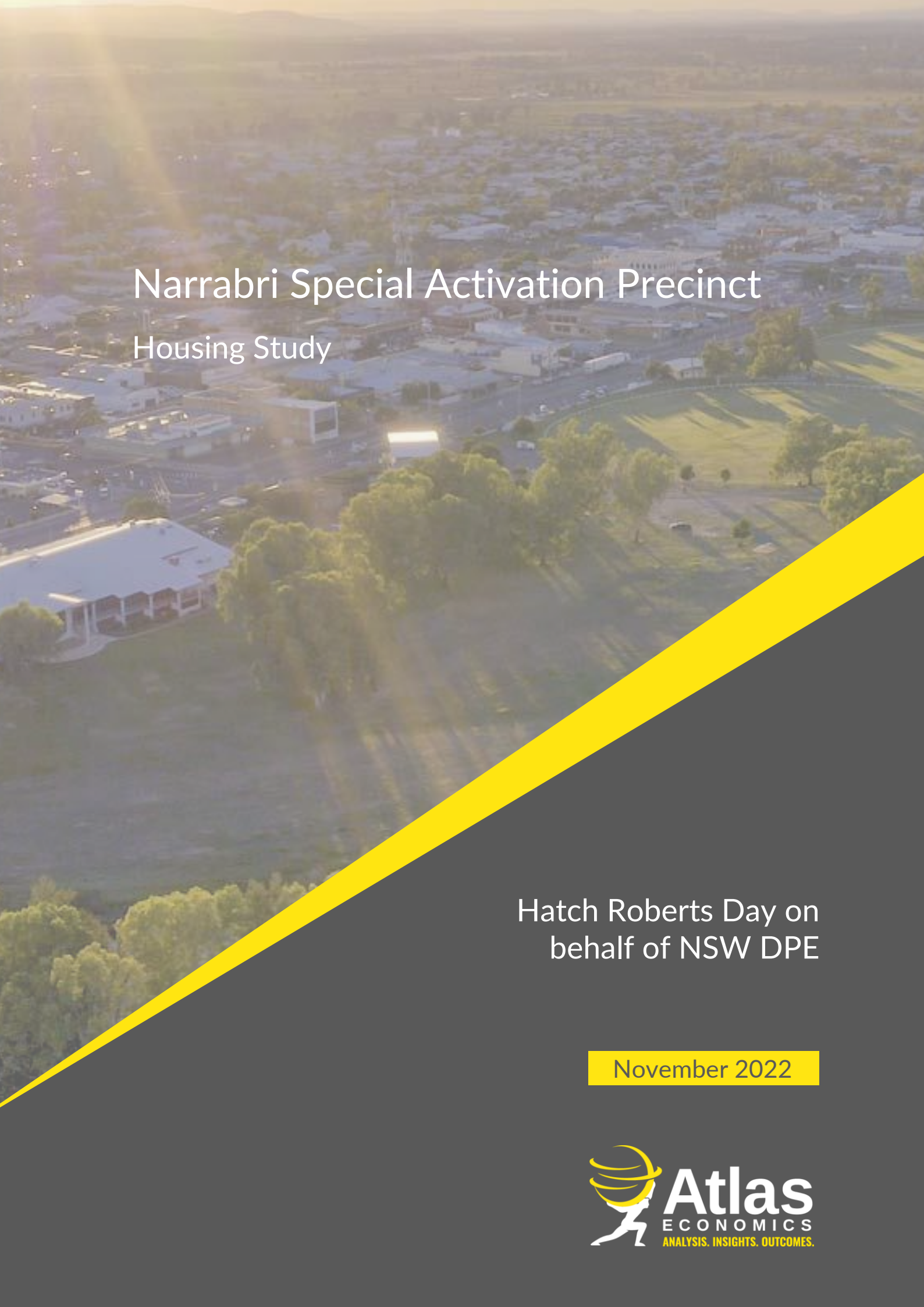

Narrabri Special Activation Precinct

Housing Study

Hatch Roberts Day on behalf of NSW DPE

November 2022

Atlas ECONOMICS
ANALYSIS. INSIGHTS. OUTCOMES.

Document Control

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Executive Summary

Acknowledgement of Country

We acknowledge Country and pay respects to the Gomeroi/Gamilaroi/Gamilaraay/Kamilaroi people as the Traditional Owners and Custodians of the land and waters on which the Narrabri Special Activation Precinct is located on.

We recognise their continued connection to Country and that this connection can be seen through stories of place and cultural practices such as art, songs, dances, storytelling and caring for the natural and cultural landscape of the area.

We also recognise the continuing living culture of Aboriginal people, and the significance of Narrabri in that living culture. We recognise the contemporary stories of displacement and the cultural significance of Narrabri in the continued journey of self-determination in Australia.

INTRODUCTION

In November 2020, the regional centre of Narrabri in North West NSW was identified by the NSW Government as a Special Activation Precinct (SAP). The designation of Narrabri as a SAP reflects the significant pipeline of major projects proposed and approved across the Narrabri Shire, including the Inland Rail, Northern NSW Inland Port (N2IP) and Narrabri Gas Project.

To support the growth of Narrabri, the NSW Department of Planning and Environment (DPE) is preparing a Master Plan for the Narrabri SAP that will be informed by a Structure Plan and series of supporting technical studies. Hatch Roberts Day (HRD) is the lead consultant delivering the Narrabri Structure Plan.

Atlas Economics (Atlas) has been engaged by the HRD to carry out a Housing Study to assist in the preparation of the Narrabri Structure Plan. The Housing Study will investigate the need for housing (both short-term and long-term) and if existing planning controls are appropriate in meeting existing and future demand. To assist in the preparation of the Narrabri Structure Plan, Atlas' advice is provided in several parts:

- **Part 1: Housing Analysis Paper** carries out baseline demographic and market analysis to understand the drivers of demand and supply of housing in the Narrabri LGA. The findings of this analysis will identify at a high-level the need and potential location of more development capacity for housing to meet current and future demand.
- **Part 2: Housing Scenarios Analysis** examines the viability and merits of different housing scenarios to inform refinement of a preferred scenario for the Structure Plan.
- **Part 3: Housing Study (this Study)** considers the quantum and mix of housing needed to respond, forecasts likely development take-up of the preferred housing scenario and makes recommendations for required interventions (e.g. planning controls, staging of services/ utility infrastructure) to ensure successful delivery.

This Study is not a 'standalone' study but part of a suite of three reports prepared over an almost 12-month period to inform the development of the Narrabri SAP Structure Plan. This Study reflects the final report within the suite of studies prepared and evaluates the Preferred Housing Scenario which was evaluated and selected upon completion of Part 2.

Assumptions and Limitations of Population Estimates

The NSW DPE State and LGA population projections were developed and published in 2019. Since then, DPE has prepared a revised set of population projections (State and LGA) in recognition of the COVID-19 pandemic. These projections however do not consider the potential impact of several major infrastructure and energy projects have been announced and approved in the Narrabri Shire and the surrounding region on population growth rates

Accordingly, a set of population estimates have been developed to inform the structure planning process which have relied upon on a series of high-level assumptions. These assumptions have been made through a combination of historical demographic evidence, input from Narrabri Shire Council and professional judgement.

Atlas Economics are not demographers. The population estimates are developed at a high-level and have not considered detailed demographic factors as typically done in the official NSW DPE projections.

BASELINE FINDINGS

The Narrabri SAP Housing Analysis Study (Atlas Economics, November 2021) carried out a comprehensive assessment of the Narrabri housing market. Key findings from the Housing Analysis Study included:

- **Historical Trends and Drivers**

  Demand for housing in Narrabri has historically been influenced (both positively and negatively) by a variety of factors, including a regional migration away from rural centres, cyclical shifts in employment activity, local agricultural conditions, growing levels of labour redundancy and local migration activity.

  The supply of new housing in Narrabri has been limited over the past 10-15 years, largely a function of development feasibility issues which broadly makes new housing less economical than purchasing established housing.

- **Demand for Housing**

  Whilst Narrabri has not benefited from the regional population shift which occurred across other parts of Regional NSW in the wake of COVID-19, the local housing market rebounded over 2020-2021. There is underlying demand for medium-density housing typologies, though there is a major shortage in this housing format across the Shire. The principal challenge in the delivery of medium-density housing in Narrabri is development feasibility.

- **Supply-side Constraints**

  The cost and scarcity of labour and cost of existing housing within Narrabri are the principal constraints to development activity in Narrabri. For instance, Narrabri's (suburb) median house price is currently circa $385,000. The cost of developing a new standard detached house estimated to be almost $600,000.

  Over time, the feasibility of development in Narrabri is anticipated to improve as local economic conditions strengthen.

- **Subsidised Housing**

  There is limited affordable or community housing across the Shire. The average waiting times for social housing in Narrabri is between 2 and 5 years, with the existing social housing portfolio increasingly ageing.

POPULATION GROWTH SCENARIOS

Estimates of population numbers have been prepared over the course of the Study for the purposes of understanding potential demand for housing in Narrabri to 2041. They are estimates only and should not be considered as projections or forecasts. A full summary of the methodology used for the population estimates is included in the Housing Analysis Study.

In this Study, two sets of population estimates have been developed.

- **Baseline Alternate Population Estimates**
  These estimates of population numbers were developed in consultation with DPE and Narrabri Shire Council and were reported in both the Housing Analysis Paper and Housing Scenarios Analysis Paper. These projections were originally based on DPE's *2019 Population, Household and Implied Dwelling Projections*. An update of these projections has been carried out to reflect DPE's *2022 Population, Household and Implied Dwelling Projections* (released in Q3 2022) and to incorporate several major projects in the pipeline.

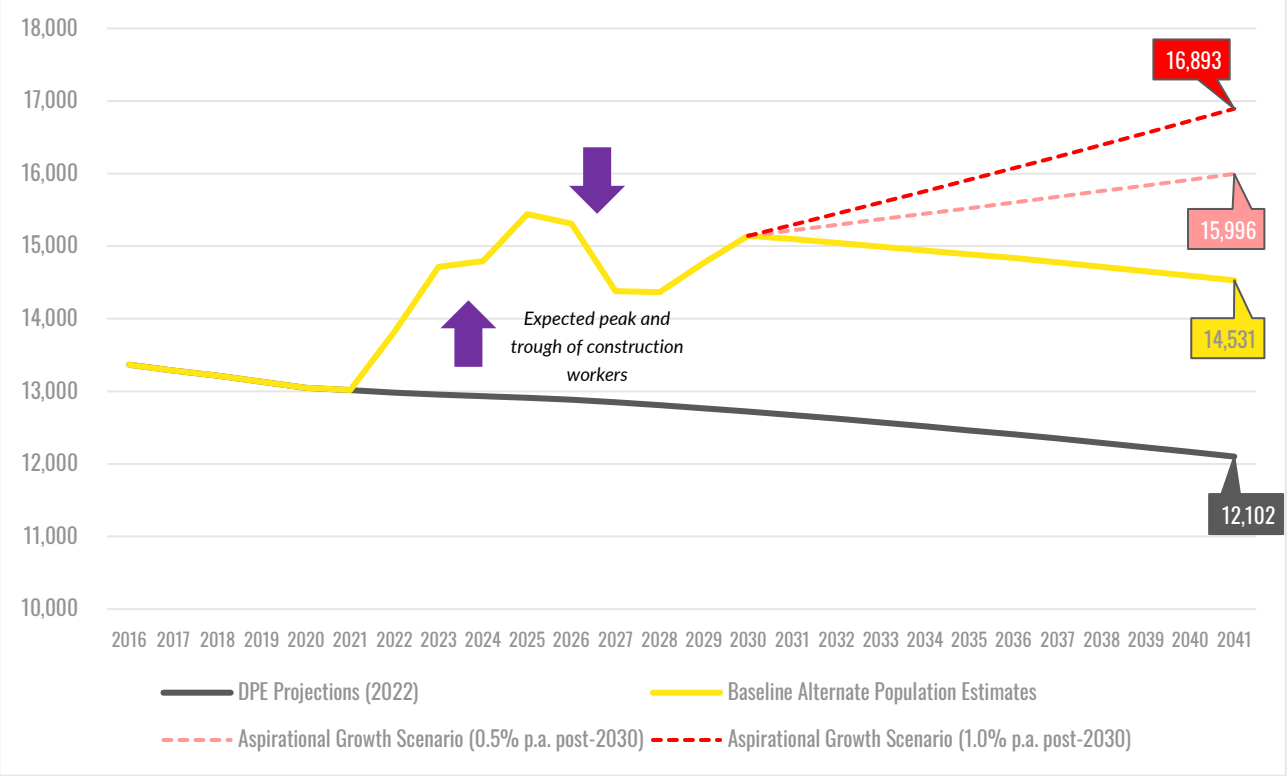
- **Aspirational (What-if) Growth Scenarios**
  Following the completion of the final EbD in September 2022, the need for a higher, 'aspirational' growth scenario was identified. This higher growth scenario would enable Narrabri to maintain a stable and viable population base and employment workforce and respond to the economic opportunities that have and continue to be generated for the region. These additional growth scenarios are predicated on the Baseline Alternate Population Estimates, albeit with higher levels of population growth from 2030 onwards. Two sets of Aspirational Growth Scenarios are included:

  - **Aspirational Growth Scenario 1:** post-2030, the Narrabri Shire's population grows by 0.5% per annum to 2041.
  - **Aspirational Growth Scenario 2:** post-2030, the Narrabri Shire's population grows by 1.0% per annum to 2041.

Under these scenarios, the Narrabri Shire could reach a resident population of between 14,500 and 16,900 residents by 2041. This is considerably higher than that projected in DPE's *Population, Household and Implied Dwelling Projections (2022).*

Figure ES.1 illustrates the various population growth scenarios compared against DPE's 2022 projections.

Figure ES.1: Population Growth Scenarios (2016-2041), Narrabri LGA



Source: Atlas Economics/DPE (2022)

DEMAND FOR HOUSING

Population estimates have been converted into an implied dwelling requirement through applying the persons per dwelling adopted in DPE's 2022 Projections. Using this basic approach, additional dwelling requirements to 2041 for each population estimate scenario have be assessed:

- **Baseline Alternate Population Estimates:** an additional ~1,000 dwellings by 2041.
- **Aspirational Growth Scenario 1:** an additional ~1,700 dwellings by 2041.
- **Aspirational Growth Scenario 2:** an additional ~2,100 dwellings by 2041.

