

# Housing Study for Vineyard Stage 1



## Final report

NSW Planning and Environment  
November 2016

Independent insight.



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# 1 INTRODUCTION

## 1.1 Brief

SGS Economics & Planning has been engaged by Planning & Environment (P&E) to undertake a housing Study relating to both the Riverstone East Precinct and the Vineyard Precincts in the North West Priority Growth Area (NWPGA).

The core objective of the Study is to undertake an analysis of the market demand, dwelling construction and occupancy rates for the Precincts. The scope of work for the housing study is outlined below:

- identify land supply and demand conditions affecting the likely market demand for dwellings and dwelling types for the Precincts;
- identify key non-market determining factors for dwelling production (such as highly fragmented land, transport and water-related infrastructure upgrades) and the impact this is likely to have on lot production rates;
- estimate the demand (and occupancy rates) for various dwelling types and provide advice and recommendations in relation to the appropriate mix of dwelling types and densities to provide appropriate housing choice, contribute to housing affordability and maximise the commercial viability of residential development in the various parts of the Precincts and at various stages in the urbanisation of the Precincts;
- estimate the likely rate of subdivision and dwelling construction within the Precincts and identify potential stages/sequencing of development based on demand factors and factors such as planned staging of utilities infrastructure. This task is likely to involve integration with the Infrastructure Master Planner;
- estimate and provide recommendations on the population levels and profiles and the appropriate level and type of facilities to be provided in the Precincts required to support the population growth (and more broadly in the NWPGA); and
- provide advice on how the ILP can be implemented, given the fragmented ownership patterns and extent of existing/recent development and identify any issues that may hinder orderly development and provide opportunities and proven methods to deliver development outcomes in fragmented ownership areas.

This report is prepared for the Vineyard Stage 1.

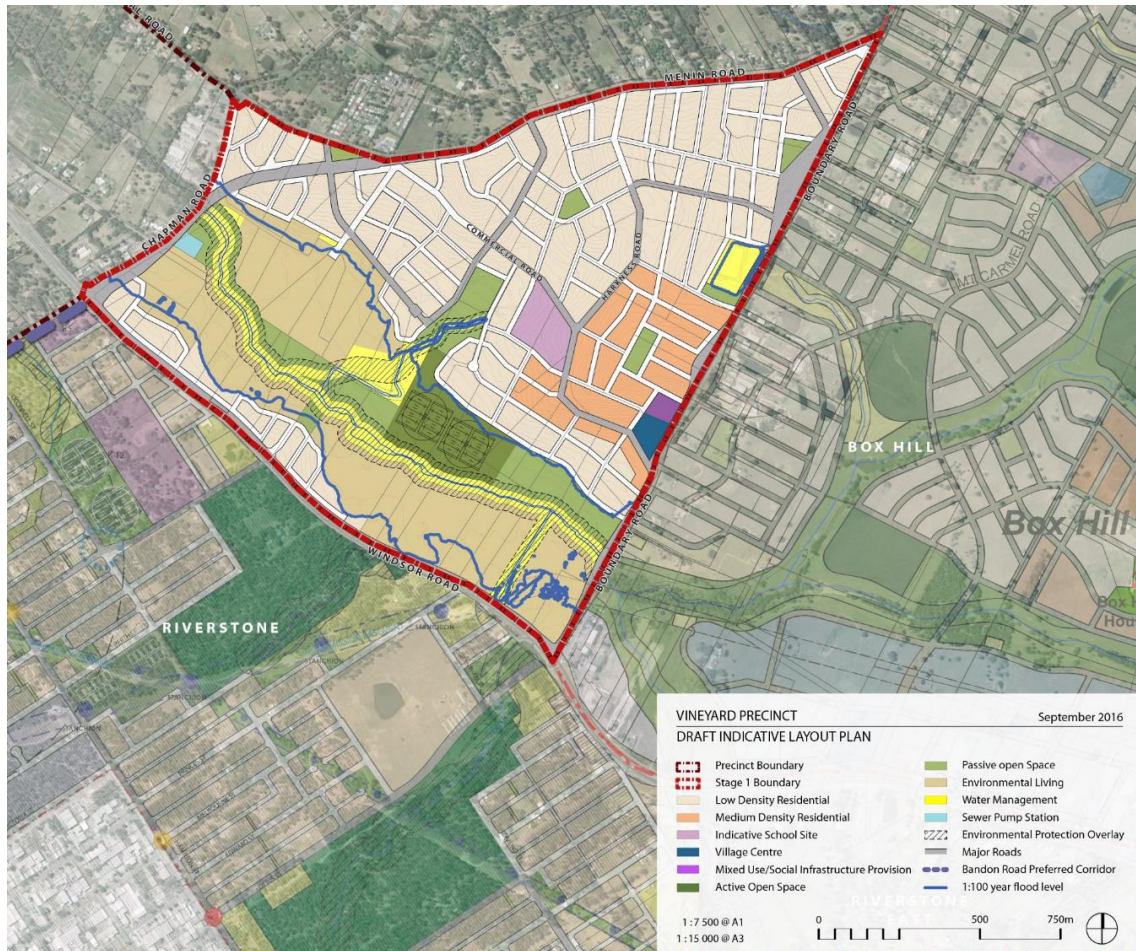
## 1.2 Context

Vineyard Precinct was identified for detailed precinct planning in August 2013. When the Precinct Planning is completed, the land within Vineyard will be rezoned to allow for urban development including residential and employment related development.

The Vineyard Stage 1 is 229.8 hectares in area and is located in the northern end of the North West Priority Growth Area, wholly within the Hawkesbury Local Government Area (LGA). It is immediately surrounded by Riverstone to the south, Box Hill to the south east, Chapman Road to the west and Menin Road to the north. The site is currently zoned General Rural under the Hawkesbury Local Environmental Plan.

A draft Indicative Layout Plan (ILP) of Vineyard Stage 1 is provided below.

FIGURE 1. VINEYARD STAGE 1



Source: Planning and Environment, 2016

### 1.3 Report structure

The study has been structured in this report to include the following sections:

- Introduction and overview (this section).
- Analysis of the housing markets relating to the Vineyard Stage 1
- Housing demand forecasting
- Development feasibility assessment
- Identification of the likely density mix by lot size, housing affordability and dwelling capacity
- Development sequencing and staging
- Recommendation.

# 2 HOUSING MARKET ANALYSIS

## 2.1 Housing profile of the Hawkesbury LGA

The table below examines the housing profile of the Hawkesbury LGA, which will be used as a benchmark area for the Vineyard Stage 1. The housing profile for the Hawkesbury LGA is shown below in five-year intervals from 2001. It can be seen that in terms of dwelling structure, separate houses continue to dominate the housing stock although their share of the total is gradually falling, while semi-detached houses and flats, units or apartments have increased. Over the ten-year period from 2001 to 2011 the total housing stock has increased by 950 dwellings, or 4.8 percent, an annual average growth rate of 0.5 percent.

TABLE 1. HOUSING PROFILE – HAWKESBURY LGA

Year	2001		2006		2011	
	Total	%	Total	%	Total	%
<b>Dwelling Structure</b>						
<b>Separate house</b>	<b>17,034</b>	<b>85.64%</b>	<b>17,350</b>	<b>86.76%</b>	<b>17,883</b>	<b>85.79%</b>
<b>Semi-detached, row or terrace house, townhouse etc. with:</b>						
One storey	464	2.33%	415	2.08%	597	2.86%
Two or more storeys	1,681	8.45%	1,617	8.09%	1,942	9.32%
<b>Total</b>	<b>1,217</b>	<b>6.12%</b>	<b>1,202</b>	<b>6.01%</b>	<b>1,345</b>	<b>6.45%</b>
<b>Flat, unit or apartment:</b>						
In a one or two storey block	659	3.31%	726	3.63%	611	2.93%
In a three storey block	48	0.24%	29	0.15%	75	0.36%
In a four or more storey block	33	0.17%	0	0.00%	36	0.17%
Attached to a house	53	0.27%	34	0.17%	42	0.20%
<b>Total</b>	<b>793</b>	<b>3.99%</b>	<b>789</b>	<b>3.95%</b>	<b>764</b>	<b>3.67%</b>
<b>Other dwelling:</b>						
Caravan, cabin, houseboat	168	0.84%	159	0.80%	158	0.76%
Improvised home, tent, sleepers out	19	0.10%	27	0.14%	7	0.03%
House or flat attached to a shop, office etc.	65	0.33%	49	0.25%	76	0.36%
<b>Total</b>	<b>252</b>	<b>1.27%</b>	<b>235</b>	<b>1.18%</b>	<b>241</b>	<b>1.16%</b>
<b>Dwelling structure not stated</b>	<b>131</b>	<b>0.66%</b>	<b>6</b>	<b>0.03%</b>	<b>14</b>	<b>0.07%</b>
<b>Total</b>	<b>19,891</b>	<b>100.00%</b>	<b>19,997</b>	<b>100.00%</b>	<b>20,844</b>	<b>100.00%</b>

Source: Australian Bureau of Statistics Census, 2001, 2006, 2011

## 2.2 Residential property market data

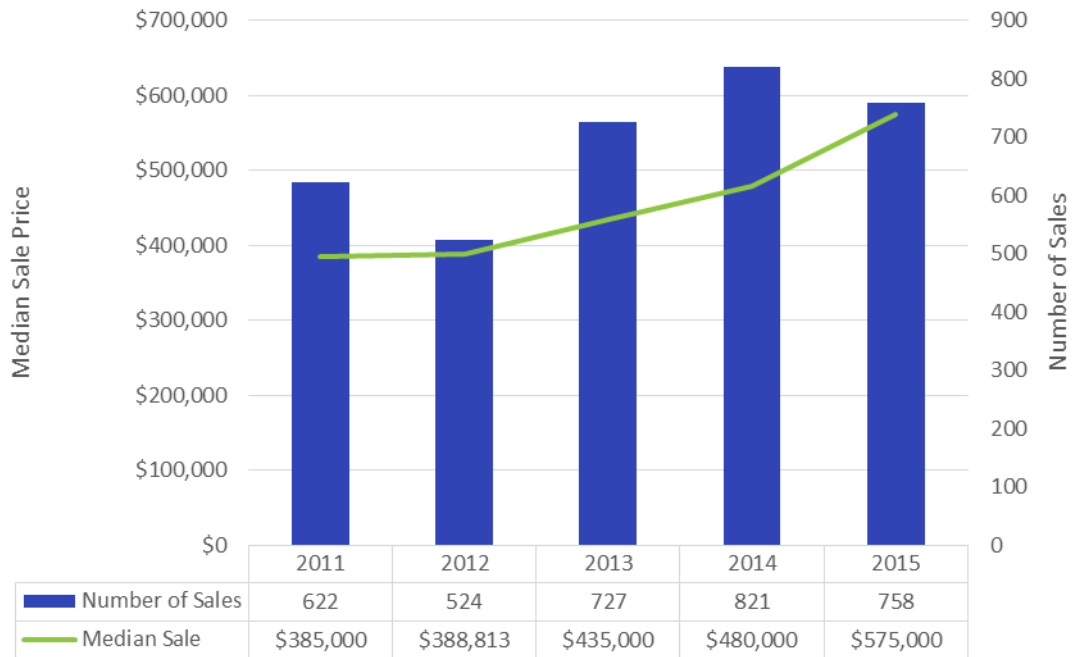
This section examines the recent sales history for the Hawkesbury LGA. The recent sales between 2011 and 2015 listed on RP data was used to determine key characteristics of the housing market, including growth in sales prices and volumes for different dwelling types over time, average price by dwelling type and bedroom number, sales volume by lot sizes. Data from additional sources including the ABS Census was used to estimate vacancy and clearance rates in the LGA.

