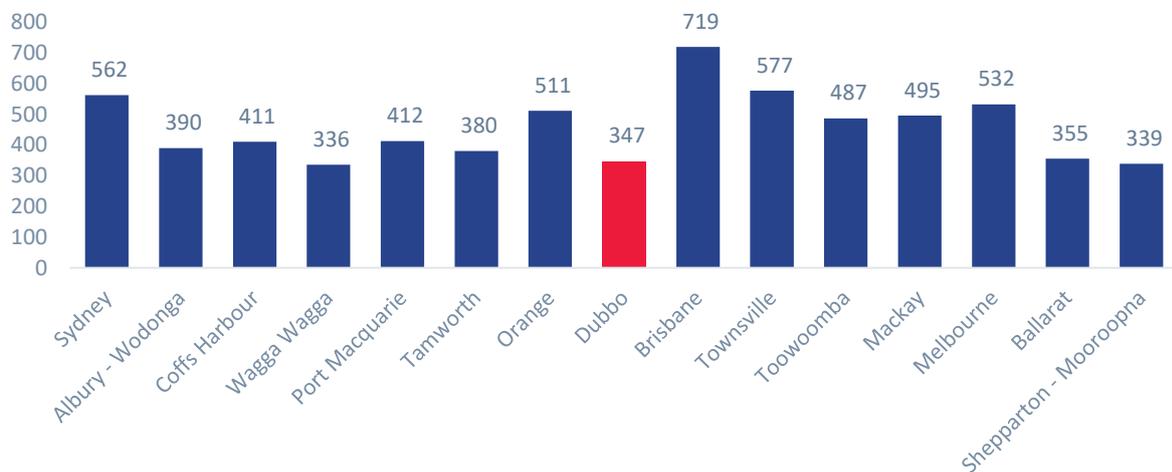
5.5 Education

Well established education infrastructure in Dubbo

Interestingly, the schooling infrastructure for many regional cities is stronger than that of capital cities. Graphs 17, 18 and 19 below show different elements of the education infrastructure that features good numbers with respect to Dubbo with the possible exception of childcare places. The student to teacher ratio for schools in these regional cities are slightly lower than those in capital cities. Schools are also smaller with less students per school on average, though this is a less direct indicator of pressure within school systems. The availability of childcare places is also higher in some regional cities. In Dubbo, these education ratios compare very favourably to other cities and regions.

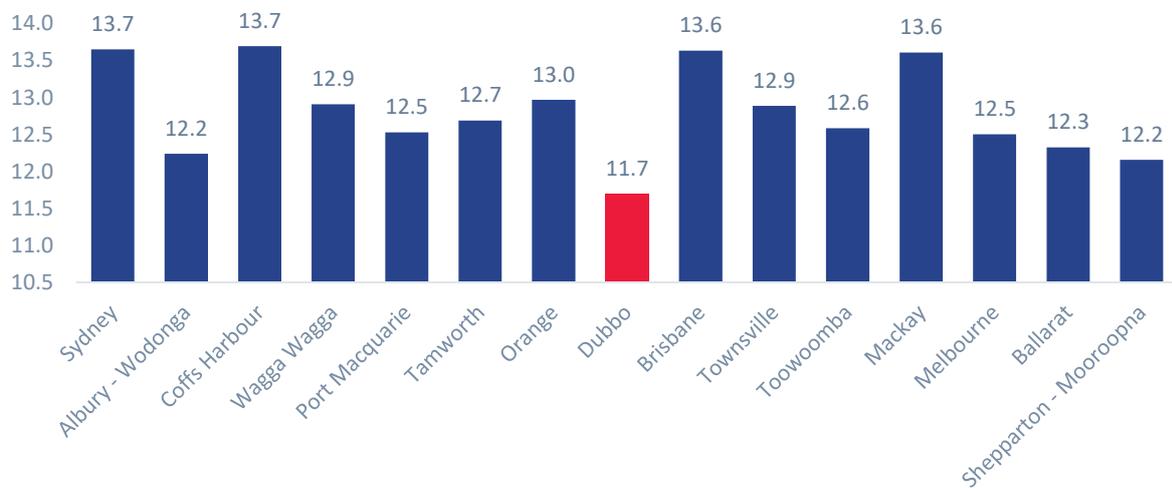
Graph 17. Ratio of school-aged children to school

Number of school-aged children (aged 5 to 19) per school, Australian Curriculum, Assessment and Reporting Authority 2022.



Graph 18. Ratio of student to teaching staff

Number of FTE student per FTE teaching staff, Australian Curriculum, Assessment and Reporting Authority 2022.



Graph 19. Ratio of children under the age of 5 to childcare places

Number of children under the age of 5 per childcare places, 2021 Census of Population and Housing and national registers of Australian Children’s Education & Care Quality Authority.