Table ES.1 summarises the potential dwelling requirements over the 2021-2041 period for each growth scenario.

Table ES.1: Potential Dwelling Requirements (2021-2041), Narrabri LGA

Indicator	2021	2026	2031	2036	2041	Change (2021-41)	
						Total Change	Avg. Annual
Baseline Alternate Population Estimates							
Population Estimates	13,019	15,311	15,100	14,837	14,531	**1,512**	**76**
Capita/Dwelling (DPE 2022)	2.18	2.16	2.13	2.10	2.09		
Potential Dwelling Need	5,964	7,079	7,089	7,058	6,968	**1,004**	**50**
Aspirational Growth Scenario 1							
Population Estimates	13,019	15,311	15,218	15,602	15,996	**2,977**	**149**
Capita/Dwelling (DPE 2022)	2.18	2.16	2.13	2.10	2.09		
Potential Dwelling Need	5,964	7,079	7,144	7,422	7,671	**1,706**	**85**
Aspirational Growth Scenario 2							
Population Estimates	13,019	15,311	15,293	16,074	16,893	**3,874**	**194**
Capita/Dwelling (DPE 2022)	2.18	2.16	2.13	2.10	2.09		
Potential Dwelling Need	5,964	7,079	7,179	7,647	8,101	**2,137**	**107**

Source: Atlas Economics/DPIE (2022)

Accordingly, the population estimate scenarios could require between ~1,000 and ~2,100 additional dwellings over the coming 20 years to 2041, equating to between ~50 and ~110 additional dwellings per annum. It is highlighted that over the 2011-2021 period, a *total* of 47 additional dwellings were delivered over the decade.

Accordingly, a significant uptick in housing supply would be required to meet population growth under any population estimate scenarios, assuming they eventuated.

MOUNT KAPUTAR PRECINCT

Over the course of Q2-Q3 2022, three different housing scenarios were prepared by HRD as potential locations for future housing as part of the Narrabri SAP Structure Plan. The Housing Scenario Paper recommended that new housing should be focused within the Highway Intersection precinct as identified in the Narrabri Growth Management Strategy (2010), being a large rural area located south of the existing Narrabri township between the Newell and Kamilaroi highways.

Over the course of the final four-day EbD workshop in September 2022, this location was adopted as the preferred housing scenario location for the purposes of the Narrabri SAP Structure Plan and has been defined as the 'Mount Kaputar Precinct'. This location was selected for several key reasons; it largely falls outside the Narrabri floodplain, is proximate to the Narrabri township and existing road network and could be serviced together with the delivery of utilities associated with the SAP.

The Mount Kaputar Precinct is significant; it comprises a total gross area in the order of 488ha with a potential net development area (NDA) of 341.6ha.

Accordingly, the Mount Kaputar Precinct is likely to have sufficient housing capacity to meet the potential dwelling needs identified under the Baseline Alternate Population Estimates (~1,000 additional dwellings by 2041) and both Aspirational Growth Scenarios (1,700 dwellings to 2,100 additional dwellings by 2041).

HOUSING RECOMMENDATIONS FOR NARRABRI SAP STRUCTURE PLAN

Analysis undertaken in this Study indicates that there this clear demand for a more diverse mix of housing typologies in the Narrabri Shire. However, supply-side constraints (particularly development feasibility) may not result in these typologies being developed in the short to medium-term.

However, irrespective of the likely housing typologies which may be delivered in the Mount Kaputar Precinct over the coming decades, the Structure Plan should seek to accommodate a mix of housing typologies which can meet the temporal needs of future residents.

This Study recommends the following housing and lot size mixes should be considered for structure planning purposes:

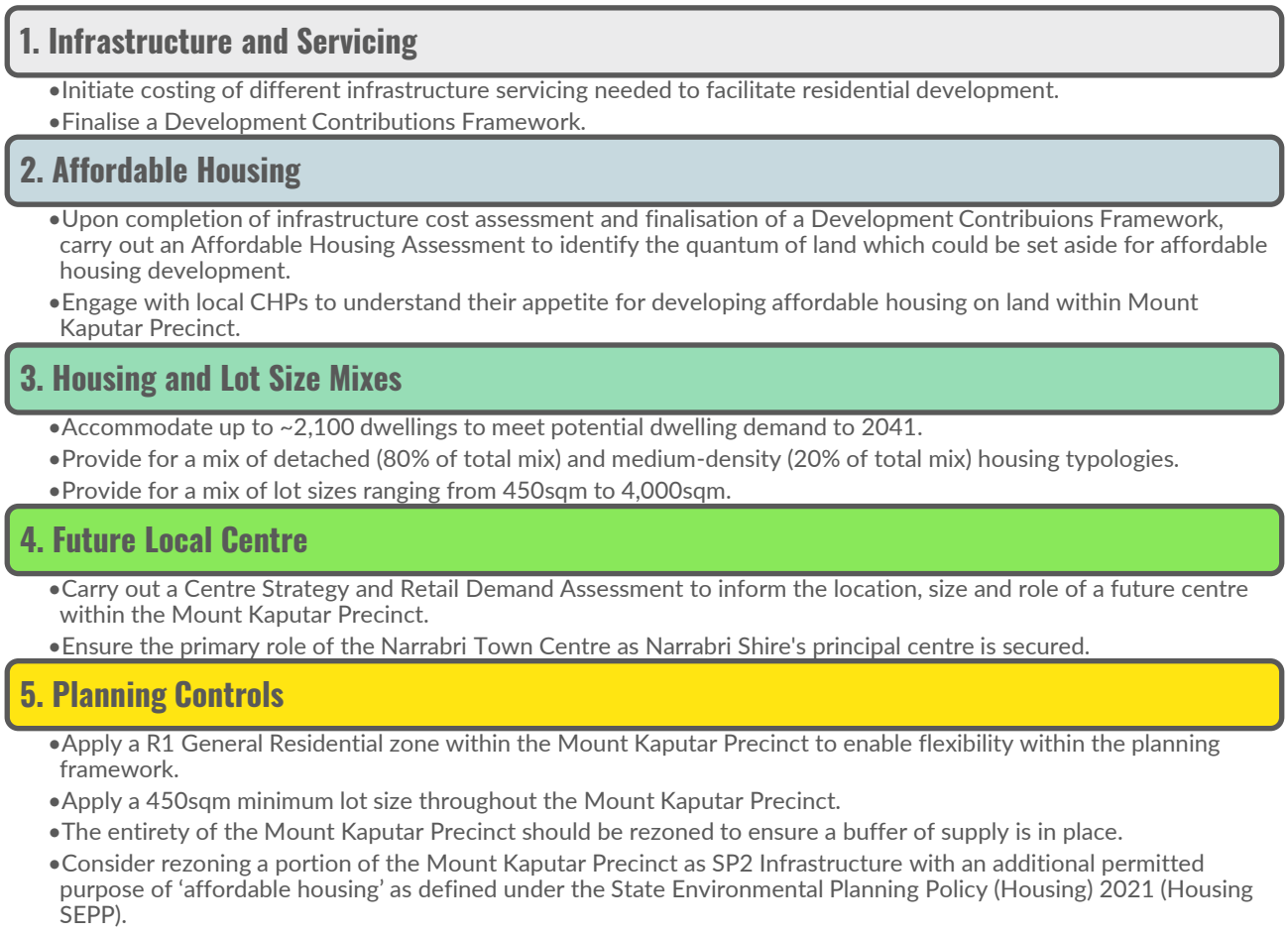
- Provide for at least ~2,100 dwellings to meet potential dwelling demand to 2041.
- Provide for a mix of detached (80% of total mix) and medium-density (20% of total mix) housing typologies.
- Detached housing typologies on a mix of lot sizes, including:
    - Rural living lots (2,000sqm-4,000sqm): 5% to 10%
    - Traditional larger lots (900sqm-1,100sqm): 50% to 55%
    - Medium sized lots (700sqm-800sqm): 30% to 35%
    - Smaller lots (450sqm-550sqm): 5% to 10%

It will be important that the precinct is planned with flexibility in mind, enabling this lot size mix to be adapted over time.

A series of other recommendations relating to infrastructure and services, affordable housing, the location and size of a future local centre with the Mount Kaputar Precinct and planning controls are also made in this Study.

The full suite of housing recommendations made for consideration in the Structure Plan are provided in **Figure ES.2**.

Figure ES.2: Summary of Housing Recommendations, Narrabri SAP Structure Plan



Source Atlas Economics

1. Introduction

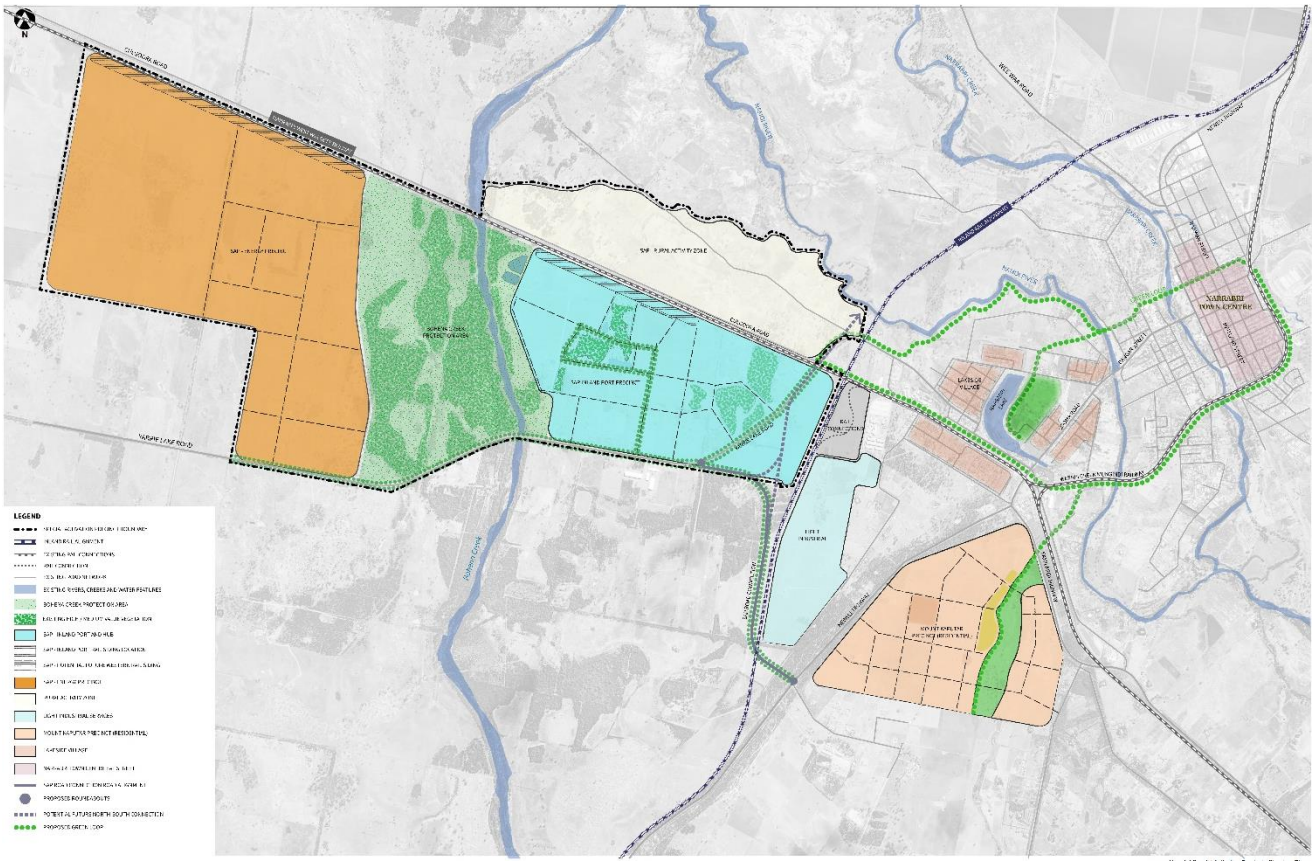
1.1 Background

In November 2020, the regional centre of Narrabri in North West NSW was identified by the NSW Government as a Special Activation Precinct (SAP). The SAP program objectives are to facilitate job creation and economic development in designated areas of regional NSW through infrastructure investment and streamlined planning.

The designation of Narrabri as a SAP reflects the significant pipeline of major projects proposed and approved across the Narrabri Shire local government area (LGA), including the Inland Rail, Northern NSW Inland Port (N2IP) and proposed Narrabri Gas Project (NGP). The major project pipeline has the potential to bring significant construction and job opportunities to the region, with an estimated ~3,700 construction jobs and ~1,000 ongoing jobs.

Figure 1.1 illustrates the broad boundaries of the Narrabri SAP investigation area (as defined by the red boundary).

Figure 1.1: Narrabri SAP



Source: HRD

In order to support the growth of Narrabri, the NSW Department of Planning and Environment (DPE) is preparing a Master Plan for the Narrabri SAP that will be informed by a Structure Plan and series of supporting technical studies. Hatch Roberts Day (HRD) is the lead consultant delivering the Narrabri Structure Plan.

Atlas Economics (Atlas) has been engaged by HRD for DPE to carry out a Housing Study to assist in the preparation of the Narrabri Structure Plan.

1.2 Scope and Approach

Scope of the Study

Atlas has been engaged by HRD for DPE to prepare a Housing Study for the Narrabri SAP. The Housing Study will investigate the need for housing and the different housing typologies likely needed to satisfy future demand.

To assist in the preparation of the Narrabri Structure Plan, Atlas' advice is provided in several parts:

- **Part 1: Housing Analysis Study** carried out baseline demographic and market analysis to understand the drivers of demand and supply of housing in the Narrabri LGA. It also included an alternate set of population projections which reflected the potential growth of the Narrabri LGA given the significant number of major projects being planned and/or delivered. The findings of this analysis identified the quantum of housing supply needed across Narrabri to 2041.
- **Part 2: Housing Scenarios Analysis** examined the viability and merits of three different housing scenarios prepared by HRD to inform the refinement and selection of a preferred housing scenario for the Structure Plan.
- **Part 3: Housing Study (this Study)** considers the quantum and mix of housing needed to respond, forecasts likely development take-up of the preferred housing scenario and makes recommendations for required interventions (e.g. planning controls, staging of services/ utility infrastructure) to ensure successful delivery.