### Median sales price

Figure 2 shows average sales prices for single residential dwellings in the Hawkesbury LGA from 2011 to 2015. Over the study period median sales prices for the Hawkesbury LGA grew at an average annual rate of 4.0% percent, as the number of sales has overall increased over the five year period.



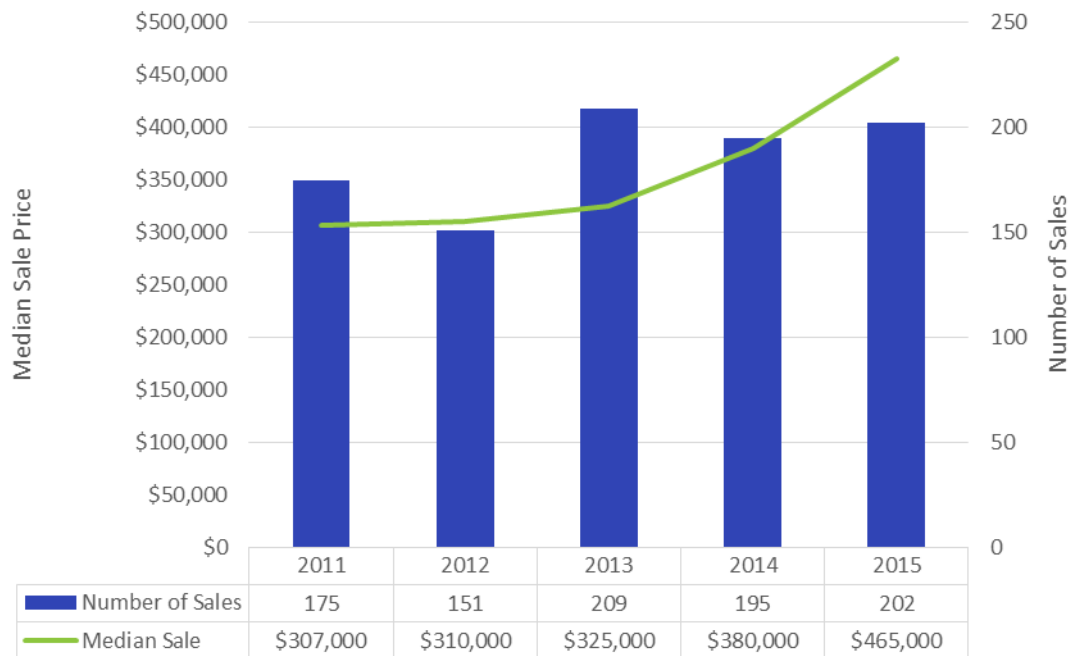
**FIGURE 2 SINGLE RESIDENTIAL DWELLINGS, HAWKESBURY LGA**



Source: RP Data (2016).

Figure 3 shows average sales prices for residential strata units in the Hawkesbury LGA from 2011 to 2015. Over the study period median sales prices for the Hawkesbury LGA grew at a slightly lower rate of 3%, while the number of sales has fluctuated in the five year period.

**FIGURE 3 RESIDENTIAL STRATA UNITS, HAWKESBURY LGA**

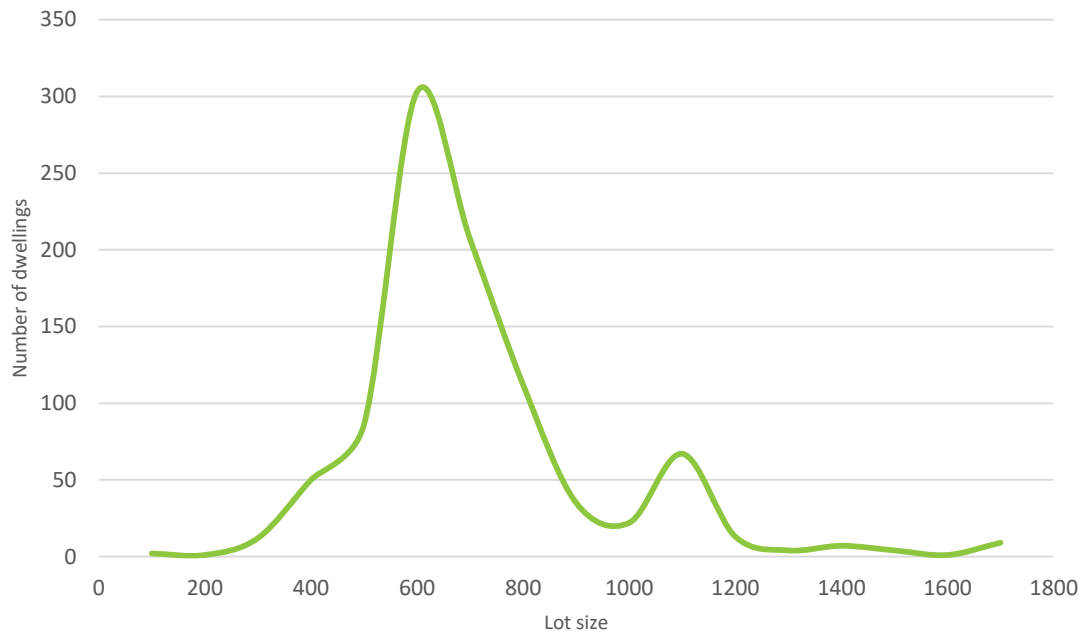


Source: RP Data (2016).

### Sales volume by lot size

The graph below shows the volume of single residential dwelling sales by lot size in the Hawkesbury LGA between 2011 and 2015. Detached dwellings were likely to have a lot size of between 500 and 800 square metres, although there is also a market for dwellings with lot sizes of between 1000 and 1200 square metres.

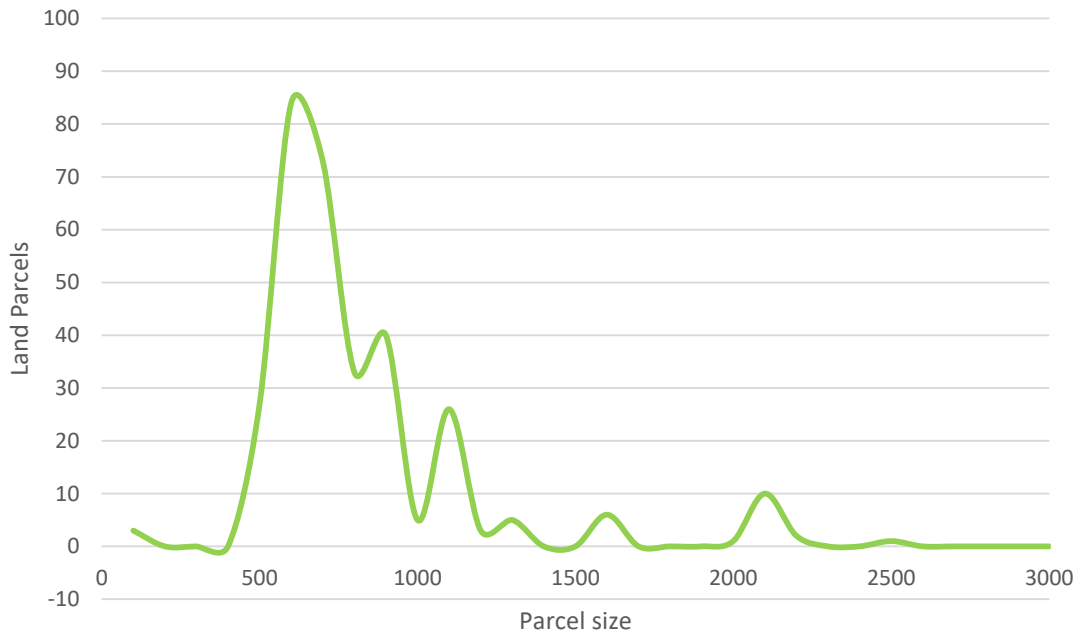
FIGURE 4 RESIDENTIAL DWELLING SALES IN HAWKESBURY LGA BY LOTSIZE, 2011-2015



Source: RP Data (2016).

The graph below shows the volume of vacant urban land sales by lot size in the Hawkesbury LGA between 2011 and 2015. Dwelling lot sizes were most likely to fall between 500 to 1000 square metres, although there is also a market in land parcels greater than 2000 square metres.

**FIGURE 5 VACANT URBAN LAND SALES IN HAWKESBURY LGA BY LOTSIZE, 2011-2015**

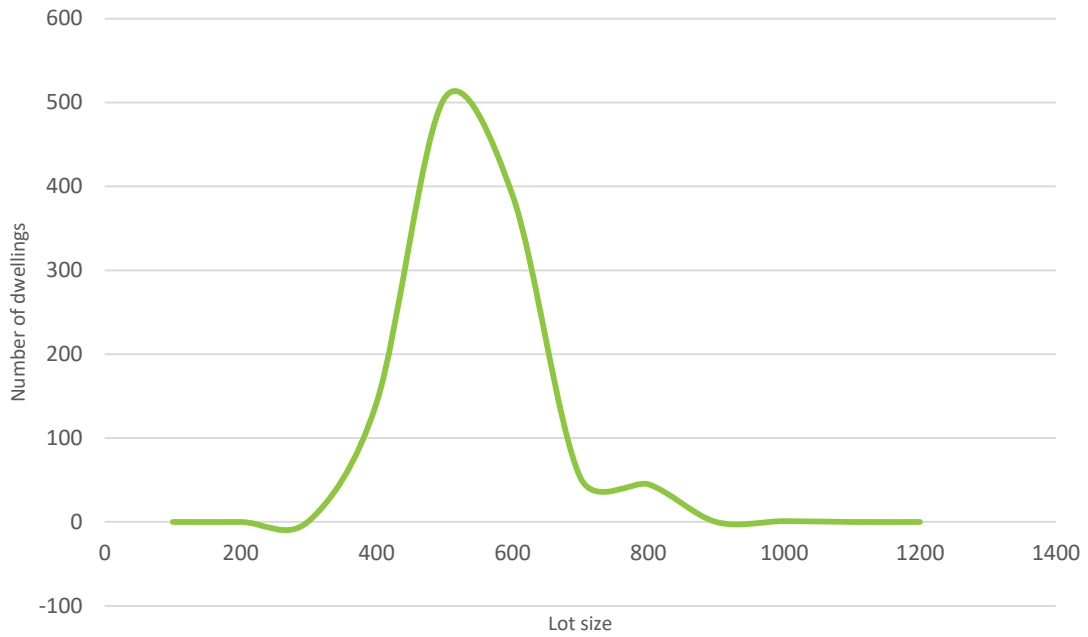


Source: RP Data (2016).

Given that Vineyard Stage 1 is a new release precinct, it is also necessary to consider housing profile in other recently development housing estates in the Blacktown LGA.

The graph below shows the volume of single residential dwelling sales by lot size in the Ponds, Stanhope Gardens and Kellyville Ridge between 2011 and 2015. Detached dwellings were likely to have a lot size of between 400 and 700 square metres, although there is also a market for dwellings with lot sizes of between 700 and 900 square metres.

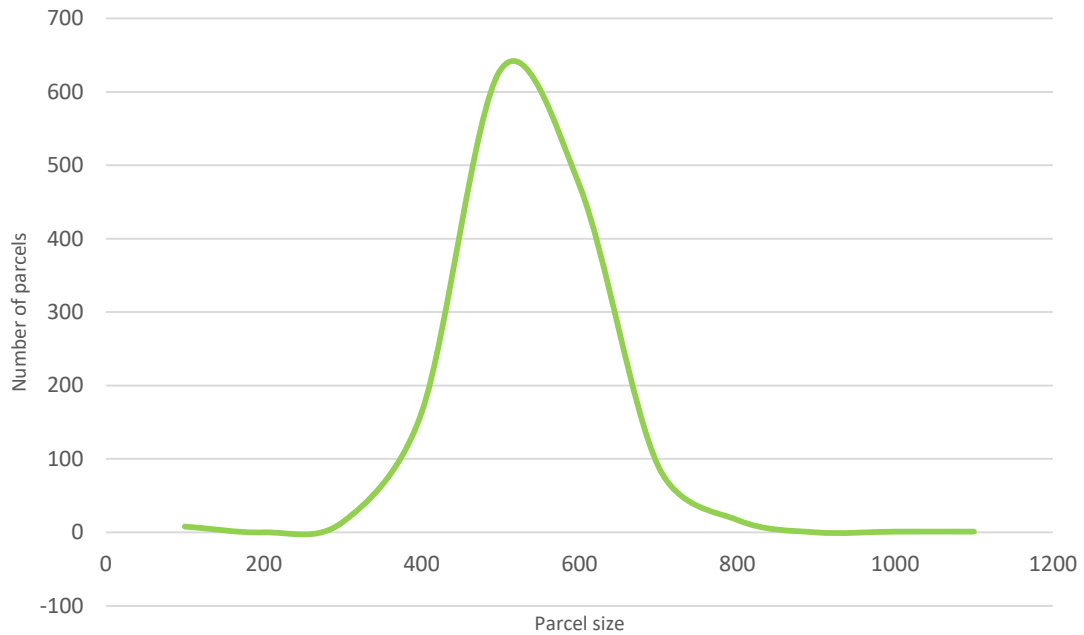
FIGURE 6. RESIDENTIAL DWELLING SALES IN NEW RELEASE PRECINCTS BY LOTSIZE, 2011-2015



Source: RP Data (2016).

The graph below shows the volume of vacant urban land sales by lot size in the selected new release precincts between 2011 and 2015. Dwelling lot sizes were most likely to fall between 400 to 700 square metres.

FIGURE 7. VACANT URBAN LAND SALES IN NEW RELEASE PRECINCTS BY LOTSIZE, 2011-2015



Source: RP data (2016).

### Historical average sales prices

Table 2 shows the historical average sales price for dwellings in the Hawkesbury LGA between 2011 and 2015 by dwelling type and bedroom number. Table 3 shows the same data for recently developed suburbs, including The Ponds, Stanhope Gardens and Kellyville Ridge in the Blacktown LGA.

TABLE 2 AVERAGE SALES PRICE BY BEDROOM NUMBER AND PROPERTY TYPE, HAWKESBURY LGA, 2011-2015

		2011	2012	2013	2014	2015
Single residential dwellings	1 bedroom	\$412,500	\$306,333	NA	NA	NA
	2 bedrooms	\$322,733	\$329,633	\$440,000	NA	NA
	3 bedrooms	\$377,614	\$392,278	\$455,000	\$472,500	NA
	4 bedrooms	\$460,031	\$456,860	NA	\$1,085,000	NA
	5 bedrooms	\$551,306	\$478,700	\$435,000	NA	NA
Residential strata units	1 bedroom	\$412,500	\$344,500	NA	NA	NA
	2 bedrooms	\$329,976	\$328,870	NA	NA	NA
	3 bedrooms	\$376,397	\$391,546	\$455,000	\$472,500	NA
	4 bedrooms	\$462,971	\$452,884	NA	\$1,085,000	NA
	5 bedrooms	\$548,333	\$467,821	435000	NA	NA

Source: RP Data (2016).

Note the data above reflects the average price of the properties by bedroom no. sold in each year. Therefore the relativity of average price by bedroom no. may be not in the right order depending on other attributes of dwellings (e.g. year of built, dwelling structure, location and proximity to services).

TABLE 3 AVERAGE SALES PRICE BY BEDROOM NUMBER AND PROPERTY TYPE, NEW RELEASE SUBURBS, 2011-2015

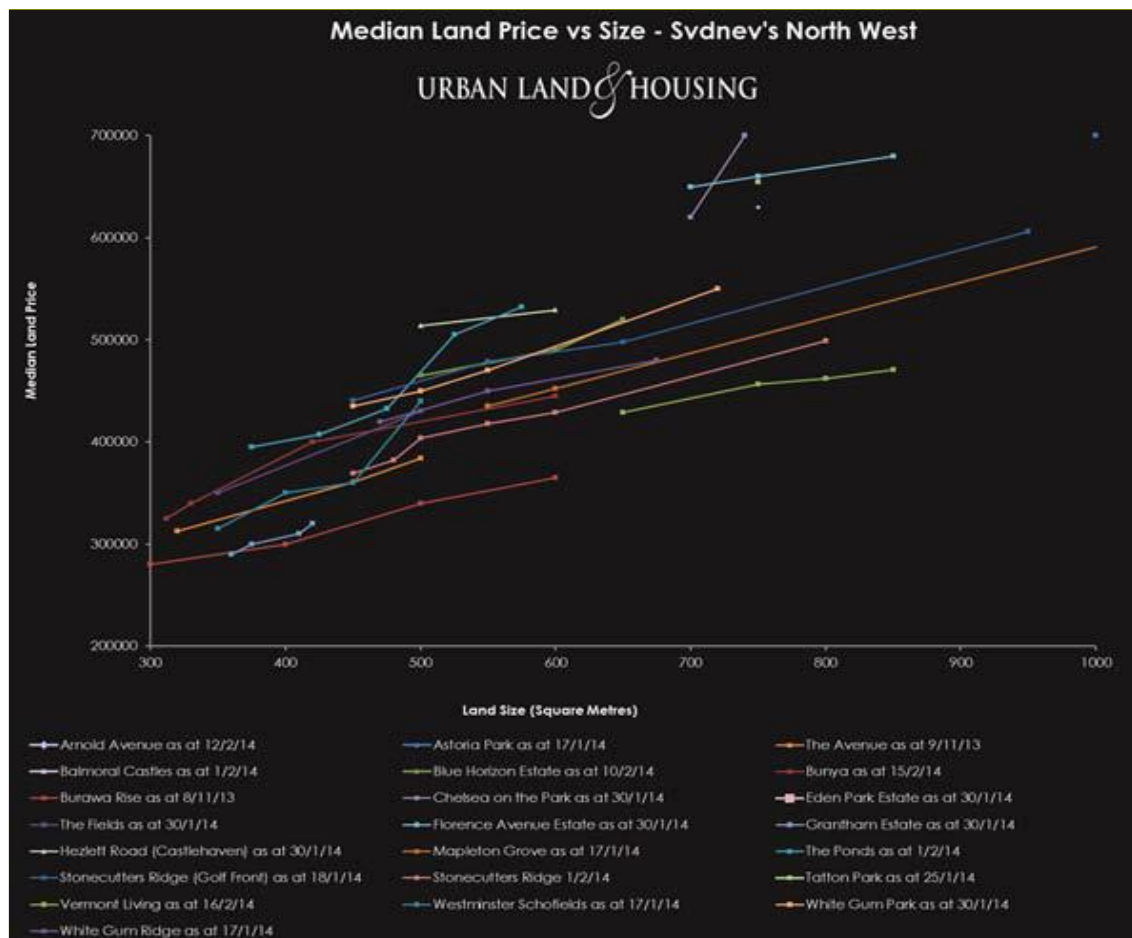
		2011	2012	2013	2014	2015
Single residential dwellings	1 bedroom	\$478,800	\$596,857	\$640,625	\$716,532	\$782,551
	2 bedrooms	\$715,000	\$516,580	\$569,950	\$688,633	\$731,550
	3 bedrooms	\$517,830	\$518,207	\$557,629	\$670,133	\$752,700
	4 bedrooms	\$592,412	\$605,678	\$676,057	\$790,014	\$898,506
	5 bedrooms	\$674,360	\$672,327	\$769,221	\$842,745	\$1,007,455
Residential strata units	1 bedroom	NA	NA	\$402,500	NA	NA
	2 bedrooms	\$376,813	\$367,125	\$408,578	\$471,011	\$551,313
	3 bedrooms	\$425,429	\$448,375	\$466,000	\$531,867	\$367,500
	4 bedrooms	NA	\$505,000	\$488,333	NA	\$755,000
	5 bedrooms	NA	NA	NA	NA	NA

Source: RP Data (2016).

Note the data above reflects the average price of the properties by bedroom no. sold in each year. Therefore the relativity of average price by bedroom no. may be not in the right order depending on other attributes of dwellings (e.g. year of built, dwelling structure, location and proximity to services)

The following chart summarises the median land prices by lot size within the newly developed housing estates in the North West.

FIGURE 8. MEDIAN LAND PRICE BY SIZE BY PRECINCT



Source: Urban land & housing 2014

## Vacancy rates

In 2011, there were 21,742 occupied private dwellings in Hawkesbury LGA and 1629 unoccupied ones, or a vacancy rate of 6.9 percent. The vacancy rate in Greater Sydney was also 6.9 percent, indicating average levels of demand for dwellings in the Hawkesbury LGA<sup>1</sup>.

## Clearance rates

In the year to August 2016, the average house in the Hawkesbury LGA spent 66 days on the market, while auction clearance rates were 45.1 percent. By contrast, the auction clearance rate in Sydney for the week ending 20 August 2016 was 84 percent<sup>2</sup>. This indicates the housing market in Hawkesbury LGA has been underperforming compared to Sydney as a whole.

## Conclusion

Over the study period, average prices for detached houses in Hawkesbury LGA grew at an average annual rate of 4 percent from 2011 to 2015, not substantially above the rate of inflation. The number of sales increased between 2011 and 2014, but declined in 2015. The vast majority of the houses listed as sold were three or four bedroom dwellings. Demand for apartments is weaker, with average price growth of 3 percent per annum, while the number of dwellings sold has remained relatively steady in the last five years. The price of dwellings in the Vineyard suburb is significantly lower than in the Hawkesbury LGA as a whole.