Following the completion of Part 2, a final four-day Enquiry by Design (EbD) workshop was held with the wider Narrabri SAP consultant and stakeholder team. An outcome of the EBD was the selection of a Preferred Housing Scenario.

Approach to Housing Study

This Study is not a 'standalone' study but part of a suite of three reports prepared over an almost 12-month period to inform the development of the Narrabri SAP Structure Plan. This Study reflects the final report within the suite of studies prepared.

This Study evaluates the Preferred Housing Scenario which was selected at the final EbD and carries out the following:

- Summarise the drivers and factors influencing the supply and demand of housing in the Narrabri LGA.
- Summarise the population projections prepared in Part 1 (Housing Analysis Study) and consider the implications for housing demand under an alternate Aspirational Growth Target scenario.
- Review the yields and housing typologies proposed in the Preferred Housing Scenario and comment on the commercial viability of these typologies and likely take-up rates and delivery timeframes over the coming decades to 2041.
- Make recommendations for the desired delivery of housing, include staging of services/ utility infrastructure, rezoning of land and other interventions as appropriate.

1.3 Assumptions and Limitations

Atlas acknowledges several assumptions and limitations associated with the Study.

- The findings and recommendations of this Study have been developed over an almost 12-month period and should be read in conjunction with both Part 1 (Housing Analysis Study) and Part 2 (Housing Scenarios Analysis).
- At the time of writing, the fallout from the COVID-19 pandemic across the NSW economy is still playing out with the long-term implications for regional housing markets yet to be fully understood.
- The macro-economic outlook is currently subject to significant uncertainty, with COVID-19, labour shortages, inflation, and war in the Ukraine. Inflationary pressure, particularly in the residential construction sector, is having a significant impact on the cost of construction and overall supply of new housing across NSW.
- High-level population estimates have been developed for the purposes of the Housing Study. Atlas are not demographers and detailed demographic factors have not been considered in these estimates. A detailed overview of the methodology and assumptions applied is included in Part 1 and Part 2 of this suite of reports.
- Population projections (by DPE) were released in early 2022 (post-COVID-19), prior to release of census 2021 data.
- Third party data sources (ABS, DPE, .id, PriceFinder, etc) are assumed to be correct and have not been verified.

2. Summary of Baseline Findings

This Chapter provides a brief summary of the baseline analysis and findings carried out in early stages of the Study, reviews the population projections prepared as the basis for projecting housing demand and considers the key issues facing the supply of new housing across Narrabri over the coming decades.

2.1 Narrabri Housing Market

The Narrabri SAP Housing Analysis Study (Atlas Economics, November 2021) carried out a comprehensive assessment of the Narrabri housing market. Key findings from the Housing Analysis Study included:

- **Historical Trends and Drivers**

  Demand for housing in Narrabri has historically been influenced (both positively and negatively) by a variety of factors, including a regional migration away from rural centres, cyclical shifts in employment activity, local agricultural conditions, growing levels of labour redundancy and local migration activity.

  The supply of new housing in Narrabri has been limited over the past 10-15 years, largely a function of development feasibility issues which broadly makes new housing less economical than purchasing established housing.

- **Demand for Housing**

  Whilst Narrabri has not benefited from the regional population shift which occurred across other parts of Regional NSW in the wake of COVID-19, the local housing market rebounded over 2020-2021 with median house prices rising by their highest levels since 2013.

  There is underlying demand for medium-density housing typologies, particularly from older downsizers and investors, though there is a major shortage in this housing format across the Shire. The principal challenge in the delivery of medium-density housing in Narrabri is development feasibility.

- **Supply-side Constraints**

  The cost and scarcity of labour and cost of existing housing within Narrabri are the principal constraints to development activity in Narrabri. For instance, Narrabri's (suburb) median house price is currently circa $385,000. The cost of developing a new standard detached house estimated to be almost $600,000.

  Combined with soft levels of demand and difficulties in sourcing materials and labour, this large price gap has resulted in the commercially viability of new development in Narrabri being insufficient to incentivise development activity.

- **Subsidised Housing**

  Social housing is the primary form of subsidised housing across Narrabri, with two local community housing providers (CHPs) responsible for >400 dwellings owned by the Department of Communities and Justice (DCJ). There is limited affordable or community housing across the Shire. The average waiting times for social housing in Narrabri is between 2 and 5 years, with the existing social housing portfolio increasingly ageing. No new social or affordable housing supply is currently being planned for in the Shire.

Recent Economic and Market Activity

Since completion of the Housing Analysis Study, several economic headwinds have posed challenges for the global and domestic economy. Inflation has increased markedly, driven by a combination of high-levels of household spending (pent up during COVID-19-induced lockdowns), global supply chain pressures, labour shortages and the war in the Ukraine.

On the back of these global headwinds, Australia has recorded some of the highest levels of inflation in decade. Notably, building material and labour cost inflation rose at its fastest pace in nearly 50 years.

The Reserve Bank of Australia has responded swiftly with a series of consecutive cash rate increases to cool inflationary pressure, rising from its historic low of 0.1% in April 2022 to 2.6% in October 2022. This has had an immediate impact on housing markets, with a marked declines in both sales' activity and property values across almost all capital cities.

To date, the local Narrabri housing market has remained relatively resilient. Median house prices have continued to grow over the quarter to October 2022, rising by 2.6% (CoreLogic, 2022). No further decisions on the status of NGP have been made, with the status of this project likely to have a large impact on the local housing market.

2.2 Housing Typologies

The Housing Analysis Study was prepared prior to the release of the 2021 Census. This sections a brief overview of Narrabri's existing housing stock based on the 2021 Census.

2.2.1 Dwelling Structure

The 2021 Census indicates that the housing profile of the Narrabri LGA has remained largely unchanged compared to 2016. Detached housing accounts for approximately 86% of all private dwellings across the Shire, with medium-density typologies (predominantly villas) accounting for some 10% of total dwellings.

Over the 2011-2021 period, some 47 net new dwellings were delivered across the Narrabri Shire. The overwhelming majority of these were medium-density typologies, with nominal growth in separate houses observed.

Table 2.1: Private Dwelling Structure (2011-2021)*, Narrabri LGA

Typology	2011		2016		2021		2011-2021	
	No.	%	No.	%	No.	%	No.	%
Separate house	5,118	86.0%	5,123	85.3%	5,152	85.9%	34	0.7%
Medium-density housing*	59	1.0%	253	4.2%	612	10.2%	553	937.3%
Apartment (1-2 storey)	537	9.0%	391	6.5%	67	1.1%	-470	-87.5%
Apartment (3+ storey)	4	0.1%	0	0.0%	49	0.8%	45	1125.0%
Caravan, cabin, houseboat	158	2.7%	134	2.2%	97	1.6%	-61	-38.6%
Improvised home, tent, sleepers out	9	0.2%	10	0.2%	14	0.2%	5	55.6%
House/flat attached to a shop/office	17	0.3%	19	0.3%	9	0.2%	-8	-47.1%
Not stated/applicable	48	0.8%	70	1.2%	65	1.1%	17	35.4%
Total	**5,950**	**100.0%**	**6,008**	**100.0%**	**5,997**	**100.0%**	**47**	**0.8%**

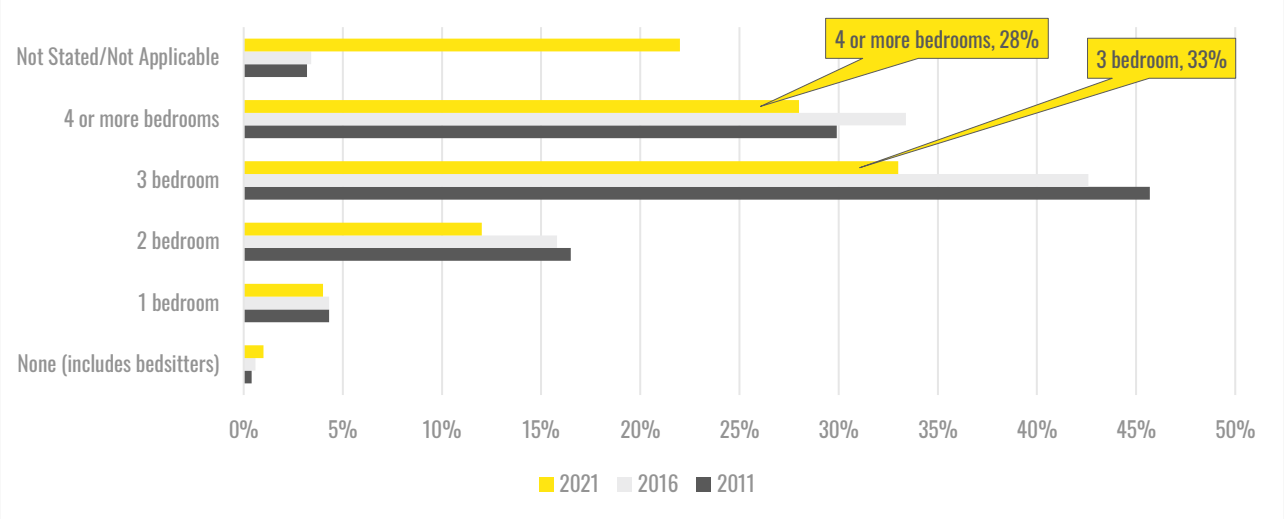
*Inclusive of semi-detached, row or terrace house, townhouse etc. with one storey
Source: ABS (2012, 2017, 2022)

*Census data suggests there has been strong growth in medium-density housing over the 2011-2021 period, with a marked decline in apartments. This is a result in a change of housing classifications between the Census periods.

2.2.2 Dwelling Size

The recent 2021 Census suggests that Narrabri remains largely characterised by larger dwellings; dwellings with three or more bedrooms accounting for over 60% of total housing stock. One-bedroom housing accounts for just 4% of total stock, with two-bedroom housing representing around 12% of total stock. The Shire's dwelling size profile is shown in **Figure 2.1**.

Figure 2.1: Dwelling Size (2011-2021), Narrabri Shire



Source: ABS (2012, 2017, 2022)

2.2.3 Housing Suitability

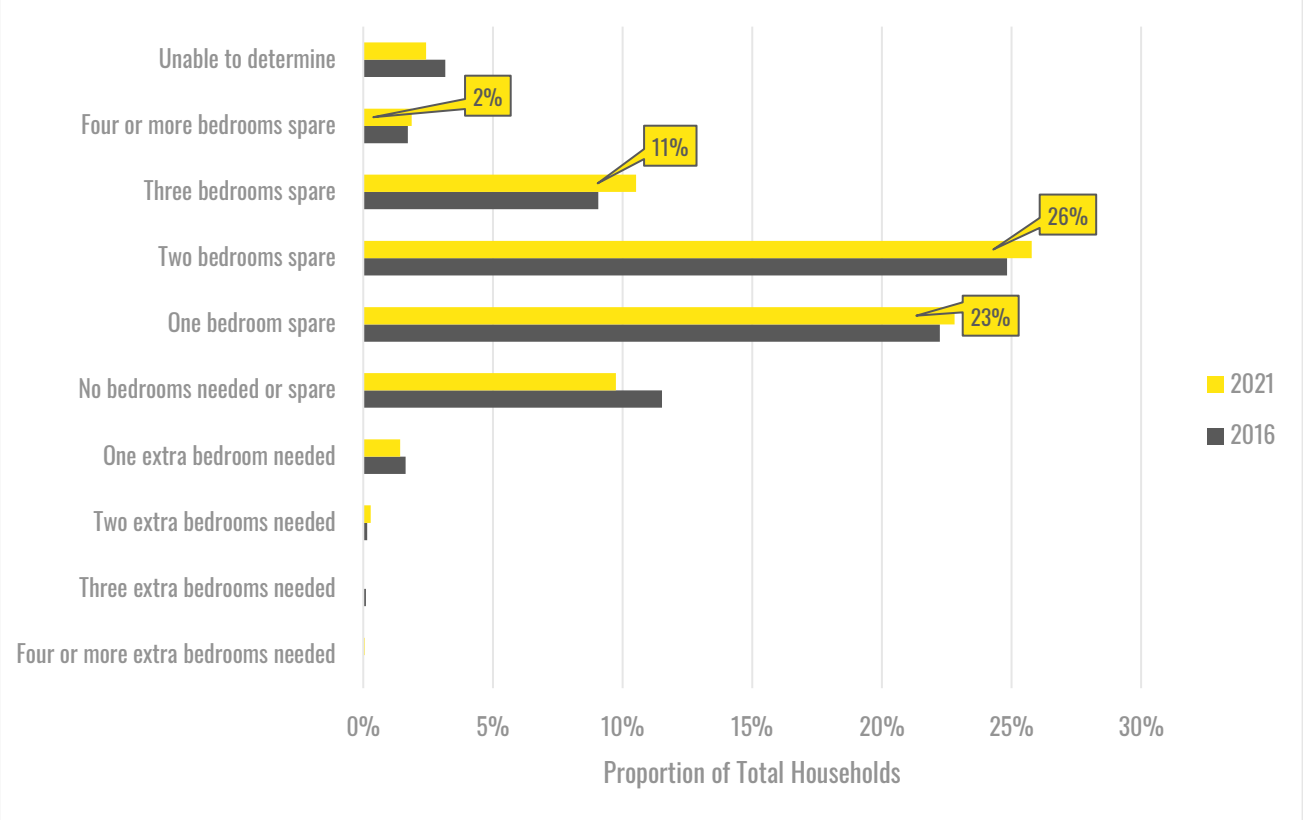
The ABS utilises Census data to understand the utilisation and 'suitability' of housing stock within a particular area based on a comparison of the number of bedrooms in a dwelling with a series of household demographics, such as the number of residents usually occupying a dwelling, residents' relationship with each other and age and sex.

Based on these factors, the suitability measure assesses the number of households that either have a spare bedroom(s) or require an additional bedroom.