Vacancy rates in Hawkesbury LGA are similar to those for Greater Sydney. The auction clearance rate for houses is significantly lower, compared to the Sydney Average. These figures indicate weak demand for dwellings in the Hawkesbury LGA, with the strongest demand for three or four bedroom dwellings.

## 2.3 Housing supply

### Historical dwelling supply

The observed supply for dwellings is based on recent building approvals, lot and dwelling production in the Hawkesbury LGA based on the Metropolitan Development Program (MDP) Residential Reports released by the NSW Department of Planning and Environment.

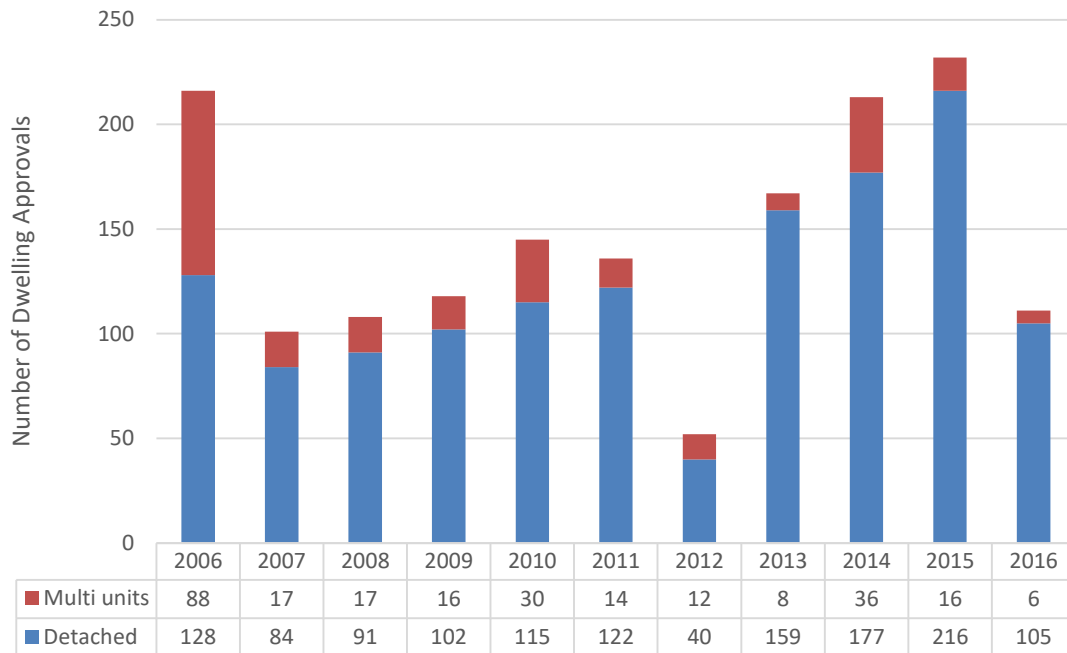
The following table shows the number of building approvals by financial year for the period 2006–2016. Total dwelling approvals peaked in 2015, after falling to a low in 2012 and increasing quickly from then onwards. The majority of building approvals were for detached dwellings.

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<sup>1</sup> Australian Bureau of Statistics, 2014

<sup>2</sup> Domain, 2016

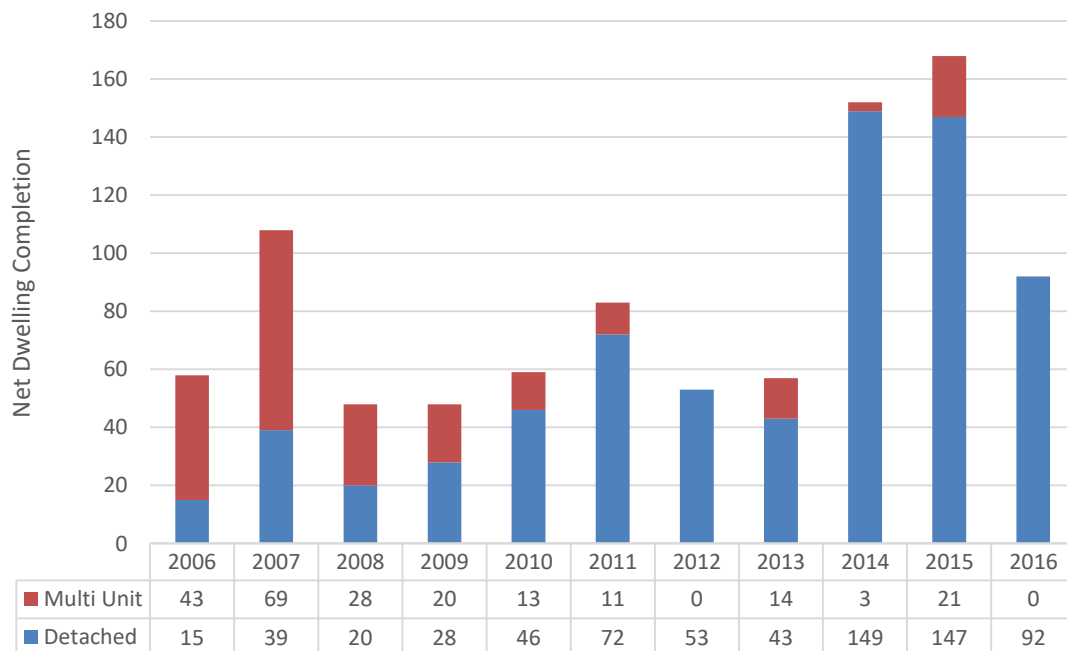
**FIGURE 9 BUILDING APPROVALS, HAWKESBURY LGA**



Source: Department of Planning and Environment, 2016 and SGS calculations

The following table shows the number of dwelling completions by financial year for the period 2006–2016. The total dwelling completions per annum has been increasing in the Hawkesbury LGA since 2006, whereas multi-unit completions have been declining.

**FIGURE 10 NET ADDITIONAL DWELLINGS, HAWKESBURY LGA**



Source: Department of Planning and Environment, 2016 and SGS calculations



## Greenfield release areas

New supply of dwellings and lots for development comes from greenfield release areas. The major greenfield release in the Hawkesbury LGA from 2001-2013 was in Pitt Town. However, as of 2010, none were projected by the Department of Planning and Environment to be released in the future<sup>3</sup>.

The table below presents the lot and dwelling production in different greenfield areas of the Blacktown LGA. The number of new dwellings produced per year is projected to increase steadily at an average annual growth rate of 14.5 percent between the year ending 2011 and 2015. The number of lots produced per year over this period is projected to fluctuate significantly, with more than double the number of lots released in 2014 compared to 2015. In terms of location of development, significant dwelling and lot production is projected to take place at St Marys ADI and Second Ponds Creek.

TABLE 4. LOT AND DWELLING PRODUCTION, BLACKTOWN LGA

LGA	Release Area	Lots / Dwellings	Last 6-10 years	Last 5 years	10/11	11/12	12/13	13/14	14/15	Short Term	Medium Term	Long Term
Blacktown	Alex Avenue	Lots	0	0	0	0	300	500	0	800	350	1,750
		Dwellings	0	0	0	0	0	300	500	800	100	1,650
	Area 20	Lots	0	0	0	150	160	170	210	690	1,120	390
		Dwellings	0	1	0	0	150	160	170	480	1,150	670
	Bungarabee Precinct	Lots	0	0	139	154	145	148	144	730	0	0
		Dwellings	0	0	0	139	154	145	148	586	144	0
	Castlebrook	Lots	3,313	1,518	163	208	201	109	0	681	0	0
		Dwellings	2,709	2,684	253	195	208	201	109	966	0	0
	Colebee	Lots	0	111	36	150	175	175	153	689	190	0
		Dwellings	0	12	50	95	150	175	175	645	343	0
	Pipeworks	Lots	0	251	0	0	0	0	0	0	0	0
		Dwellings	0	369	15	2	0	0	0	17	0	0
	Plumpton	Lots	408	178	0	8	48	47	48	151	44	0
		Dwellings	715	294	56	54	50	48	47	255	108	0
	Riverstone	Lots	0	4	0	0	14	27	50	91	600	2,000
		Dwellings	1	6	0	0	0	14	27	41	350	1,900
	Riverstone West	Lots	0	0	0	0	0	0	0	0	0	0
		Dwellings	0	0	0	0	0	0	0	0	0	0
	Schofields	Lots	0	0	0	100	150	150	150	550	400	1,300
		Dwellings	0	1	0	0	100	150	150	400	400	1,150
	Second Ponds Creek	Lots	2	788	659	538	418	500	0	2,115	0	0
		Dwellings	0	595	452	633	538	418	500	2,541	0	0
	St Marys ADI	Lots	0	600	214	250	250	250	250	1,214	267	0
		Dwellings	0	338	205	230	250	250	250	1,185	677	0
	Sunnyholt	Lots	1,080	96	0	0	12	24	33	69	0	0
		Dwellings	1,864	202	37	31	33	29	24	154	4	0
	Completed Release Areas	Lots	876	0	0	0	0	0	0	0	0	0
		Dwellings	1,662	0	0	0	0	0	0	0	0	0
Blacktown Total	Lots	5,679	3,546	1,211	1,558	1,873	2,100	1,038	7,780	2,971	5,440	
	Dwellings	6,951	4,502	1,068	1,379	1,633	1,890	2,100	8,070	3,276	5,370	

Source: Department of Planning and Environment (2011)

## Conclusion

There appears to be increasing supply of new dwellings and lots for development in the Hawkesbury LGA. The number of building approvals has fluctuated over the last ten years, with the 2007 figure less than half that of 2006 and then increasing from that onwards to a new peak in 2015. On the other hands, the number of net additional dwellings completed has been increasing from around 60 dwellings in 2006 to almost 170 dwellings per annum in 2015. This increasing supply reflects the recent surge in Sydney's residential market. In addition, there is ample supply of new dwellings and lots for development in the neighbouring Blacktown LGA.

<sup>3</sup> Department of Planning and Environment, 2011. *MDP for North West Subregion*

## 2.4 Migration patterns

### Demographic characteristics

Migration patterns to the Hawkesbury LGA have been assessed as a proxy in order to determine the likely characteristics of the incoming population at the Vineyard Stage 1. A range of demographic characteristics have been assessed, including dwelling type, income and age profiles.

In terms of dwelling type, the majority of recent migrants to the Hawkesbury LGA live in detached houses (79 percent). This is followed by semi-detached dwellings such as townhouses (14 percent), and then flats, units or apartments (5 percent).

In terms of income, Hawkesbury LGA migrants are slightly less likely to be in the top income bracket than the residents of Sydney as a whole. Only 4 percent of recent migrants earn more than \$104,000 per annum, compared to 7 percent of Greater Sydney residents. However, the proportion of low and medium income migrants is similar, with 35 percent of migrants in Hawkesbury LGA earning under \$32,000 per annum, compared to 36 percent of Greater Sydney residents. The median personal income of the migrants to Hawkesbury LGA is around \$900 per week, which is almost 50 percent higher than the median personal income (i.e. \$622) in Hawkesbury LGA.