The 2021 Census shows that the Narrabri LGA has a large proportion of households with *spare* bedrooms – over 61% of households having one or more spare bedrooms at their principal place of residence (a total of ~3,650 households). The proportion of households with at least one spare bedroom *increased* over the 2016-2021 period, rising from 58% to 61%.

These findings suggest that many households within Narrabri reside within dwellings larger than their immediate needs. When coupled with other demographic factors, namely the gradual ageing of the local population and growing number of smaller households, it is evident that there is an underlying need for smaller dwelling typologies moving forward.

Figure 2.2: Housing Suitability (2016-2021), Narrabri Shire



Source: ABS (2017, 2022)

The Study highlights that the housing suitability data does not entirely align with primary research carried out in the Housing Analysis Study and feedback from the Aboriginal Enquiry by Design Workshop which identified that housing overcrowding was a significant issue facing the local Aboriginal community. Overcrowding in social housing was also expressly identified as an issue for many social housing tenants.

Accordingly, whilst there is clearly a need for smaller dwelling typologies across the Shire, there will also need to be consideration of the need to provide larger housing suitable for Narrabri's Aboriginal community.

2.3 Population Estimates

Estimates of population numbers have been prepared over the course of the Study for the purposes of understanding potential demand for housing in Narrabri to 2041. These population estimates are contingent on several major infrastructure and energy projects currently being proposed in Narrabri Shire and the surrounding region proceeding to delivery. Accordingly, they should be treated with caution and have been developed for the purposes of the SAP planning process. They are estimates only and should not be considered as projections or forecasts.

A full summary of the methodology relied upon in the population estimates is included in the Housing Analysis Study.

This section summarises the two sets of population estimates which have been relied upon in this Study:

- **Baseline Alternate Population Estimates**
  These estimates of population numbers were developed in consultation with DPE and Narrabri Shire Council and were reported in both the Housing Analysis Paper and Housing Scenarios Analysis Paper. These projections were originally based on DPE's *2019 Population, Household and Implied Dwelling Projections*. An update of these projections has been carried out to reflect DPE's *2022 Population, Household and Implied Dwelling Projections* (released in Q3 2022).
- **Aspirational (What-if) Growth Scenario**
  Following the completion of the final EbD in September 2022, the need for a higher, 'aspirational' growth scenario was identified. This additional scenario was predicated on the Baseline Alternate Population Estimates, albeit with higher levels of population growth assumed from 2030 onwards.

Both of these population estimate scenarios, and their potential implications for housing demand, are discussed in turn.

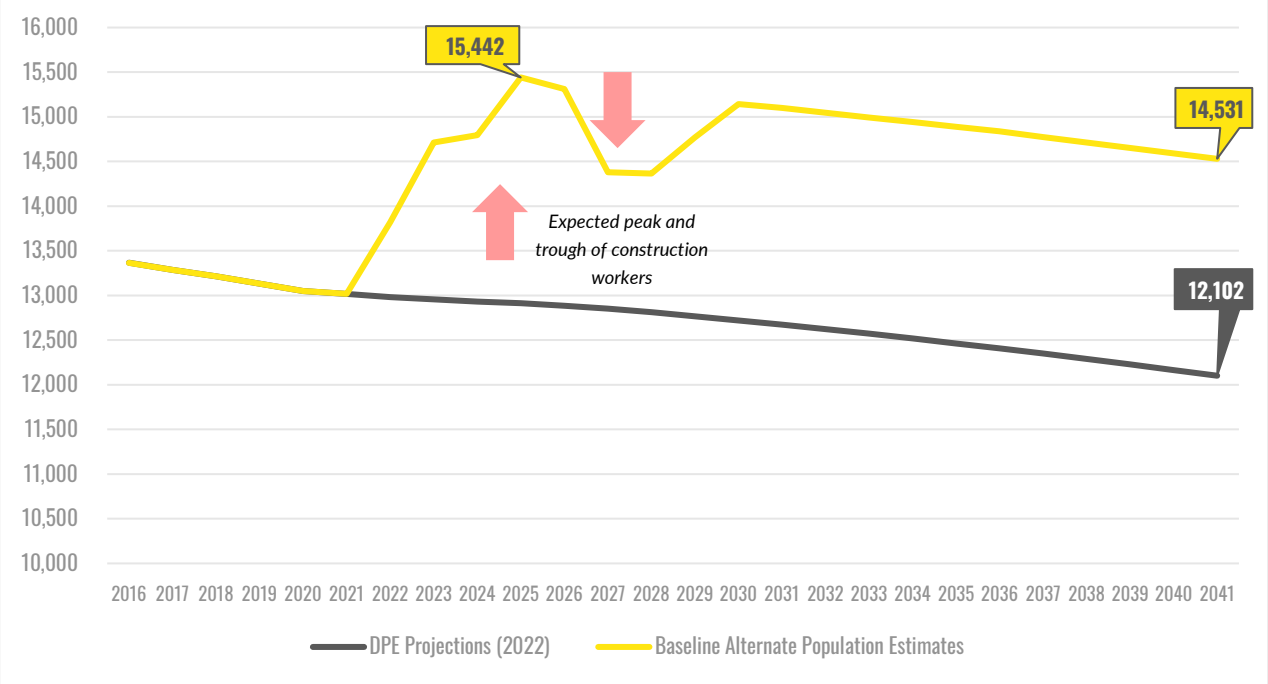
2.3.1 Baseline Alternate Population Estimates

The Baseline Alternate Population Estimates were developed to reflect additional population growth which may result if several major infrastructure and energy projects being planned in the Narrabri Shire and surrounding region proceed to delivery. These projects were not considered in DPE's 2019 or 2022 *Population, Household and Implied Dwelling Projections*.

Under the Baseline Alternate Population Estimates, the Narrabri LGA is estimated to reach a resident population of ~14,500. The population is anticipated to peak in 2025 at ~15,400 residents (aligning with peak construction periods of several major projects), before gradually declining from 2030 as construction workers relocate.

The Baseline Alternate Population Estimates reflect an additional ~2,400 residents compared to DPE's 2022 projections.

Figure 2.3: Baseline Alternate Population Estimates (2016-2041), Narrabri LGA



Source: Atlas Economics

2.3.2 Aspirational (What-If) Growth Scenarios

To consider the potential dwelling requirements of the Narrabri Shire if the Narrabri SAP generated permanent population growth, a set of 'aspirational' or 'what-if' growth scenarios have been developed.

These Aspirational Growth Scenarios are based on the Baseline Alternate Population Estimates summarised in section 2.3.1, however assume population growth will be sustained post-2030 (as opposed to progressively declined).

Two sets of Aspirational Growth Scenarios have been prepared, including:

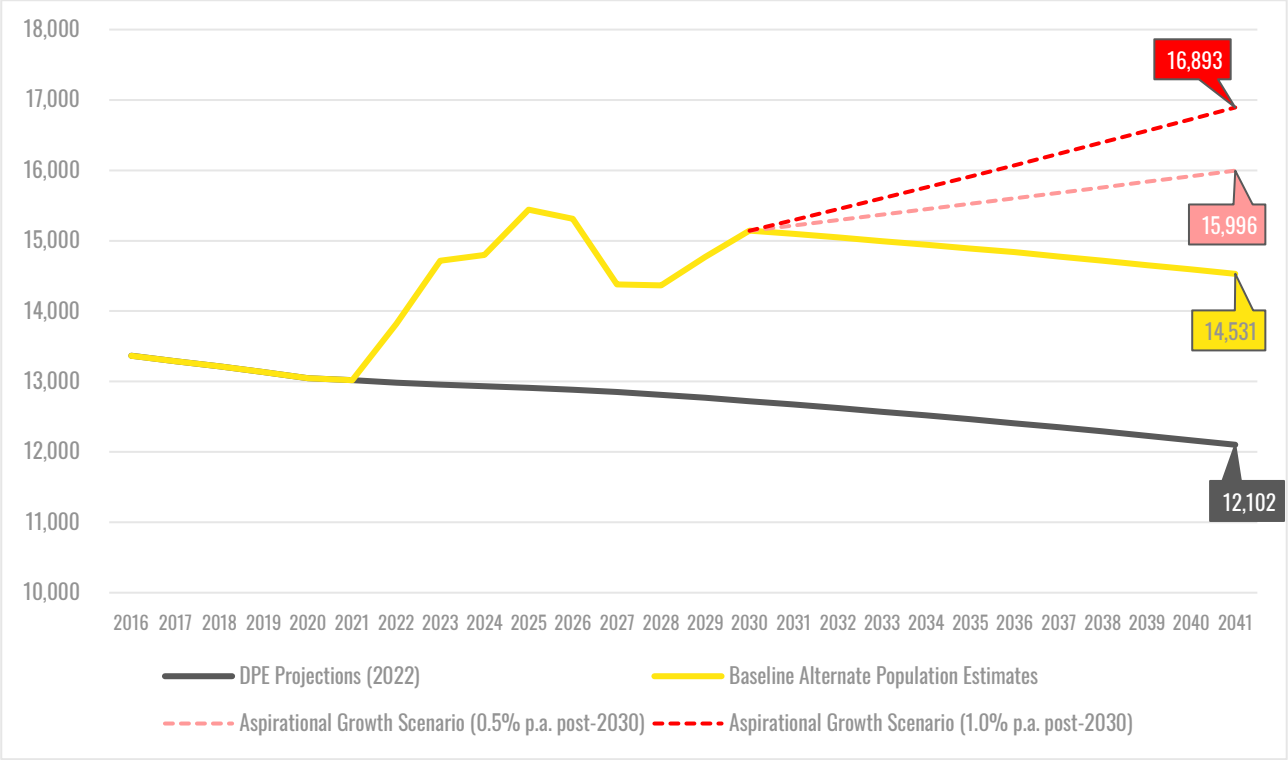
- **Aspirational Growth Scenario 1:** post-2030, the Narrabri Shire's population grows by 0.5% per annum to 2041.
- **Aspirational Growth Scenario 2:** post-2030, the Narrabri Shire's population grows by 1.0% per annum to 2041.

For context, DPE's *2022 Population, Household and Implied Dwelling Projections* anticipate that Regional NSW will grow record average annual population growth of 0.8% over the same period, whilst Greater Sydney will record average annual population growth of 1.1%.

Under these Aspirational (What-If) Growth Scenarios, the Narrabri Shire could reach a population of between ~16,000 to ~16,900 by 2041.

Both Aspirational (What-If) Growth Scenarios are depicted in **Figure 2.4** against DPE's 2022 population projections and the Baseline Alternate Population Estimates.

Figure 2.4: Aspirational (What-If) Growth Scenarios (2016-2041), Narrabri LGA



Source: Atlas Economics/DPE (2022)

2.3.3 Potential Housing Demand

Population estimates have been converted into an implied dwelling requirement through applying the persons per dwelling adopted in DPE's 2022 Projections. Using this basic approach, additional dwelling requirements to 2041 for each population estimate scenario have be assessed:

- **Baseline Alternate Population Estimates:** an additional ~1,000 dwellings by 2041.
- **Aspirational Growth Scenario 1:** an additional ~1,700 dwellings by 2041.
- **Aspirational Growth Scenario 2:** an additional ~2,100 dwellings by 2041.

Table 2.2 summarises the potential dwelling requirements over the 2021-2041 period for each population estimate scenario.

Table 2.2: Potential Dwelling Requirements (2021-2041), Narrabri LGA

Indicator	2021	2026	2031	2036	2041	Change (2021-41)	
						Total Change	Avg. Annual
Baseline Alternate Population Estimates							
Population Estimates	13,019	15,311	15,100	14,837	14,531	**1,512**	**76**
Capita/Dwelling (DPE 2022)	2.18	2.16	2.13	2.10	2.09		
Potential Dwelling Need	5,964	7,079	7,089	7,058	6,968	**1,004**	**50**
Aspirational Growth Scenario 1							
Population Estimates	13,019	15,311	15,218	15,602	15,996	**2,977**	**149**
Capita/Dwelling (DPE 2022)	2.18	2.16	2.13	2.10	2.09		
Potential Dwelling Need	5,964	7,079	7,144	7,422	7,671	**1,706**	**85**
Aspirational Growth Scenario 2							
Population Estimates	13,019	15,311	15,293	16,074	16,893	**3,874**	**194**
Capita/Dwelling (DPE 2022)	2.18	2.16	2.13	2.10	2.09		
Potential Dwelling Need	5,964	7,079	7,179	7,647	8,101	**2,137**	**107**

Source: Atlas Economics/DPIE (2022)

As shown in **Table 2.2**, the population estimate scenarios could require between ~1,000 and ~2,100 additional dwellings over the coming 20 years to 2041, equating to between ~50 and ~110 additional dwellings per annum. The Study notes that over the 2011-2021 period, a *total* of 47 additional dwellings were delivered over the decade.

Accordingly, a significant uptick in housing supply would be required to meet population growth under any population estimate scenarios, assuming they eventuated.

2.4 Key Issues for Consideration

Baseline population estimates suggest that the Narrabri LGA could require an additional 1,000 dwellings over the coming two decades to 2041 (assuming that various major infrastructure and energy projects proceed to delivery). Under the Aspirational Growth Scenarios, this housing need could potentially increase to between 1,700 and 2,100 additional dwellings by 2041.

There is a clear need for some of this new housing supply to be provided in smaller housing formats to meet the needs of an ageing population. The existing stock of housing in Narrabri is characterised by larger, detached housing formats.

The Housing Analysis Study identified development feasibility as the principal issue impeding the future supply of new housing, particularly medium-density housing, in the Narrabri LGA. This is driven by several key factors (all of which are largely beyond the control of planning authorities), including:

- The cost and scarcity of labour
- The cost of existing established housing within Narrabri
- Historically soft levels of demand

Over time, the feasibility of development in Narrabri is anticipated to improve as local economic conditions strengthen.

Separately, the Housing Analysis Paper identified a lack of quality affordable and social housing stock within Narrabri as a major weakness of the overall housing market. A lack of suitable and affordable housing for Narrabri's Aboriginal community has been specifically identified during the course of the SAP structure planning process.

The next chapter considers the preferred housing scenario developed at the final EbD workshop in September 2022 and considers the potential dwelling mix and housing typologies which could be considered within this scenario.