The average housing occupancy rate for Hawkesbury LGA migrants is 2.74 residents per dwelling, compared to 2.67 residents per dwelling in Greater Sydney.

The age profile of migrants to the Hawkesbury LGA is younger than that of Greater Sydney. 67 percent of migrants are aged under 40, compared to 56 percent of Sydney residents. Migrants are predominantly of working age, with 66 percent aged between 20 and 59, compared to 57 percent of Sydney residents.

## 2.5 Affordable house prices

Housing affordability thresholds have been tested for the Vineyard Stage 1. Housing affordability examines the relationship between income and house prices and is typically expressed in price-to-income or income-to-price ratios. For this analysis the income-to-price ratio of 30 percent of moderate gross household income spent on housing payments has been used.

It is difficult to predict the profile of the incoming residents, as it would be determined by the type of housing products being offered by the Precinct. The income profile of Hawkesbury LGA migrants is used here as a proxy for the income levels of the future residents. However, it is worth noting that some of the migrants to Hawkesbury LGA might have bought large lot properties. As such, their incomes may not be representative of the likely incomes of future households in Vineyard Stage 1, particularly those occupying a relatively smaller lot.

To convert the median personal income to household income, the current household to personal income ratio in Hawkesbury LGA (i.e. 2.57) is used. The resultant median household income is estimated to be \$2004 per week in 2011 or \$2195 when adjusted to 2016 dollars using CPI.

For the purpose of this analysis, the moderate gross household income range is defined as being between 80 to 120 per cent of the median household income. Based on the income profile of Hawkesbury LGA migrants, the moderate household income is calculated to range between \$1,756 and \$2,634 per week.

To calculate the maximum monthly mortgage repayment the following assumptions have been used:

- Purchasers make a 10 percent deposit
- The mortgage period is 30 years

- The interest rate is fixed at 7.4 percent (this is the assessment rate used by CBA and NAB for home loan approvals and therefore is used as a proxy for the long term home loan rate), and
- Purchasers pay no more than 30 percent of their gross income on mortgage repayments.

With these assumptions and the moderate household income range for the Hawkesbury LGA the affordable dwelling price benchmark for the incoming population lies between \$366,657 and \$549,800.

# 3 HOUSING DEMAND MODELLING

This section examines underlying demand. Underlying demand is driven by demographic trends. It differs from observed (or effective) demand, which is influenced by factors such as changes in the level and distribution of household income, interest rates, credit conditions, employment trends and confidence, as well as demography.

## 3.1 Method

SGS has constructed a housing demand model which aligns dwelling types with family types. By examining these patterns at a broad spatial level it is possible to determine underlying housing preferences. This forms the basis of a forecast of underlying demand for housing and enables a breakdown by dwelling type and number of bedrooms based on predicted population growth and demographic characteristics.

The underlying demand for particular dwelling types for Vineyard Stage 1 has been estimated using a 'propensity-based model'. The propensity to belong to a particular household is expected to change over time with decreasing fertility rates and changing lifestyle choices. It is difficult to estimate the extent to which family types or the propensity of particular family types to live in specific dwelling types will change in the future. Typically, the forecast result will ascribe the decreasing prevalence of traditional family units (composed of a mother, father and two children). The methodology used to encapsulate these forecast changes in the relationship between population and dwellings is described below.

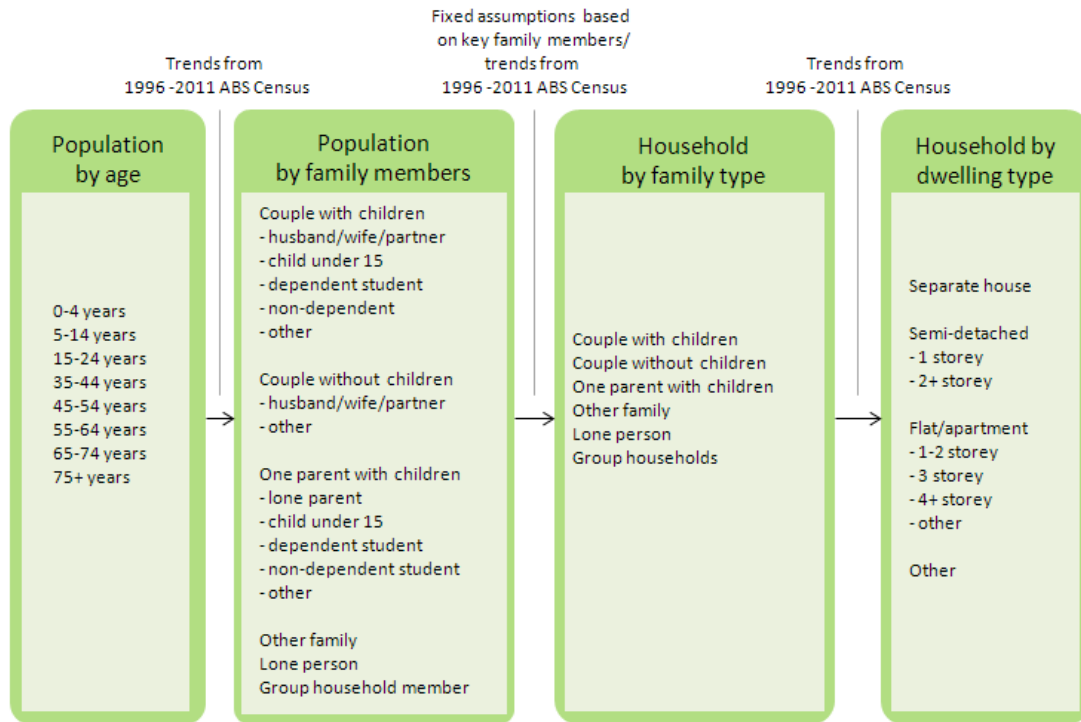
It should be noted that by definition, the forecasts are for **underlying demand** as the model incorporates revealed preferences from the Census (which incorporates current supply, implying that census data is in fact equilibrium points) and not stated preferences (using survey data). While there is a theoretical equivalence between the two concepts (weak axiom of revealed preference), the use of supply constrained Census data may mask 'true' preferences in the housing market.

Each step of the methodology is briefly described below:

1. Population estimates for the Vineyard Stage 1 by age group are sourced from the Bureau of Transport Statistics (BTS). The BTS projections were prepared in 2014 based on the Department of Planning and Infrastructure's LGA level population projections and dwelling supply forecasts available at that time. As such, the population estimates may not take into account the most recent Precinct Planning. In light of this, the BTS figures have been used as a starting point to develop an initial understanding of the likely dwelling yield and mix in the Vineyard precinct.
2. The Vineyard population projections have been disaggregated into family/relationship type using propensities from the Hawkesbury LGA. The future distribution between age group and family/relationship type is linearly extrapolated based on the trends in 1996, 2001 and 2006 ABS Census data<sup>4</sup>. Projected family types (by number of persons) are converted to number of households based on trends observed in household sizes of different family and household types in the 2001, 2006 and 2011 ABS Census data.
3. Projected family types are then disaggregated into dwelling types. Again, future distribution is linearly extrapolated based on the trends in 2001, 2006 and 2011 ABS Census data.

<sup>4</sup> 2001 Census data has been omitted since the ABS has ceased providing breakdowns of population by age and family type.

FIGURE 11 HOUSING DEMAND MODEL OVERVIEW



Source: SGS Economics and Planning, 2014

### 3.2 Results

Table 5 shows how the forecast population for Vineyard Stage 1 sourced from BTS is distributed into household groups when using the Hawkesbury LGA household propensities. The table shows that between 2011 and 2041, the number of persons living in couple with children households is estimated to increase from 144 in 2011 to 1,627 people in 2041, an average annual growth rate of 8.42 percent.

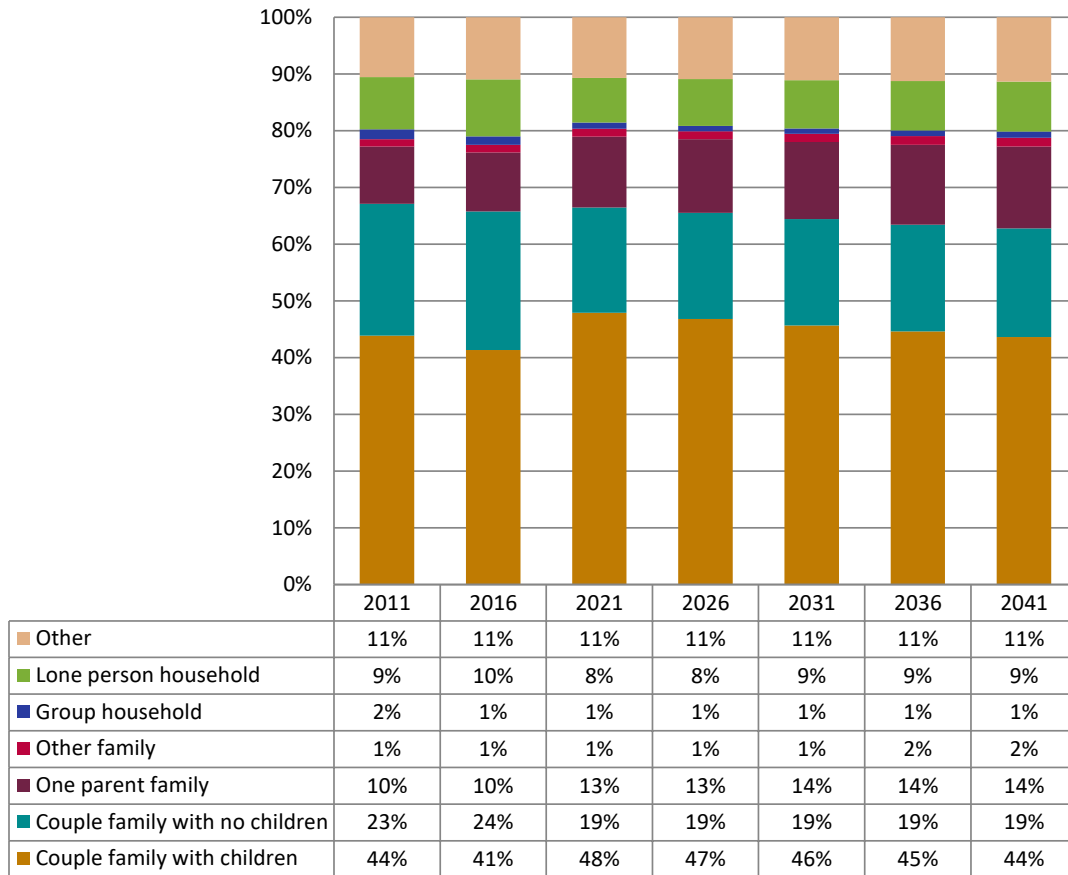
TABLE 5 HOUSEHOLD TYPE PROPENSITIES PROJECTED TO 2041, VINEYARD STAGE 1

	2011	2016	2021	2026	2031	2036	2041	2011 - 2041 Change	AAGR, 2011 - 2046
Couple family with children	144	137	358	906	1,608	1,629	1,627	1,483	8.42%
Couple family with no children	76	81	139	362	661	686	716	639	7.75%
One parent family	33	34	94	252	478	514	537	504	9.75%
Other family	4	4	10	27	51	55	58	54	9.00%
Group household	6	5	8	18	33	37	40	35	6.80%
Lone person household	30	33	59	159	300	317	329	299	8.29%
Other families	35	36	80	211	390	410	422	388	8.70%
<b>Total Persons</b>	<b>328</b>	<b>331</b>	<b>748</b>	<b>1,935</b>	<b>3,521</b>	<b>3,649</b>	<b>3,729</b>	<b>3,401</b>	<b>8.45%</b>

Source: SGS Economics and Planning (2016).