3. Preferred Housing Scenario

This Chapter considers the preferred housing scenario adopted at the final EbD workshop in September 2022. The potential mix and take-up of housing within this future precinct is examined, with consideration made between what the market could demand compared to the likely supply response. Finally, the key requirements for delivery of the new housing precinct are considered, which will inform the recommendations provided in Chapter 4.

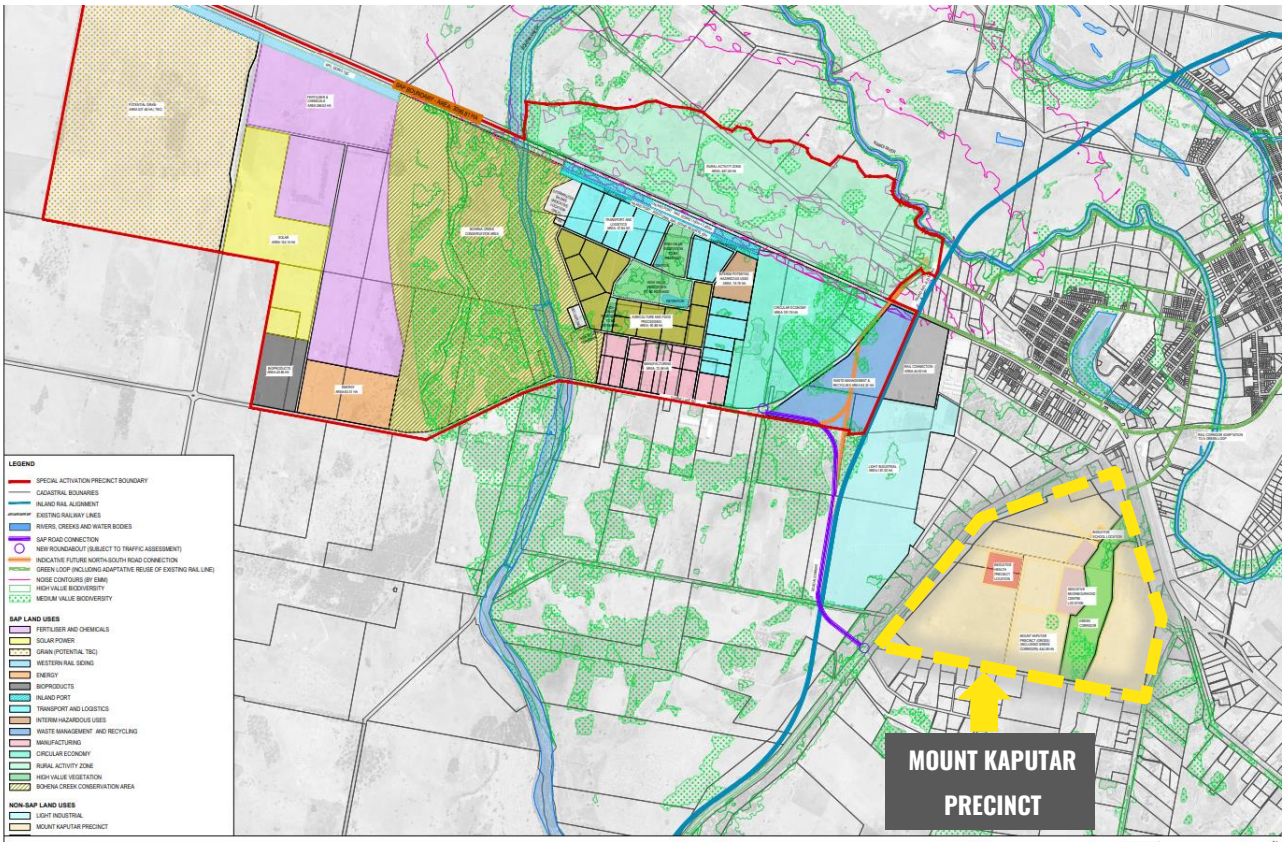
3.1 Mount Kaputar Precinct

Over the course of Q2-Q3 2022, three different housing scenarios were prepared by HRD as potential locations for future housing as part of the Narrabri SAP Structure Plan.

The Housing Scenario Paper recommended that new housing should be focused within the Highway Intersection precinct as identified in the Narrabri Growth Management Strategy (2010), being a significant quantum of rural land located south of the existing Narrabri township between the Newell and Kamilaroi highways.

Over the course of the final four-day EbD workshop in September 2022, this location was adopted as the preferred housing scenario location for the purposes of the Narrabri SAP Structure Plan and has been defined as the 'Mount Kaputar Precinct'.

Figure 3.1: Mount Kaputar Precinct, Preferred Housing Scenario



Source: HRD

The Mount Kaputar Precinct is a logical southward extension of Narrabri's existing urban footprint, and positions housing in proximity to existing amenity and infrastructure and future employment opportunities at the Narrabri SAP employment area. The area is characterised by large rural landholdings with limited ownership fragmentation and, importantly, largely falls outside the Narrabri floodplain.

Potential Dwelling Yields

The Mount Kaputar Precinct is significant; it comprises a total gross area in the order of 488ha with a potential net development area (NDA) of 341.6ha. Accordingly, there is significant theoretical housing capacity within the precinct. For instance, adopting a conservative hypothetical lot size mix such as that shown in **Table 3.1** could yield >3,300 lots.

Table 3.1: Hypothetical Lot Sizes and Dwelling Yields, Mount Kaputar Precinct

Lot Sizes (sqm)	Hypothetical Mix	NDA (ha)	Hypothetical Yield (Lots)
700	5%	17.08	244
1,000	90%	307.44	3,074
4,000	5%	17.08	43
Total	**100%**	**341.6**	**3,361**

Source: Atlas Economics/HRD

The Mount Kaputar Precinct is likely to have sufficient housing capacity to meet the potential dwelling needs identified under the Baseline Alternate Population Estimates (~1,000 additional dwellings by 2041) and both Aspirational (What-If) Growth Scenarios (1,700 dwellings to 2,100 additional dwellings by 2041).

The housing mix presented in **Table 3.1** is hypothetical-only and is presented for the purposes of illustrating the potential dwelling yield achievable under a conservative, low-density housing scenario.

The next section considers the potential housing mix appropriate for the Mount Kaputar Precinct, contrasted against the likely supply response.

3.2 Potential Housing Mix and Take-Up

Forecasting the likely need for and supply of different housing typologies in regional markets such as Narrabri is challenging. Multiple population growth scenarios have implications for both the quantum and type of housing needed. Historical challenges to housing supply, principally development feasibility constraints, also influence the type of housing which will be delivered over the coming decades.

This section examines both the approximate mix of housing which should be provided at the Mount Kaputar Precinct to meet demand and the likely housing typologies which will be delivered. Future housing supply is accordingly considered from a dual perspective – ***unconstrained*** and ***constrained*** supply. These terms are defined in turn.

- **Unconstrained Supply**
  Housing supply appropriate to meet housing need based on the existing and future population and household characteristics of the Narrabri Shire. It does not consider market factors (e.g. existing land values, pricing levels, construction costs, etc) which influence development feasibility and the ability of the market to deliver/ supply new housing.
- **Constrained Supply**
  Housing supply likely to be delivered after consideration of factors that could constrain supply. These factors could be market-related which underpin commercial viability of development. These could also include environmental factors. The key market factors influencing the type of housing which will be supplied in Narrabri over the coming decades will be the relationship between existing residential property values, the cost of delivering medium-density housing typologies and their potential price points.

The likely housing supply which could be delivered at the Mount Kaputar Precinct in an unconstrained and constrained market environment is considered in turn.

3.2.1 Housing Need in Unconstrained Market

As outlined in Chapter 2, there is a clear need for greater housing diversity in Narrabri. Existing housing supply is dominated by detached housing typologies, with most of these comprising 3 or more bedrooms. The 2021 Census shows that most households have at least one spare bedroom, with almost 40% of households having more than two spare bedrooms.

Future Household Profiles

Looking forward, Narrabri's household profile could shift depending on the population growth scenario. Under DPE's *2022 Population, Household and Implied Dwelling Projections*, the Shire is anticipated to record strong growth in lone person households, aligning with a gradual ageing of the population.

Under the Baseline Alternate Population Projections, an influx of lone person households is anticipated over 2021-2031 as construction workers (assumed to primarily be singles) move into the Shire, before again relocating upon completion of construction projects. From 2031, a rise in couple families with children are anticipated as permanent workers (assumed mostly as couple households with children) relocate to Narrabri as a result of new full-time employment opportunities. Couple households with children and lone person households would each account for some 30% of total households.

Table 3.2 compares the household composition profile of the Narrabri Shire under both the DPE *2022 Population, Household and Implied Dwelling Projections* and Baseline Alternate Population Projections.

Table 3.2: Household Composition (2021-2016), Narrabri Shire

Household Type	2021	2026	2031	2036	2041
DPE Projections (2022)					
Couple only	28.7%	29.2%	29.0%	28.6%	28.3%
Couple with children	27.7%	26.7%	26.2%	25.9%	25.7%
Single parent	10.8%	10.5%	10.4%	10.5%	10.4%
Other family	2.2%	2.2%	2.2%	2.1%	2.1%
Lone person	27.7%	28.6%	29.4%	30.1%	30.6%
Group	2.9%	2.8%	2.8%	2.8%	2.8%
Total	100.0%	100.0%	100.0%	100.0%	100.0%
Baseline Alternate Population Projections					
Couple only	27.9%	20.2%	27.7%	28.0%	27.7%
Couple with children	26.4%	19.9%	28.2%	29.2%	29.1%
Single parent	9.8%	5.4%	9.1%	9.7%	9.6%
Other family	2.0%	1.1%	1.9%	2.0%	2.0%
Lone person	31.3%	52.0%	30.7%	28.6%	29.1%
Group	2.6%	1.5%	2.5%	2.6%	2.6%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Atlas Economics/DPE (2022)

Potential Housing Mix in an Unconstrained Market

Under both the *Population, Household and Implied Dwelling Projections* (DPE, 2022) and the Baseline Alternate Population Projections prepared for this Study, the proportion of smaller households in Narrabri over the coming decades to 2041 is expected to range between 56% and 60% of all households.

This has clear implications for the type of housing needed within the Shire, with the potential for some of these smaller households to be accommodated within medium-density housing typologies such as villas and townhouses.

Based on the future household profile of the Narrabri Shire, it is assumed that an appropriate split between low and medium-density housing typologies could be:

- Low-density (detached lots) housing: 80% of total housing demand
- Medium density (villas, townhouses, duplexes): 20% of total housing demand

Table 3.3 applies these potential housing mixes to the housing demand estimates outlined in section 2.3.3 to demonstrate the potential demand for housing by typology across the Narrabri Shire over the coming decades to 2041.

Table 3.3: Potential Housing Mix (2021-2041), Unconstrained Supply Environment

Housing Typology	Adopted Mix	2021-2026	2026-2031	2031-2036	2031-2041	2021-2041
Baseline Alternate Population Projections						
Detached	80%	194	194	194	194	777
Medium-Density	20%	49	49	49	49	194
Total	**100%**	**243**	**243**	**243**	**243**	**971**
Aspirational Growth Scenario 1						
Detached	80%	335	335	335	335	1,339
Medium-Density	20%	84	84	84	84	335
Total	**100%**	**418**	**418**	**418**	**418**	**1,674**
Aspirational Growth Scenario 2						
Detached	80%	421	421	421	421	1,683
Medium-Density	20%	105	105	105	105	421
Total	**100%**	**526**	**526**	**526**	**526**	**2,104**

Source: Atlas Economics

3.2.2 Likely Supply Response in Constrained Market

Despite the clear need for more diverse housing in Narrabri, the capacity of the market to deliver smaller housing typologies will be constrained by market-related factors. Infrastructure servicing costs, the price of existing established housing and development costs will be the primary influences on the type of housing delivered at the Mount Kaputar Precinct over the coming decades. These factors are briefly considered in turn.

- **Infrastructure Servicing Costs**

  Infrastructure servicing for new housing is delivered by both utility providers and developers. Major trunk infrastructure and lead-in works are often carried out by utility agencies, with reticulation works by developers.

  It is understood that the cost of connecting to major infrastructure services (e.g., water, wastewater, electricity) in the Mount Kaputar Precinct will not be extraordinary, though actual costs are yet to be determined. It will be **critical** that these costs are identified prior to the rezoning of the Mount Kaputar Precinct.

- **Effective Demand for Housing**

  Notwithstanding underlying levels of demand for different housing formats (which is often drive by demographic factors), it is effective demand (i.e., the ability for households to pay for housing) that underpins the type and nature of development the market can respond with.

  In traditionally low-density and low-value housing markets such as Narrabri, the prices achievable for medium-density housing formats will be to a large degree limited by prices paid for standard detached housing. For example, if 3-bedroom detached housing is available for prices below $400,000, it is unlikely a 3-bedroom townhouse will be able to achieve the same level of pricing at scale.

- **Development Costs**

  Construction prices in regional areas are typically higher compared to capital cities given poorer access to labour and materials. For instance, construction costs in Narrabri are estimated to be some 15% higher compared to Greater Sydney (Rawlinsons, 2021). In low value housing markets where the capacity for dwelling prices to grow is constrained, high construction costs can have significant impacts on development viability.

  For illustrative purposes, high-level cost estimates for delivering different housing typologies in Narrabri is estimated in **Table 3.4** based on generic cost rates (Rawlinsons, 2021). These cost estimates *exclude* a margin for profit/risk required in residential development (which can range from 14%-20%).

Table 3.4: Indicative Construction Cost v Revenue Comparison

High-Level Costs	Detached House[1]	Single-storey Villa[2]	Dual Key[3]	2-storey Townhouse[4]
Land Cost ($'000)[5]	$140 - $150	$140 - $150	$140 - $150	$140 - $150
Construction Cost ($'000), inc. 15% premium	$370 - $420	$240 - $270	$400 - $460	$300 - $370
Other Development Costs ($'000)[7]	$80 - $90	$50 - $60	$80 - $100	$60 - $80
Total	**$590 - $660**	**$430 - $480**	**$620 - $710**	**$505 - $600**

1 – Assumed floor area of 210sqm-230sqm, standard project home, full-brick construction, medium-standard finish
2 – Assumed floor area of 140sqm-150sqm, brick construction, medium-standard finish
3 – Assumed floor area of 210sqm-230sqm, two self-contained dwellings, full-brick construction, medium-standard finish
4 - Assumed floor area of 150sqm-170sqm, double storey, full brick construction, medium-standard finish
5 – Based on recent market evidence for vacant, serviced 1,000sqm residential blocks in Narrabri township
6 – Assumed as 25% of total construction cost to reflect professional fees, statutory costs and charges, finance charges, etc
Source: Atlas Economics/Rawlinsons (2021)

Relationship between Existing House Prices and Development Costs

In regional markets such as Narrabri where the likely capacity and willingness of households to pay for higher density housing formats (e.g. townhouses, villas, etc) is constrained, projecting their likelihood of delivery is challenging.

Despite this difficulty, it is acknowledged that the key factor influencing the delivery of higher-density housing typologies in Narrabri will be the relative relationship between the pricing of established low-density housing and the cost of delivering alternative, higher-density housing formats.

As at June 2022, the median cost of an established house in the Narrabri township was $385,000. When compared to estimated costs of alternative housing typologies in **Table 3.4**, the price difference associated with new housing typologies (compared to the option of purchasing a median priced detached house) is significant:

- 20% ($77,000) difference between cost of new single storey villa and an established median price house;
- 43% ($165,000) difference between cost of new a 2-storey townhouse and an established median price house;
- 63% ($241,000) difference between cost of new standard detached house and an established median price house;
- 74% ($283,000) difference between cost of new single storey dual key dwelling and an established median price house.

These significant difference are illustrative of why limited residential development activity has occurred in Narrabri in recent years, with the price of existing detached housing presenting no margin for developers to progress new development.

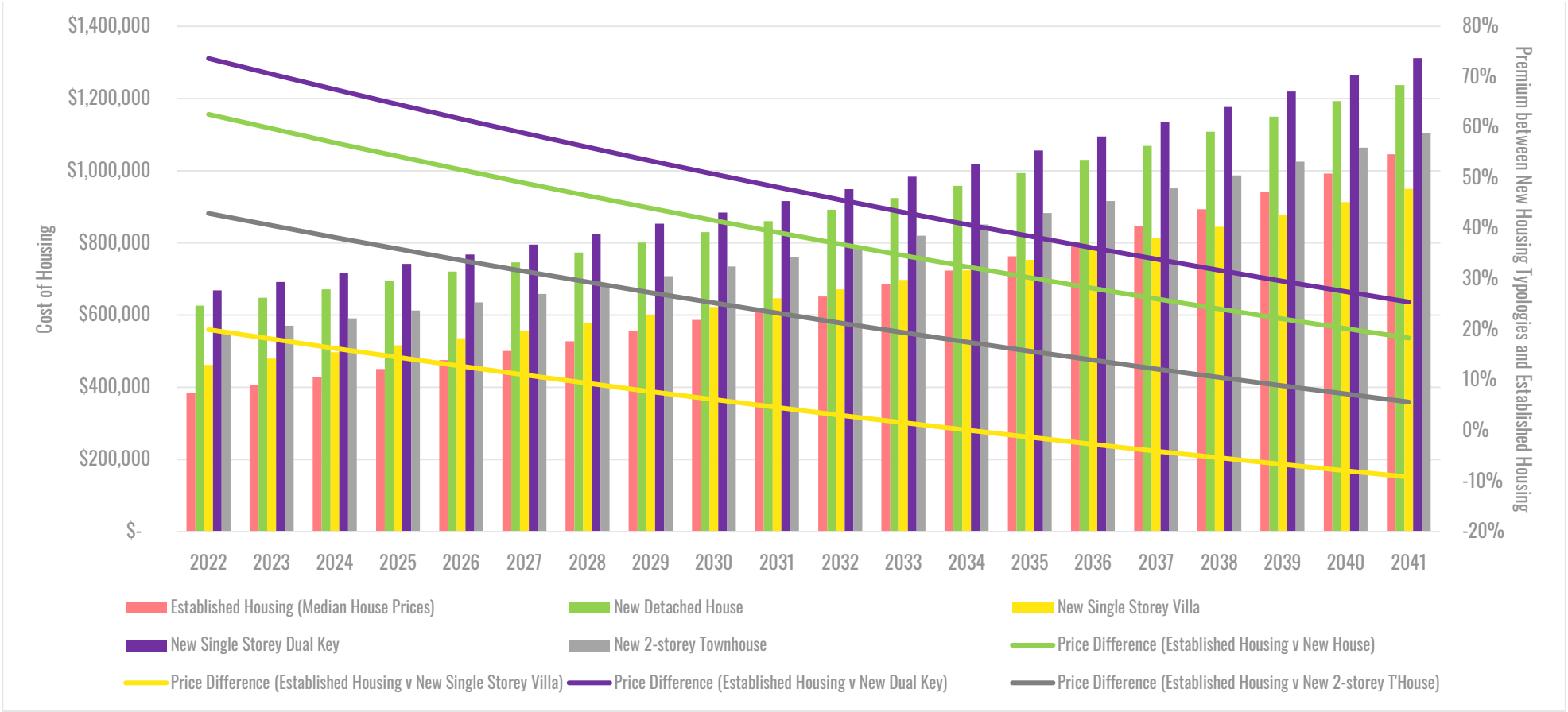
By projecting the future cost of both established housing (represented by median house prices) and the cost of the development of different housing typologies (as per **Table 3.4**), an assessment on the likely time this cost difference on medium-density typologies will be reduced can be hypothesised.

Figure 3.2 estimates future median house prices in Narrabri (township) against the estimated future cost of developing other housing formats. Using Narrabri's current median house price ($385,000) and the estimate of existing development costs (Table 3.4), the future relationship between median house prices and development costs can be extrapolated. The following growth rates have been adopted in this extrapolation.

- Median house prices and land values are assumed to increase by 5.4% per annum over the 2022-2041 period, aligning with the 2002-2022 historical average (CoreLogic, 2022).
- Construction costs are assumed to escalate by 3.0% per annum over 2022-2041.

By applying these two growth rates to the current median house price and estimated cost of development for different housing typologies, the price difference between new housing and established housing can be projected. It is highlighted that the estimated development costs presented in **Figure 3.2** are *exclusive* of a margin for profit/risk.

Figure 3.2: Estimated Cost of New Residential Development and Price of Established Housing (2022-2041), Narrabri LGA



Source: Atlas Economics/CoreLogic RP Data (2022)/Rawlinsons (2022)

As shown in **Figure 3.2,** it is estimated that**:**

- The price difference of new single storey villas compared to established housing could disappear by 2034, with the cost of developing single storey villas being some 9% *cheaper* than the price of established housing by 2041.
- Whilst the price difference associated with other dwelling typologies could fall over 2022-2041, the cost of their development will likely remain more expensive compared to the estimated cost of established housing by 2041.

This hypothetical analysis suggests that the cost difference associated with developing most medium-density housing formats will persist for the medium to long-term, presenting challenges to likelihood of these housing formats being delivered at significant scale in the short to medium term (10-15 years).

This does not preclude some small-scale medium-density development occurring during this period (e.g., in instances where lower development costs can be secured), rather suggesting that these formats will unlikely form a significant component of future housing supply.

If established house prices were to strengthen beyond the historical average (5.4% growth per annum) assumed in **Figure 3.2** , the cost difference between established house prices and the cost of delivering medium-density housing typologies would narrow more quickly. In turn, this would provide an opportunity for medium-density housing to be more commercially viable at a sooner date.

For instance, if established house prices grew by 8% per annum over the next decade, the cost of developing single storey villa typologies would be 'on par' with the price of an established house by 2028. This level of growth is not unrealistic, though would be contingent on several major infrastructure projects proceeding to stimulate market activity.

Potential Supply Mix in Constrained Market

Despite their being an evident existing and future need for more diverse housing in the Narrabri Shire, the capacity of the market to deliver smaller housing typologies is contingent on various market factors.

In traditionally low-density and low-value housing markets like Narrabri, prices paid for detached housing can limit the potential pricing for medium-density housing formats. If these prices are not sufficient for commercially viable development, supply will generally not proceed.

A conceptual exercise examining the relationship between established house prices and the cost of developing new housing (**Figure 3.2)** indicates that the cost differential associated with developing most medium-density housing formats will persist for the medium to long-term (some 15 years).

If established house prices recorded significant *and* sustained growth during this period, the viability of medium-density housing could be realised sooner (within 10 years).

Even if assuming this more positive outlook on the future viability of medium-density typologies, their supply is not expected to occur at scale or match that identified in an 'unconstrained' environment (i.e. as explored in section 3.2.1). Medium-density typologies will likely become viable in the medium to longer term, as opposed to being immediately being developed.

Accordingly, the likely housing supply response in this constrained market environment could be:

- Low-density (detached lots) housing: 91% of total housing demand
- Medium density (villas, townhouses, duplexes): 9% of total housing demand, progressively increasing over time as the viability of development improves.

Table 3.5 applies these potential housing mixes to the housing demand estimates outlined in section 2.3.3 to demonstrate the potential supply response by typology across the Narrabri Shire over the coming decades to 2041.

Table 3.5: Potential Housing Mix (2021-2041), Constrained Supply Environment

Housing Typology		2021-2026	2026-2031	2031-2036	2031-2041	2021-2041
Baseline Alternate Population Projections						
Detached	No.	231	231	219	206	886
	%	95%	95%	90%	85%	91%
Medium-Density	No.	12	12	24	36	85
	%	5%	5%	10%	15%	9%
Total		**243**	**243**	**243**	**243**	**971**
Aspirational Growth Scenario 1						
Detached	No.	398	398	377	356	1,527
	%	95%	95%	90%	85%	91%
Medium-Density	No.	21	21	42	63	146
	%	5%	5%	10%	15%	9%
Total		**418**	**418**	**418**	**418**	**1,674**
Aspirational Growth Scenario 2						
Detached	No.	500	500	473	447	1,920
	%	95%	95%	90%	85%	91%
Medium-Density	No.	26	26	53	79	184
	%	5%	5%	10%	15%	9%
Total		**526**	**526**	**526**	**526**	**2,104**

Source: Atlas Economics

3.3 Potential Lot Sizes

Low-density housing typologies are anticipated to comprise the majority of new housing supply over the coming decades.

As outlined in the Narrabri SAP Housing Analysis Study, new residential subdivisions within the Narrabri township have comprised lots ranging from 1,000sqm to 2,000sqm. No new subdivisions have delivered lots smaller than 1,000sqm, with market investigations suggesting there would likely be resistance to smaller lots (i.e. sub-1,000sqm) in the short-term. However, its recognised that over time, market acceptance for smaller lots (450sqm-700sqm) could deepen and cater to purchasers seeking housing with fewer maintenance requirements (e.g. downsizers).

Having a diverse mix of lot sizes provides flexibility in order to respond to the temporal nature of demand. This is particularly important given the range of demand and growth scenarios possible for the Narrabri Shire.

Accordingly, it is recommended that the following mix of lot sizes for detached lot product being considered in the Mount Kaputar precinct. It will be important that the precinct is planned and designed with flexibility in mind, enabling this lot size mix to be adapted over time in response to market demand:

- Rural living lots (2,000sqm-4,000sqm): 5% to 10%
- Traditional larger lots (900-1,100sqm): 40% to 45%
- Medium sized lots (700sqm-800sqm): 30% to 35%
- Smaller lots (450sqm-550sqm): 5% to 10%

3.4 Potential Housing Mix for Structure Planning

The analysis presented above illustrates the different housing demand and supply outcomes which could occur across the Narrabri LGA over the coming decades to 2041. Estimating these outcomes with any high degree of accuracy in the current economic environment and in a market such as Narrabri is difficult.

For structure planning purposes, planning for a housing mix which can accommodate market need (irrespective of likely supply response) is considered appropriate. Accordingly, the housing mix of 80/20 detached housing to medium-density housing could be adopted. It is recommended that the upper end of population projections (Aspirational Growth Scenario 2) also be adopted to ensure there is a sufficient buffer of supply capacity to 2041. This would include:

- Total dwelling demand of up to ~2,100 additional dwellings between 2021-2041 (average of 105 dwellings per annum).
- Mix of ~1,680 detached dwellings (80%) and ~420 (20%) medium-density typologies.
- Detached dwellings on a mix of lot sizes, including:
    - Rural living lots (2,000sqm-4,000sqm): 5% to 10%
    - Traditional larger lots (900sqm-1,100sqm): 40% to 45%
    - Medium sized lots (700sqm-800sqm): 30% to 35%
    - Smaller lots (450sqm-550sqm): 5% to 10%

Notwithstanding the importance of planning for the above, the likely mix of housing typologies which will be delivered over the coming decades (i.e. **Table 3.5**) is also important to consider from an infrastructure and transport planning perspective given their broad implications for a variety of factors (e.g. utility usage, traffic generation, social infrastructure, etc).

It will be important that there is adequate provision of infrastructure and services to meet the requirements of either population and housing mix scenario outlined in this Chapter.

The next Chapter makes housing recommendations to inform the development of the Narrabri SAP Structure Plan.

4. Recommendations and Conclusion

This Chapter makes recommendations for the desired delivery of housing within the Mount Kaputar Precinct to inform the development of the Narrabri SAP Structure Plan, including staging of services/utility infrastructure, subsidised housing, housing mix and typologies, and potential planning controls.

4.1 Infrastructure and Servicing

The *Narrabri SAP Utilities Infrastructure Scenarios Report* (WSP, 2022) investigated the existing baseline utility infrastructure networks currently available within the Narrabri SAP Investigation Area and the three housing scenario areas investigated in the Housing Scenarios Analysis. The findings of the *Infrastructure Scenarios Report* informed the selection of the preferred housing scenario (i.e., the Mount Kaputar Precinct).

The *Infrastructure Scenarios Report* noted that the Mount Kaputar Precinct will require a variety of new infrastructure servicing connections to facilitate residential development. Whilst specific requirements were unable to be determined given the preliminary nature of structure planning at the time, potential upgrades included:

- New electrical substation and accompanying lead-in and reticulation works;
- Extension of communication (4G) infrastructure from adjoining residential areas;
- Gas, water and sewerage connections (both lead-in gas and reticulation works).