The relative shares of each family type are shown at five year intervals in Figure 12 for the Hawkesbury LGA. Shares of different family types are expected to remain relatively constant. Childless couples are expected to decline from 23 to 19 percent of the population, while couple families with children are expected to remain the most prevalent family type.

FIGURE 12 PROJECTED SHARE OF PERSONS IN EACH FAMILY TYPE, HAWKESBURY LGA PROPENSITIES



Source: SGS Economics and Planning (2016).

Table 6 shows the dwelling demand forecasts for the Vineyard Stage 1 in terms of house types based on the Hawkesbury LGA propensity. By 2041, there is expected to be an estimated demand for:

- 1269 additional separate dwellings
- 180 additional semi-detached/ row/ terrace/ townhouse dwellings
- 40 additional flat/ unit/ apartment dwellings

TABLE 6 DWELLING DEMAND FORECAST FOR THE VINEYARD STAGE 1 BASED ON DWELLING TYPE PROPENSITIES OF THE HAWKESBURY LGA

	2011	2016	2021	2026	2031	2036	2041
<b>Separate house</b>	<b>113</b>	<b>117</b>	<b>235</b>	<b>613</b>	<b>1,118</b>	<b>1,164</b>	<b>1,269</b>
<b>Semi-detached / row / terrace / townhouse</b>	<b>13</b>	<b>14</b>	<b>27</b>	<b>72</b>	<b>137</b>	<b>147</b>	<b>180</b>
<b>Flat / unit / apartment</b>	<b>5</b>	<b>5</b>	<b>9</b>	<b>23</b>	<b>38</b>	<b>37</b>	<b>40</b>

Source: SGS Economics and Planning (2016).

### 3.3 Summary - likely dwelling types and densities

The table below indicates the split of projected housing demand by dwelling type based on the Hawkesbury LGA propensities. This suggests that 85 percent of the future residents in Vineyard Stage 1 would like to live in a detached house.

TABLE 7 SHARE OF PROJECTED DEMAND BY DWELLING TYPE

<b>Hawkesbury LGA</b>	
<b>Separate house</b>	85%
<b>Town house/attached</b>	12%
<b>Apartment</b>	3%
<b>Total</b>	100%

Source: SGS Economics and Planning (2016).

# 4 DEVELOPMENT FEASIBILITY

The housing demand forecasts show strong preference for detached over attached homes in the Hawkesbury LGA, implying that low-density detached houses are likely in the highest demand in Vineyard Stage 1. However, there may be opportunities to deliver some form of medium density housing (MDH), as the facilities and amenity in the precinct are being established.

The following section first examines the development feasibility of MDH in Vineyard Stage 1. As mentioned in the earlier section, consultation with real estate agents and property experts revealed mixed views of the feasibility of MDH in this area. Therefore, it is necessary to model the associated development costs and revenue to assess if it would be economically viable to deliver denser and more affordable housing types in Vineyard Stage 1.

## 4.1 Types of medium density housing

The majority of dwellings currently being delivered in new release areas are at densities of between 13-15 dwellings per hectare. Therefore, medium density housing often refers to housing types with densities of 15 to 45 dwellings per hectare.

The development industry operating in new release areas suggests that MDH can be delivered through different types of housing projects, ranging from subdivided small lot housing to townhouses, villas and apartments delivered through multi dwelling projects<sup>5</sup>.

As the vast majority of Vineyard Stage 1 is considerably far from a rail station or major centre, the relatively low land value in the Precinct is less likely to support viable apartment developments given its higher construction and development costs compared to detached and attached houses. As such the feasibility testing of the MDH has focused on two housing types. These are described below along with assumed delivery models.

1. **Small lot detached houses** – lots are first produced by land developers through a standard subdivision process and then purchased by mum and dad buyers who will fund the construction of their preferred project homes.
2. **Attached dwellings** – delivered using the integrated housing model, which requires the design, approval and construction of the dwellings prior to registration of the subdivision. This will require the developers to design and fund the construction of the dwellings.

This analysis will assess the development feasibility of both dwelling types, with a lot size of either 225 square metres or 300 square metres for each dwelling.

The former (i.e. 225 sqm lot size) is the smallest individual lot where compact project homes have been built by individual builders directly for the owner in some new master planned estates, such as Ropes crossing, Jordan Springs, and Nelson Ridge<sup>6</sup>. So the intent here is to assess whether this lot size can stack up in this location, if set as the minimum lot size for dwelling houses. On the other hand, the latter (i.e.

<sup>5</sup> The Tradestone Company, The Delivery of Medium Density Housing in New Release Areas, October 2012

<sup>6</sup> Ibid



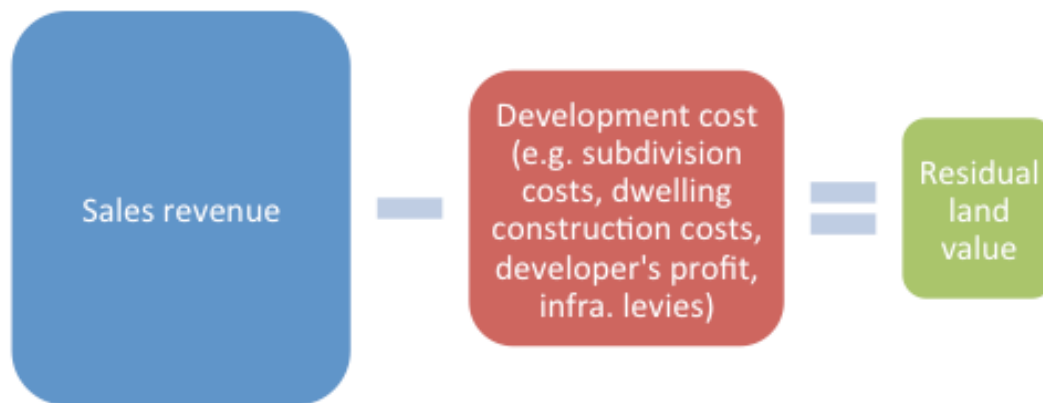
300 sqm) is probably more closely aligned with the market preferences in this location, as it is the lower end of the land size being sold in the North West.

## 4.2 RLV approach

The feasibility assessment of the aforementioned dwelling types and lot sizes utilises a residual land value (RLV) model. The RLV model calculates the residual value of a development after deducting all the development costs from the sales revenues, in the current market.

This calculation is illustrated in the diagram below.

FIGURE 13 RESIDUAL LAND VALUE CALCULATION



Source: SGS, 2016

The development is considered feasible when the residual land value is greater than the cost to acquire the land. This is given as a ratio in the model where a feasibility ratio >1 translates to a feasible development.

The cost and revenue assumptions and other model inputs are discussed in detail below.

## 4.3 Key inputs and assumptions

### Basic land acquisition cost

In the process of developing land for housing in a greenfield location, the land will need to be first assembled by a developer or a land assembling agent before any subdivision work can be undertaken. If the current land ownership pattern is fragmented, then this assembling process will be longer and possibly cost more. Nevertheless, the developer needs to acquire the land from the current owner to enable the land development.

As such, the current land value (or purchase cost) is one of the key inputs to the RLV model. It is important that land values are as accurate as possible. If inflated or undervalued they will have an erroneous influence on the feasibility analysis.

A per-sqm land value was derived from the sales of non strata-tilted properties in Oakville in 2015-16, with an average lot size of around 2 hectares. Based on these recent sales, the current land value at Vineyard is estimated to be around \$94 per square metre.

### **Finance costs**

It is assumed that half of the land purchase will be funded through borrowing, which will incur an interest expense to the developer. The potential finance cost for the land purchase is calculated by applying an interest rate of 10 percent p.a. to 50 percent of the land purchase price over a 2 year period.

No interest charge on construction costs of the attached dwellings is included in this analysis, as it is reasonable to assume that the profit margin included in the development cost (e.g. cost of land subdivision) would be sufficient to cover the finance cost of the construction cost.

### **Stamp Duty**

Stamp duty is costed at the rate as dutiable by the NSW Government. There is a lump sum and then proportional rate for any dollars over the threshold the lump sum is charged for. The proportional rate and lump sum vary according to the transfer value of the land purchase and are payable by the purchaser.

### **Development costs**

#### **Infrastructure levies**

The land in greenfield areas will also need to be serviced by trunk and lead in infrastructure. The cost associated with the infrastructure servicing varies depending on the capacity of and proximity of the precinct to the existing infrastructure. For the purpose of this analysis, it is assumed that the maximum cap for the amount of development contribution under s.94 (i.e. \$30,000 per dwelling) will apply to the developments in Vineyard Stage 1.

In addition to the s.94 contribution, a Special Infrastructure Contribution (SIC) is levied by the State Government to help fund regional infrastructure. The contribution rate (as at 1 July 2016) for residential land within Western Sydney Growth Areas is \$205,258 per hectare of net development areas.

#### **Subdivision costs**

In absence of the detailed costing for the subdivision work, the following broad assumptions have been used for the two lot sizes. These assumptions have been sense-checked by the Infrastructure Master Planner.

- 225 square metre lot: \$80,000 per lot
- 300 square metre lot: \$100,000 per lot

The difference in subdivision costs reflects the efficiency in developing smaller lots through spreading the costs over a larger dwelling yield.

#### **Remediation costs**

It is assumed that the cost for demolition and remediation is \$50,000 per hectare. This has been based on the assumptions used in previous feasibility modelling for a new release area.

#### **Building costs**

As the small subdivided lot will be sold by the land developer prior to the construction of the dwelling, no building cost is included in the feasibility model for the first dwelling type.

The per-sqm construction costs of attached house have been sourced from the Rawlinsons Construction Handbook 2013. These rates are shown in the table below. These per-square metre costs were applied to the building area of the attached dwelling to estimate the building costs.

**TABLE 8 PER-SQM CONSTRUCTION COST**

Dwelling type	Rawlinson’s development type	Construction cost (\$/sqm), excl. GST
Attached dwellings with a lot size of 225 sqm	Project house – 120-140 sqm, brick and veneer, median standard finish with fit-out	\$1200
Attached dwellings with a lot size of 300 sqm	Project house – 160-190 sqm, brick and veneer, median standard finish with fit-out	\$1170

Source: Rawlinson’s Construction Handbook, 2015

**Other development costs**

There are a number of other cost assumptions which go into the model. These include professional fees, external works, construction contingencies, sales expenses and developer’s profit margin. The sales expenses are displayed in Table 9.