Whilst is anecdotally understood that the cost of these various works will not be extraordinary, it is critical that these various infrastructure items be costed in order for a more robust assessment of development feasibility to be made.

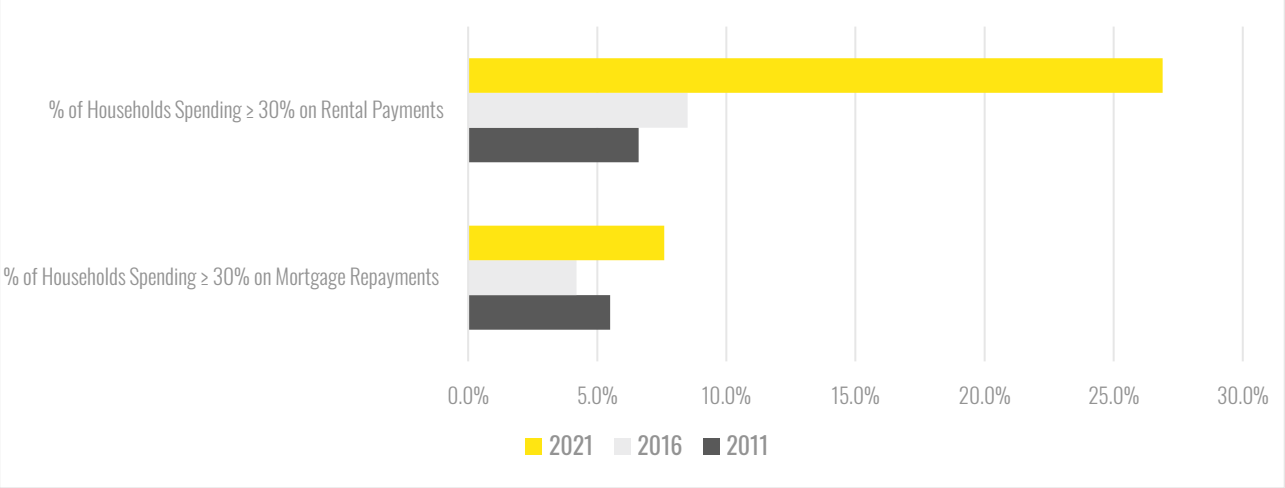
A contributions framework for Special Activation Precincts is currently being developed by Regional NSW. Understanding the scale and cost of infrastructure requirements will be important to inform this process.

4.2 Affordable Housing

Both the *Housing Analysis Study* and *Housing Scenarios Analysis* identified that Narrabri has a clear lack of subsidised housing (affordable and social housing). A lack of suitable and affordable housing for Narrabri's Aboriginal community was specifically identified at the Aboriginal Enquiry by Design Workshop.

More recent Census (2021) supports this finding. As shown in **Figure 4.1**, a marked rise in the number of households spending more than 30% of household income on housing cost (whether mortgage payments or rent) occurred over 2016-2021, with the most significant increases observed in the rental market.

Figure 4.1: Proportion of Household Income Spent on Housing Costs (2011-2021), Narrabri LGA



Source: ABS (2012, 2017, 2022)

As such, increasing the supply of subsidised housing is a critical component of the overall housing supply response.

In urban and some regional areas, State and local governments have been able to incentivise the delivery of subsidised housing through the planning framework with private development required to contribute towards affordable housing outcomes. These contributions can be monetary or in-kind (i.e. completed dwellings or land to be developed for affordable housing). In a market such as Narrabri where development feasibility is marginal, the imposition of affordable housing contributions on the development sector is not a viable solution in the short to medium term.

Accordingly, the delivery of new subsidised housing in Narrabri will need to be fundamentally driven by State and local government in partnership with local CHPs. As the Mount Kaputar Precinct is entirely held in private ownership (thus limiting the potential for subsidised housing development on Government-owned land), this could instead be facilitated through the planning framework.

For instance, a portion of the Mount Kaputar Precinct could be zoned 'Infrastructure' for the specific purpose of providing affordable housing. This would send a clear message to the market that affordable housing would need to be delivered within the precinct and provide the opportunity for local CHPs to purchase the land for delivery of affordable housing. This could also facilitate an opportunity to deliver a 'pilot' project which integrates Designing for Country features and responds to the needs of Narrabri's local community.

There is also potential for private industry to deliver housing benefits. This would need to be embedded in the investment and statutory process. Future industry should be encouraged to deliver permanent housing stock to improve the quality of housing across Narrabri as opposed to delivering temporary housing for FIFO and DIDO workers. This is equally as important as other social initiatives identified for industry to consider adopting (e.g. labour and apprenticeship programs).

4.3 Housing and Lot Size Mix

Irrespective of the likely housing typologies which may be delivered in the Mount Kaputar Precinct over the coming decades due to supply-side constraints (e.g. development feasibility), the structure plan should seek to accommodate a mix of housing typologies which can meet the temporal needs of future residents.

The following housing and lot size mixes should be considered for structure planning purposes:

- Accommodate up to ~2,100 dwellings to meet potential dwelling demand to 2041.
- Provide for a mix of detached (80% of total mix) and medium-density (20% of total mix) housing typologies.
- Detached housing typologies on a mix of lot sizes, including:
    - Rural living lots (2,000sqm-4,000sqm): 5% to 10%
    - Traditional larger lots (900sqm-1,100sqm): 50% to 55%
    - Medium sized lots (700sqm-800sqm): 30% to 35%
    - Smaller lots (450sqm-550sqm): 5% to 10%

It will be important that the precinct is planned with flexibility in mind, enabling this lot size mix to be adapted over time.

4.4 Future Local Centre

The Mount Kaputar Precinct has the potential to accommodate the entirety of the Narrabri Shire's estimated population growth over the coming years to 2041 (up to 3,900 residents in the higher Aspirational Growth Scenario). These future residents and households will drive demand for local retail and services.

Historically, there has been around 2.2sqm of retail floorspace provided for every resident across Australia. This is a widely accepted ratio used throughout the Australian retail industry, based on the last ABS Retail Census undertaken in 1991/92.

Looking forward, higher long-term online retail penetration in Australia is estimated to cause a net reduction in overall floorspace demand. The severity of impact varies across different localities, retail store types and operators. In a regional area such as Narrabri Shire, the uptake of online retail is anticipated to be strong. It is expected that the historically accepted ratio of 2.2sqm of retail floorspace per capita could decrease to circa 2.0sqm per capita as online retail grows.

Assuming an additional 3,900 residents were accommodated within the Mount Kaputar Precinct, these residents could hypothetically demand up to 7,800sqm of additional retail floorspace (based on 2.0sqm of retail floorspace/capita).

Any future centre delivered within the Mount Kaputar Precinct should play a subservient role to the larger Narrabri Town Centre. This will be critical given the location of the Narrabri SAP area which could shift economic activity from the town centre. A smaller local centre within the precinct could provide 'day to day' shopping needs, whilst the Narrabri Town Centre should remain the principal retail location for higher order shopping and services. A Centre Strategy and Retail Demand Assessment would enable a more informed assessment on the likely size and function of a future centre within the precinct.

4.5 Planning Controls

The Mount Kaputar Precinct is currently zoned RU1 Primary Production. A change of land use zone will be required to facilitate urban development upon the Site. Existing residential areas within the neighbouring Narrabri township are currently zoned R1 General Residential and subject to a minimum lot size provision of 550sqm.

The R1 General Residential zone provides a high degree of flexibility and permits a broad mix of housing typologies (including medium and higher density typologies). It is recommended that a R1 General Residential zone be applied in the Mount Kaputar Precinct to enable the market to respond to temporal demand for different housing formats over time.

To ensure a 'buffer' of supply is provided, it is recommended that the entirety of the Mount Kaputar Precinct be rezoned. This will ensure sufficient planning capacity to meet housing demand beyond 2041, whilst also mitigating the risk of some parcels of land within the precinct being undelivered due to supply-side constraints.

A minimum lot size of 450sqm should be applied across the Mount Kaputar Precinct, noting that the market is unlikely to deliver lots of this size in the short to medium-term. This would 'future proof' the precinct for future market movements.

To facilitate the delivery of affordable housing within the Mount Kaputar Precinct, the structure plan could consider rezoning a portion of the precinct as SP2 Infrastructure with an additional permitted purpose of 'affordable housing' as defined under the State Environmental Planning Policy (Housing) 2021 (Housing SEPP). The quantum of land allocated towards affordable housing would need to be assessed through a detailed feasibility analysis, which in turn would be contingent on understanding the cost of infrastructure servicing and development contributions framework.

4.6 Summary of Recommendations

A broad set of actions is needed to ensure the adequate, equitable supply of new housing within the Mount Kaputar Precinct. A summary of the housing recommendations provided in this Chapter is provided in **Figure 4.2**.

Figure 4.2: Summary of Housing Recommendations, Narrabri SAP Structure Plan

1. Infrastructure and Servicing

- Initiate costing of different infrastructure servicing needed to facilitate residential development.
- Finalise a Development Contributions Framework.

2. Affordable Housing

- Upon completion of infrastructure cost assessment and finalisation of a Development Contribuions Framework, carry out an Affordable Housing Assessment to identify the quantum of land which could be set aside for affordable housing development.
- Engage with local CHPs to understand their appetite for developing affordable housing on land within Mount Kaputar Precinct.

3. Housing and Lot Size Mixes

- Accommodate up to ~2,100 dwellings to meet potential dwelling demand to 2041.
- Provide for a mix of detached (80% of total mix) and medium-density (20% of total mix) housing typologies.
- Provide for a mix of lot sizes as outlined in section 4.3.

4. Future Local Centre

- Carry out a Centre Strategy and Retail Demand Assessment to inform the location, size and role of a future centre within the Mount Kaputar Precinct.
- Ensure the primary role of the Narrabri Town Centre as Narrabri Shire's principal centre is secured.

5. Planning Controls

- Apply a R1 General Residential zone within the Mount Kaputar Precinct to enable flexibility within the planning framework.
- Apply a 450sqm minimum lot size throughout the Mount Kaputar Precinct.
- The entirety of the Mount Kaputar Precinct should be rezoned to ensure a buffer of supply is in place.
- Consider rezoning a portion of the Mount Kaputar Precinct as SP2 Infrastructure with an additional permitted purpose of 'affordable housing' as defined under the State Environmental Planning Policy (Housing) 2021 (Housing SEPP).

Source: Atlas Economics

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Schedules

SCHEDULE 1

Population Estimates – Approach and Methodology

Introduction

The most recent NSW DPE State and LGA population projections were developed and published in 2022. These projects do not consider several major infrastructure and energy projects which have been announced and approved in the Narrabri Shire and the surrounding region. Accordingly, the potential impact of these projects on population growth rates and other demographic trends have not been considered in the DPE population projections.

For the purposes of this Study, a set of population estimates have been developed. It is highlighted that Atlas Economics are not demographers. The population estimates are developed at a high-level and have not considered detailed demographic factors as typically done in the official NSW DPE projections.

Key Assumptions and Limitations

The population estimates are also predicated on a series of high-level assumptions. These assumptions have been made through a combination of historical demographic evidence, input from Narrabri Shire Council and professional judgement. Assumptions relied upon should be treated cautiously and will likely be refined over the course of the Study.

The key assumptions and limitations adopted in the population estimates include:

- All major projects are assumed to proceed to delivery within identified timeframes.
- Construction workers are assumed to be entirely transient and will not reside in the Narrabri LGA post-construction.
- Project-induced population growth has only incorporated the ***direct*** employment associated with each project (during both the construction and operational phase). ***Indirect*** employment resulting from the major projects (in upstream or downstream activities) has not been identified and accordingly not reflected in project-induced population growth.
- Following the introduction of new project-induced population growth, average population growth rates as per the DPE Main Series are assumed to apply. Higher, compounding population growth resulting from the influx of new residents and changing household formation patterns ***have not*** been considered.
- Approximately 85% of the construction and operational workforce is assumed to be sourced from outside the Narrabri LGA. The actual proportion of the workforce (during both the construction and operational phase) for each major project could be better understood through direct engagement with each project proponent.
- Approximately 85% of the construction and operational workforce are assumed to reside within the Narrabri LGA. Construction workers are assumed to reside in the LGA temporarily (over the course the construction period), whilst operational workers are assumed to reside permanently.
- The average household size of construction workers is assumed to be 1.4 persons per household. It is assumed the majority (70%) of construction workers would be singles, with a smaller component of couples (20%) and couples with one dependant (10%). The actual estimated household size of construction workers could be better understood through direct engagement with each project proponent. These construction workers (and their families) are expected to depart the Narrabri LGA on construction completion. It is however plausible that some workers would stay on and form households in the LGA post-construction, however this has not been considered.
- The average household size of operational workers is assumed to be 2.5 persons per household. This reflects the assumption that these workers will be permanent residents and aligns with the average household size of the Narrabri Shire in 2016 (2.5 persons per household). The actual estimated household size of operational workers could be better understood through direct engagement with each project proponent.

Methodology

The steps undertaken to develop the population estimates are summarised below and discussed in turn.

1. Step 1: Review DPIE population projections
2. Step 2: Review the direct worker forecasts (by Council) resulting from Narrabri's major projects
3. Step 3: Convert the direct worker forecasts into residents
4. Step 4: Combine the project-induced residents with the DPE Main Series projections

Step 1: DPE Population Projections

Under DPE's Main Series population projections (2022), the Narrabri Shire is projected to decline each five-year period between 2016 and 2041, reaching a resident population of just over 12,100 by 2041. This is some ~1,265 fewer residents compared to 2016 and reflects an average annual change of -0.5%.

Table S1.1: Population Projections (Main, Low, High; 2016-2041), Narrabri LGA

Indicator	2016	2021	2026	2031	2036	2041	Change (2016-41)
Main Series	**13,367**	**13,019**	**112,885**	**12,673**	**12,407**	**12,102**	**-1,265**
Change (5-yr)		-348	-118	-183	-226	-263	
Avg. Annual Growth		-0.5%	-0.2%	-0.3%	-0.4%	-0.5%	-0.5%

Source: DPE (2022)

Step 2: Direct Worker Forecasts from Major Projects

A summary of the various major projects underway in the Narrabri Shire was provided by Narrabri Shire Council. This summary included estimated construction milestone dates, operational start dates and the estimated number of direct workers (during the construction and operational phase) associated with each project.

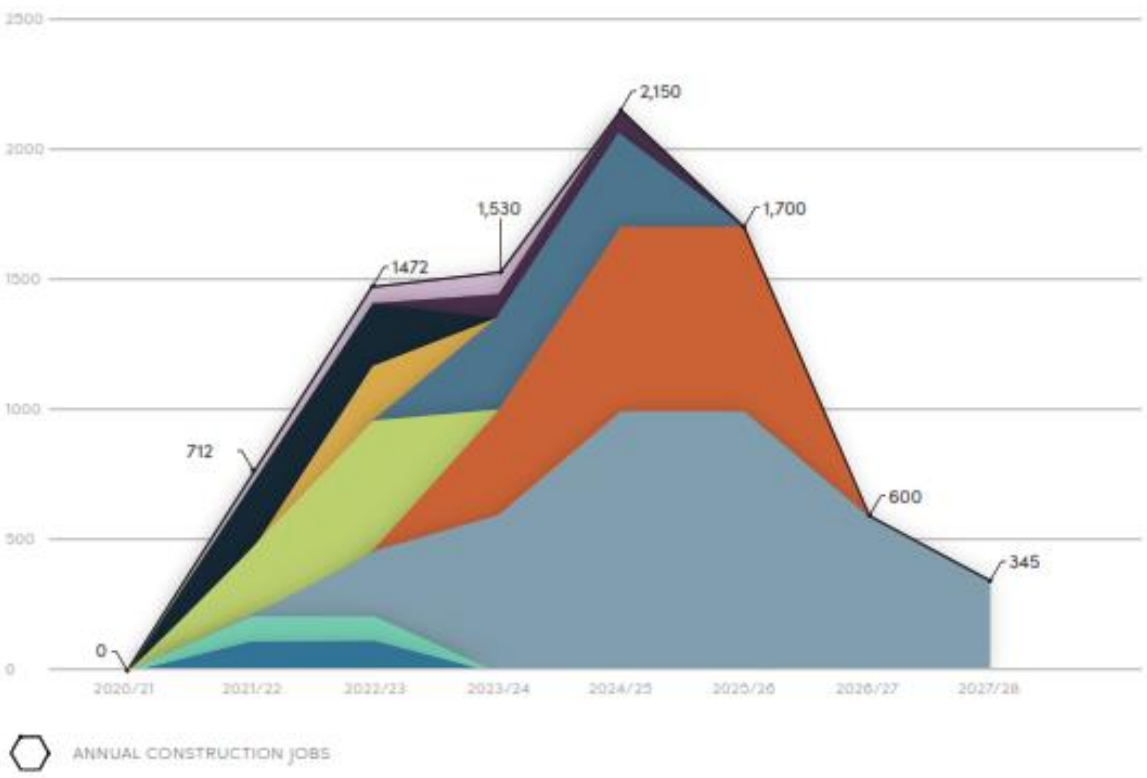
Table S1.2 summarises each of the major projects whilst **Figure S1.1** and **Figure S1.2** illustrates the year-on-year cumulative direct construction and operational worker growth anticipated.

Table S1.2: Major Projects and Potential Employment (Construction and Ongoing)

Project	Status	Construction Start	Construction Finish	Operational Start	Estimated Employment	
					Construction	Ongoing
Canadian Solar - Narrabri Solar Farm	Approved; Construction yet to commence	1/09/2021	1/09/2022	1/01/2022	112	5
Silverleaf Solar Farm	Under assessment	1/09/2021	1/03/2023	1/07/2022	100	0
Santos - Narrabri Gas Project (NGP)	Appeal rejected in favour of Santos in Q3 2021; Final approval pending	1/12/2022	1/12/2025	1/07/2021	1,300	200
Perdaman - Narrabri Ammonium Nitrate Plant	Linked to NGP ; Final approval pending	1/01/2023	1/01/2027	1/09/2027	700	100
Whitehaven Coal - Vickery Mine Project	Approved by Federal Gov in Sep. 2021	1/11/2021	1/11/2023	1/11/2023	500	115
Inland Rail - Narrabri to Narromine	Approval expected 2022	1/06/2022	30/12/2022	31/12/2026	1,800	10
Inland Rail - Narrabri to North Star	Approved; Construction commencing 2022	1/04/2022	31/10/2022	1/09/2023	1,200	0
APA Group - Western Slopes Pipeline	Linked to NGP; Final approval pending	1/07/2022	30/04/2023	1/01/2024	350	5
Northern NSW Inland Port	Approved; Construction commencing 2022	1/07/2022	31/12/2024	1/07/2026	100	565
Wee Waa Sun Farm	Early planning	1/01/2023	30/08/2023	1/01/2023	80	3

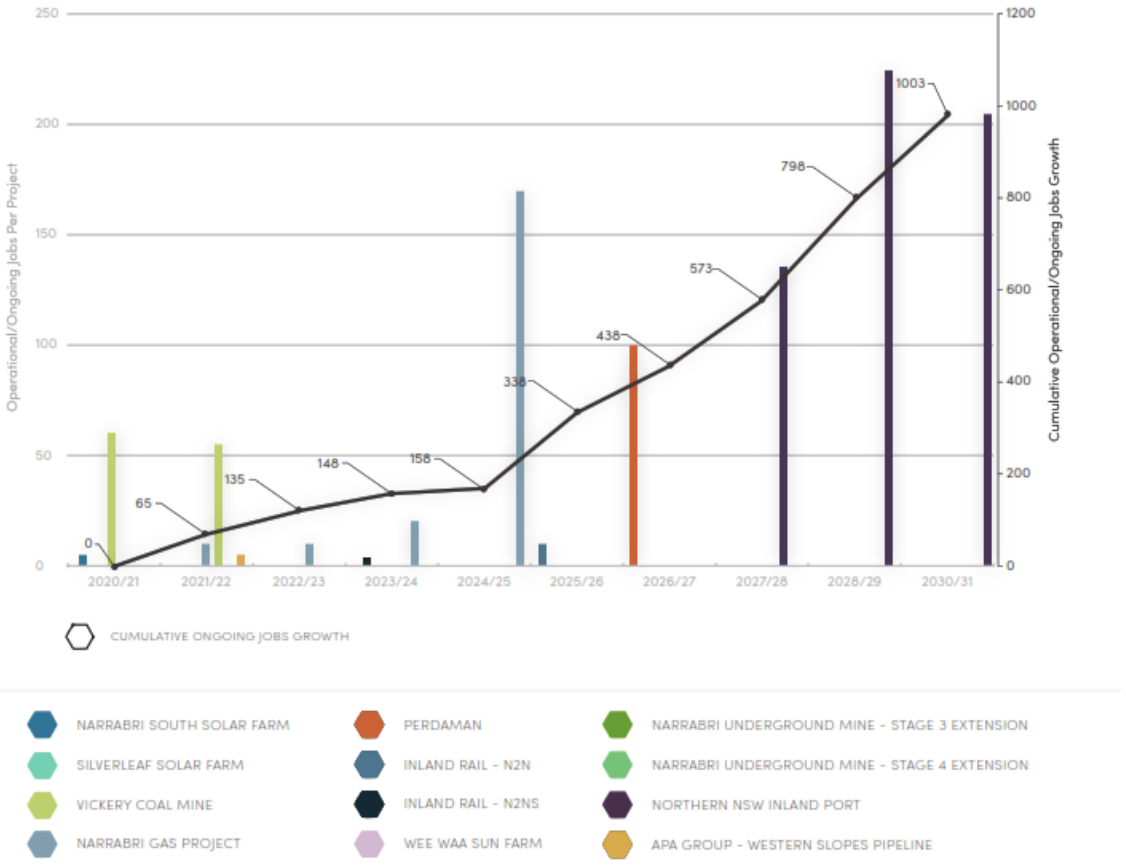
Source: Atlas Economics/Narrabri Shire Council

Figure S1.1: Cumulative Construction Jobs, Narrabri's Major Projects



Source: Narrabri Shire Council

Figure S1.2: Cumulative Operational Jobs, Narrabri's Major Projects



Source: Narrabri Shire Council

Step 3: Convert Construction and Operational Workers into Residents

The construction and operational workforce for each of the major projects has been converted into residents by applying a series of high-level assumptions. These include:

- 85% of construction and operational workers are assumed to be drawn from outside the Narrabri LGA (i.e. they are not existing Narrabri LGA residents).
- 85% of the construction and operational workers are assumed to establish in the Narrabri LGA. Construction workers are assumed to reside temporarily and relocate upon completion of their respective projects; operational workers are assumed to reside permanently.
- Average household sizes of 1.4 persons per household and 2.5 persons per household apply to construction and operational workers respectively.

Table S1.3 summarises the resulting project-induced residents resulting from the construction and operational workforce.

Table S1.3: Potential New Residents resulting from Major Projects, Narrabri LGA

	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028-29	2029-30
Construction Workers										
Cumulative Workers	-	712	1,472	1,530	2,150	1,700	600	345	-	-
New Residents		720	1,489	1,548	2,175	1,720	607	349	-	-
Operational Workers										
Cumulative Workers	-	65	135	148	158	338	438	573	798	1,003
New Residents	-	117	244	267	285	611	791	1,035	1,441	1,812

Source: Atlas Economics

Step 4: Population Estimates

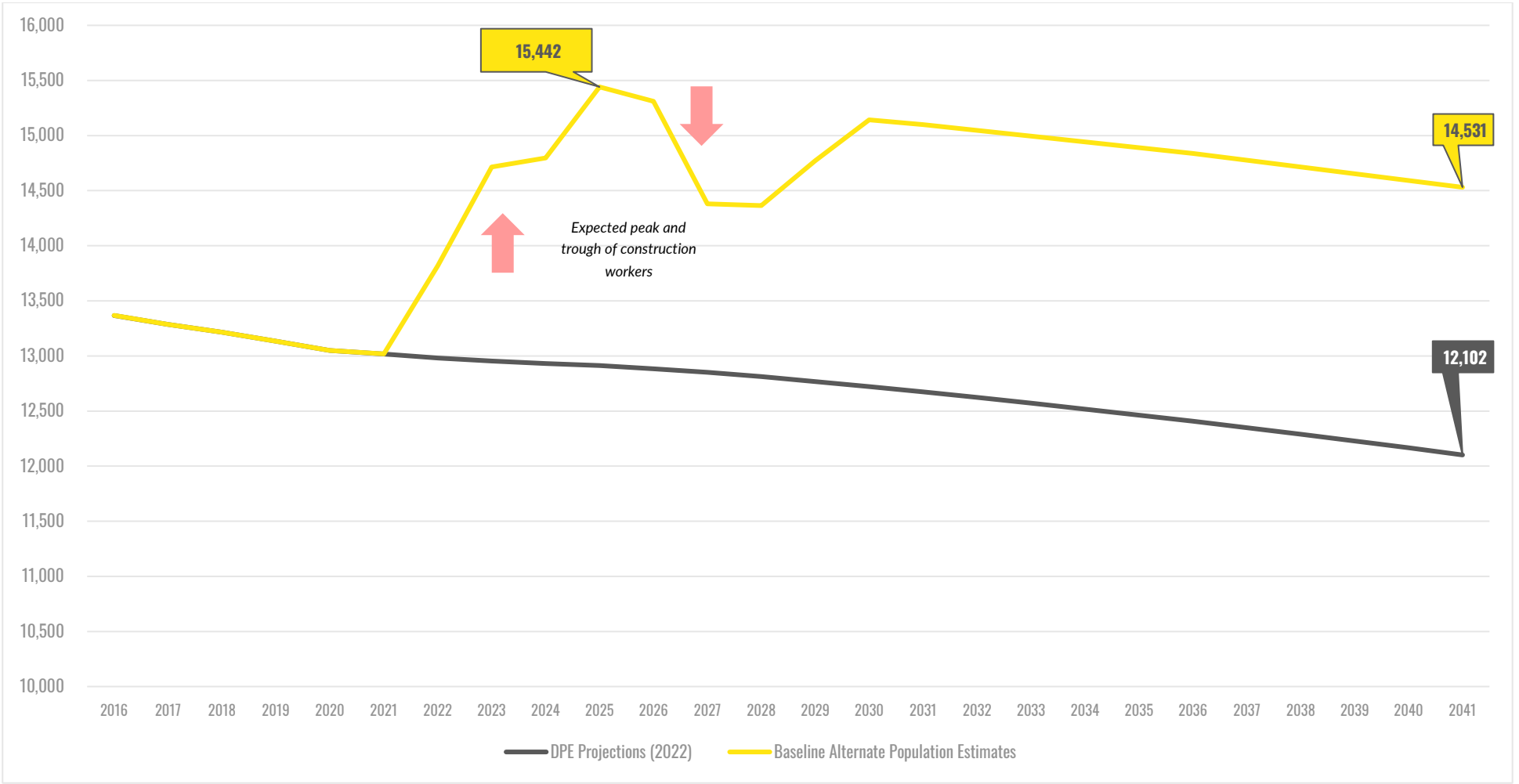
The project-induced residents shown in **Table S1.3** are combined with DPE's population projections (2022), resulting in the population estimates. Following the introduction of these new residents, average population growth rates as per the DPE Main Series are assumed to apply. Higher, compounding population growth resulting from the influx of new residents and changing household formation patterns has not been considered.

Under the Baseline Alternate Population Estimates, the Narrabri LGA is estimated to reach a resident population of ~14,500. The population is anticipated to peak in 2025 at ~15,400 residents (aligning with peak construction periods of several major projects), before gradually declining from 2030 as construction workers relocate.

The Baseline Alternate Population Estimates reflect an additional ~2,400 residents compared to DPE's 2022 projections.

A summary of the population estimates under each scenario compared against the DPE Main Series is illustrated in **Figure S1.3**.

Figure S1.3: Baseline Alternate Population Estimates (2016-2041), Narrabri LGA



Source: Atlas Economics

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