Note that in reality, the profit margin set by a developer varies across different projects, depending on the level of risks involved, the risk appetite of the developer and the capital structure for the project. We consider a 20 percent profit margin to be typical and have included this in the feasibility analysis<sup>7</sup>.

**TABLE 9 OTHER DEVELOPMENT COSTS**

<b>Other development costs</b>	
Professional fees	9.5% of construction costs
External works	3% of construction cost
Construction contingency	10% of construction cost
<b>Sales expenses</b>	
Commission on Sales	3.0% of sales revenue
Legal Fees	0.5% of sales revenue
Marketing	0.5% of sales revenue
<b>Total</b>	<b>4%</b>

Source: SGS, 2016

**Other costs**

**GST**

No GST for both construction costs and sales revenue is included in this analysis. GST payable on the land purchase has been deducted from the land acquisition cost as input credits.

**Revenue assumptions**

To establish the likely revenue from the housing development, an achievable sales price was determined for both the subdivided lot and attached housing with varying lot sizes. The price points for small lots have been estimated based on the land sale prices at Riverstone Precinct, but adjusted to reflect the smaller land area than those sold on the market. Attached house prices are assumed to be around 90 percent of the value of a detached house (including both land and house value) according to the advice from real estate agents.

The following table shows the estimated sale prices for both the subdivided lot (i.e. land only) and attached housing.

<sup>7</sup> Bryant, Lyndall (2010) Constraints to cost effective land supply. In of the 16th Annual Conference of the Pacific Rim Real Estate Society, Pacific Rim Real Estate Society (PRRES), InterContinental Hotel, Wellington, New Zealand. Page 19, <http://eprints.qut.edu.au/32586/>

TABLE 10 PRICE RANGES FOR RESIDENTIAL AND RETAIL, INCLUDING GST

Development type	Estimated sale price
<i>Small individual lot</i>	<i>Land only</i>
225 sqm land	\$300,000
300 sqm land	\$400,000
<i>Attached houses</i>	<i>Land and dwelling</i>
225 sqm land	\$445,500
300 sqm land	\$574,200

Source: SGS estimates, 2016

## 4.4 Feasibility results

Using the aforementioned inputs and assumptions, the net profit (in addition to the 20 percent profit margin included in the development costs) were calculated for each dwelling type with a lot size of either 225 or 300 square metres, using the RLV Model.

The feasibility results, together with some calculations, are shown in the table below.

TABLE 11 FEASIBILITY RESULTS

	Attached houses		Individual lots (land only)	
	300	225	300	225
<b>Typical lot size (sqm)</b>	300	225	300	225
Internal size of dwelling (sqm)	190	140	N/A	N/A
<b>Current land value</b>	\$28,200	\$21,150	\$28,200	\$21,150
<b>Land development costs</b>				
Demolition & Remediation cost	\$2,143	\$1,607	\$2,143	\$1,607
Subdivision cost	\$100,000	\$80,000	\$100,000	\$80,000
s.94 contribution	\$30,000	\$30,000	\$30,000	\$30,000
SIC	\$6,158	\$4,618	\$6,158	\$4,618
<b>Dwelling development cost</b>				
Construction cost	\$228,000	\$163,800	N/A	N/A
External works	\$6,840	\$4,914	N/A	N/A
Professional fees	\$22,310	\$16,028	N/A	N/A
Construction contingency	\$25,715	\$18,474	N/A	N/A
<b>Profit margin - 20%</b>	\$73,260	\$56,005	\$27,660	\$23,245
Sales revenue	\$574,200	\$445,500	\$400,000	\$300,000
Sales expense	\$22,968	\$17,820	\$16,000	\$12,000
<b>Net sales revenue</b>	<b>\$551,232</b>	<b>\$427,680</b>	<b>\$384,000</b>	<b>\$288,000</b>
<b>Residual land value</b>	<b>\$56,807</b>	<b>\$52,233</b>	<b>\$218,039</b>	<b>\$148,529</b>
<b>Land acquisition</b>				
Land purchase price (with 20% uplift)	\$33,840	\$25,380	\$33,840	\$25,380
Stamp duty	\$1,000	\$553	\$1,000	\$553
Finance cost	\$3,384	\$2,538	\$3,384	\$2,538
<b>Total land acquisition cost</b>	<b>\$38,224</b>	<b>\$28,471</b>	<b>\$38,224</b>	<b>\$28,471</b>
<b>Net Profit</b>	<b>\$18,583</b>	<b>\$23,762</b>	<b>\$179,815</b>	<b>\$120,058</b>

The developments of both small individual lots and attached houses are likely to be profitable in Vineyard Stage 1. Developing land for small lot dwellings is expected to generate a net profit of between

\$120,000 and \$180,000 per lot, depending on the subdivided lot size, whereas the profit from developing attached houses through integrated housing model is relative moderate.

On average, the net profit difference between the two development types is around \$100,000 - \$150,000 in this case. This can be attributed to two key factors: 1) the market preference of detached houses over attached dwellings; 2) as mentioned earlier, the developer's profit margin required on both land and dwelling development imposes significant costs to the attached housing development, which contributes to approximately 20-50% of this difference.

Thus, small lot housing development is found as a more feasible means of delivering medium density housing in Vineyard Stage 1.

# 5 DWELLING DENSITY AND CAPACITY

The following section identifies a likely mix of dwellings by lot size in Vineyard Stage 1, considering the distribution of single residential dwelling sales by lot size in both the Hawkesbury LGA and selected new release areas. The likely character of the Vineyard Stage 1 is also compared against these newly developed precincts to determine this likely mix.

The land and house packages for these lot sizes are then assessed against the affordable house price thresholds established earlier. This assessment identifies the lot sizes that the incoming residents can reasonably afford.

Lastly, the dwelling capacity is estimated for the Precinct using the likely mix of lot sizes and the area of Developable Residential Land estimated by the Precinct Master Planner.

## 5.1 Likely mix of lot sizes

To determine a mix of housing densities for Vineyard Stage 1, it is necessary to examine a range of the typical lot sizes for low and medium density housing that has been delivered in the local or comparable housing market.

The distribution of single residential dwelling sales between 2011 and 2015 by lot size (see Figure 5 to Figure 7) has revealed the following mixes in both Hawkesbury LGA and selected new release areas in the vicinity.

TABLE 12 MIX OF DETACHED DWELLING SALES BY LOT SIZE

Lot size (sqm) of detached houses		% of the total sales	
		Hawkesbury LGA	New release area suburbs
Medium density	<250	1%	0%
	250 -350	3%	2%
	350 - 450	6%	18%
Low density	450 - 550	11%	62%
	550 - 650	38%	12%
	650 - 750	19%	4%
	>750	21%	1%
	Total	100%	100%

Source: SGS, 2016

Considering that Vineyard Stage 1 is a new release precinct falling in the Hawkesbury LGA, the lot size mix for detached houses is likely to be in between the two distributions above. However, the Vineyard Stage 1 is likely to vary from the character of the recently developed suburbs including The Ponds and Stanhope Gardens.

The Ponds and Stanhope Gardens are located in more established areas, in close proximity to existing infrastructure and centres, for example Rouse Hill Town Centre and Parklea Markets. Stanhope Gardens also contains a sub-regional shopping centre, Stanhope Village, which is anchored by two full line supermarkets and one discounted department store plus 40 other specialised retail, service, fashion and food outlets. Parklea Markets contains over 800 stalls offering a range of commodities including fresh

food, clothing, footwear and some bulky goods items. These developments are located in much closer proximity to other major employment centres such as Blacktown and Norwest.

On the other hand, Vineyard Stage 1 is located on the urban fringe of Sydney and is rural in character. It is expected that the character of the Vineyard Stage 1 will reflect a balance between the existing and proposed urban developments to the south and rural character to the north. Due to the contrast in location compared to The Ponds and Stanhope Gardens, it is recommended that the precinct act as a buffer between rural and urban environments and provide a higher proportion of large lot dwellings compared to the other new release areas..

In light of the above, the following distribution has been identified as a likely lot size mix for both medium and low density housing in Vineyard Stage 1.

TABLE 13 LIKELY MIX OF DETACHED HOMES BY LOT SIZE IN VINEYARD STAGE 1

	Lot size (sqm) of detached houses	% of total dwellings	% of low or medium density dwellings
Medium density	<250	0%	2%
	250 -350	3%	19%
	350 - 450	12%	79%
Low density	450 - 550	37%	43%
	550 - 650	25%	30%
	650 - 750	12%	14%
	>750	11%	13%
	<b>Total</b>	<b>100%</b>	<b>200%</b>

Source: SGS, 2016

## 5.2 Housing affordability

Based on the estimated median household income of future residents, the incoming population in Vineyard Stage 1 can reasonably afford a land and house package, ranging from approximately \$366,600 to \$550,000.

The table below compares the likely value of land and house package for each lot size to the affordable price range. Note that building costs of detached houses are based on the prices and typical lot sizes of project homes from Adenbrookhomes<sup>8</sup>, whilst the land prices of varying lot sizes have been estimated using the land sale prices in new release precinct in 2015.

The last column in the table indicates whether or not the likely land and house package for each lot size is affordable to the moderate income households at Vineyard Stage 1. While the final prices paid by individual purchasers for the land and house may vary from the values estimated below, this assessment provides a guide for the contribution of the above lot size mix to housing affordability. This assessment finds that the small lot housing up to 300 sqm would be affordable to most of moderate income households at Vineyard Stage 1.

TABLE 14 AFFORDABILITY ASSESSMENT

	Lot size (sqm) of detached houses	Estimated land price	Likely price of project homes	Likely price for land+house	Affordable?
Medium density	<250	\$300,000	\$145,000	\$445,000	Yes
	250 -350	\$400,000	\$160,000	\$560,000	Borderline
	350 - 450	\$500,000	\$175,000	\$675,000	No
Low density	450 - 550	\$600,000	\$185,000	\$785,000	No

<sup>8</sup> <http://www.adenbrookhomes.com.au/greater-sydney/homes>

550 - 650	\$680,000	\$200,000	\$880,000	No
650 - 750	\$750,000	\$230,000	\$980,000	No

Source: SGS, 2016

### 5.3 Housing mix

Following the assessment of the likely lot size mix and its affordability, the split between the low and medium density housing has been determined by the projected housing demand by dwelling type (in Table 7). To recap, the housing demand forecasts suggest the following split of dwelling demand by type in Vineyard Stage 1, if the Hawkesbury LGA propensity is used.

- Separate house: 85%
- Townhouse/attached: 12%
- Apartment: 3%

From the above assessment, we have found that the integrated housing project for townhouse/attached dwelling and apartment development is likely to be marginally viable in Vineyard. On the other hand, the small lot housing is considered a more feasible means of delivering medium density housing while contributing to housing affordability.

As such, we suggest that the demand for townhouse/attached dwellings and apartments can be met by medium density housing (i.e. small lot housing), while the demand for separate houses will be accommodated in low density housing. The latter is still seen as the standard way of meeting the need for detached houses in new release areas.

In effect, this implies the following split between low and medium density housing for the Precinct:

- Medium density housing: 15%
- Low density housing: 85%

After applying the lot size mix identified for each housing type (see Table 13) to the above split, the following mix is derived and suggested as the preferred dwelling/density mix for Vineyard Stage 1.

TABLE 15 PREFERRED DWELLING/DENSITY MIX IN VINEYARD STAGE 1

	Lot size (sqm)	% of total dwellings
Medium density	<250	0%
	250 -350	3%
	350 - 450	12%
	<b>Total MDH</b>	<b>15%</b>
Low density	450 - 550	37%
	550 - 650	25%
	650 - 750	12%
	>750	11%
	<b>Total LDH</b>	<b>85%</b>

Source: SGS, 2016

The next section examines the dwellings capacity in Vineyard Stage 1 using the above mix.

### 5.4 Dwelling capacity

The analysis completed by the Master Planner for the site finds that the Vineyard Stage 1 is able to provide a net developable area (NDA) of 163.7 hectares for residential development, after excluding the



constrained land and the land required for local roads, a neighbourhood centre, community centre, schools and open space.

Using the NDA figure provided by the Master Planner and the housing mix identified for the Precinct, the dwelling capacity has been calculated in the table below. The dwelling capacity is estimated to be around 3,000 dwellings.

TABLE 16 DWELLING CAPACITY BY LOT SIZE

	Lot size range (sqm)	Average lot size (sqm)	% of total dwellings	Dwelling capacity (dwellings)
Medium density	<250	225	0%	0
	250 - 350	300	3%	164
	350 - 450	400	12%	491
Low density	450 - 550	500	37%	1211
	550 - 650	600	25%	682
	650 - 750	700	12%	281
	>750	1000	11%	180
<b>Weighted average lot size</b>		<b>586</b>	<b>Total dwellings</b>	<b>3,009</b>

Source: SGS, 2016

# 6 DEVELOPMENT STAGING

The timing and location of infrastructure provision is one of the most important supply factors affecting the rate of development in a new release area.

However, in absence of information on infrastructure delivery program for Vineyard Stage 1, the likely rate of development has been estimated based on the demand forces first in this section.

Following this, the problem posed by fragmented ownership and possible solutions to overcome it have been discussed in a dedicated section.

## 6.1 Likely rate of development

Based on the housing projections prepared in section 3, SGS has estimated the rate of housing development in Vineyard Stage 1, which is shown in the table below.

TABLE 17. INDICATIVE RATE OF DEVELOPMENT, DWELLINGS

	0-5 years	5-10 years	10-15 years	15-20 years	20-25 years	Total
Vineyard Stage 1	780	1681	368	135	36	3000

Source: SGS estimates, 2016

This projection shows that the market demand is likely to peak in 5-10 years and then tapers off after year 15.

It should be noted that while this forecast can be used as a general guide for the rate of development that is likely to occur in Vineyard Stage 1. It does not take into account exogenous factors affecting the dwelling production rates, such as the infrastructure staging, availability and cost of financing and the condition of the broader economy as well as the fragmentation of ownerships.

Possible means to overcome the fragmented ownership issues are discussed in the next section.

## 6.2 Development staging and overcoming fragmented ownership

The most likely factor influencing the rate and location of development in the precinct is likely to be fragmented lot ownership.

### ***The problem of lot fragmentation***

Lot fragmentation often proves to be an intractable problem hindering orderly development. High levels of lot fragmentation increase the difficulty of development and can quite often obstruct some or all development from occurring. If lot fragmentation levels are low or if fragmented lots occur in non-strategically important locations, then development may be able to proceed in a relatively straightforward manner; with time and development pressure being the ultimate resolving factors. If lot fragmentation is high and in problematic areas then often the easiest way to overcome this constraint is via land pooling amongst landowners.

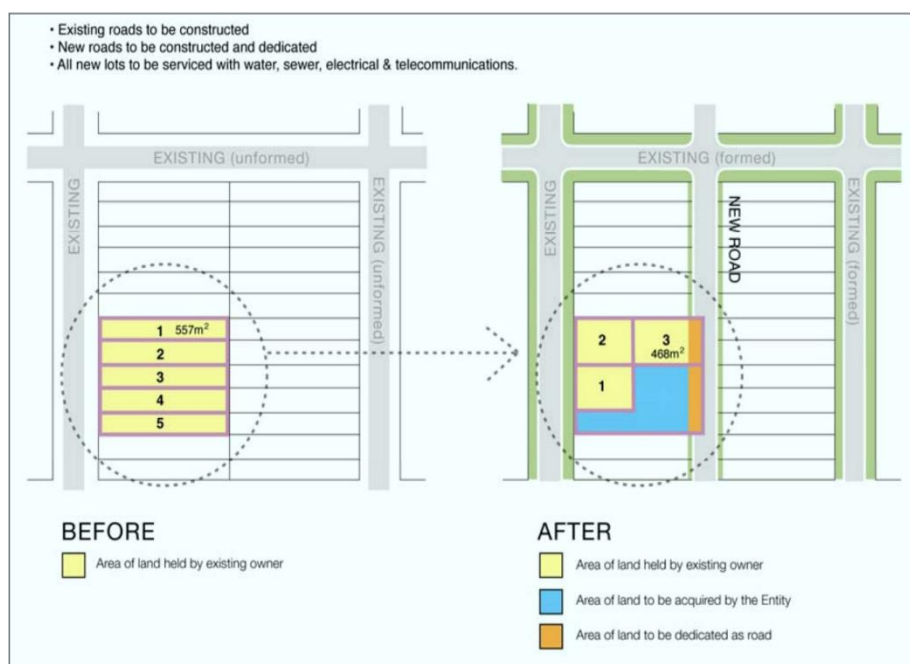
### ***Overcoming land fragmentation***

SGS Economics and Planning consulted with Landcom who are working with land owners in Vineyard and Riverstone area. Within this area there are around 3,600 lots held by over 500 landowner groups. Landcom, in association with local landowners have developed a land pooling model.

Land pooling refers to the process of consolidating adjacent lots to form larger lots. This can occur via the acquisition of neighbouring lots by a land developer or through the agreement between two or more contiguous landowners. The most common forms of lot consolidation involve one landowner purchasing a neighbouring lot or a third-party developer purchasing several lots. It is least common for individual landowners to work together as a single entity to develop lots. Although it is more expensive for a landowner or third-party developer to acquire and amalgamate sites, it is often very difficult to reach agreement between landowners, particularly when there are a larger number of parties involved.

Landcom has been working closely with landowners to identify a way for landowners without access to the large sums of money normally needed to pay for these works to develop their land. A model has been developed that enables landowners to pay for these works with part of their land, as an alternative to an upfront payment. All landowners are able to participate in the development model which has the potential to enable effective, co-ordinated and viable development of the Scheduled Lands.

FIGURE 14 LANDCOM FRAGMENTED OWNERSHIP DEVELOPMENT MODEL



Source: Landcom, 2012.

The typical model of a single landowner purchasing and consolidating neighbouring lots or a third party developer acquiring land has not been achievable in Vineyard and Riverstone. This is because the lots are very small and a large number would have to be acquired to realise viable development. The higher the number of lots needed to achieve feasible development, the higher the risk as there are often long lead times associated with negotiating with numerous landowners; hence holding costs can be prohibitive.

One of the difficulties in getting larger groups of landowners to agree is that different landowner's expectations of the value of their land may be different. Or worse an individual landowner may deliberately holdout for a higher price. In essence, the greatest underlying problem for fragmented ownership is often the differing and/or raised expectations of different landowners. Therefore, any

solution to overcoming or at least ameliorating the worst effects of fragmentation is to reduce or not inflate expectations.

Planning is often criticised, sometimes unfairly, for the way that it can artificially increase land prices by inflating expectations of landowners. Planning can create or reduce scarcity via several mechanisms, particularly zoning restrictions. It does so with the intention of creating optimal triple bottom line outcomes. However, inflated land prices are often the adverse corollary of such decisions.

Identifying a defined sequence or staging plan may provide certainty to planning authorities, but it might also exacerbate the adverse effects of fragmented ownership. It would reduce competition, potentially inflate expectations of unrealistic prices and prevent larger holdings elsewhere in the precinct from 'getting the ball rolling' on development. By not identifying particular areas for development, then a certain amount of contestability and competition is built into the market. This means that potential developers can negotiate with a larger variety of landowners across the precinct (instead of a smaller number in an area earmarked for early release) and hence can increase the opportunity for consolidation. Competition is also increased as landowners have to compete with a higher number of landowners to sell their land.

Therefore, although the development sequencing should be considered as part of the precinct planning process, it is not recommended to make a staging plan for the Precinct publicly available.

#### ***EP & A Amendment Act 2008 – Section 155***

If all of the above strategies fail to overcome the problem of fragmented ownership in the Precinct, then the DPE may seek to implement Section 155 of the EP & A Amendment Act 2008. This section relates to paper subdivisions and is currently being explored as a mechanism to overcome fragmented ownership in Riverstone. It provides powers to the Planning Minister to create a development plan for a precinct if 'at least 60% of the total number of owners of that land, and the owners of at least 60% of the total area of that land, have consented to the proposed development plan'. Once the development plan is in place the Minister has power to compulsorily acquire land and a 'reasonable monetary contribution for the provision, extension or augmentation of subdivision works' from non-participating owners. To avoid animosity this should be considered as a last resort.

# 7 RECOMMENDATION

SGS has assessed the likely mix of dwelling types and densities in Vineyard Stage 1, considering the distribution of lot sizes in new release areas in the vicinity, underlying housing demand for different dwelling types and the commercial viability and affordability of those development types at the precinct.

The analysis completed in this study identifies a preferred mix of dwelling types and densities, as shown below.

## PREFERRED DWELLING/DENSITY MIX IN VINEYARD STAGE 1

	Lot size (sqm)	% of total dwellings
Medium density	<250	0%
	250 -350	3%
	350 - 450	12%
<b>Total MDH</b>		<b>15%</b>
Low density	450 - 550	37%
	550 - 650	25%
	650 - 750	12%
	>750	11%
<b>Total LDH</b>		<b>85%</b>

Source: SGS, 2016

Based on the above mix and the NDA figure estimated by COX, it is estimated that Vineyard Stage 1 has capacity to cater for around 3,000 dwellings. A break-down of the dwelling yield by density is shown below.

## DWELLING CAPACITY BY LOT SIZE

	Lot size range (sqm)	Average lot size (sqm)	% of total dwellings	Dwelling capacity (dwellings)
Medium density	<250	225	0%	0
	250 -350	300	3%	164
	350 - 450	400	12%	491
Low density	450 - 550	500	37%	1211
	550 - 650	600	25%	682
	650 - 750	700	12%	281
	>750	1000	11%	180
<b>Weighted average lot size</b>		<b>586</b>	<b>Total dwellings</b>	<b>3,009</b>

Source: SGS, 2016

SGS has estimated the rate of housing development in Vineyard Stage 1, according to the housing projections prepared for the Vineyard Precinct in section 3. This is shown in the table below.

## INDICATIVE RATE OF DEVELOPMENT, DWELLINGS

	0-5 years	5-10 years	10-15 years	15-20 years	20-25 years	Total
Vineyard	780	1681	368	135	36	3000

Source: SGS estimates, 2016

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