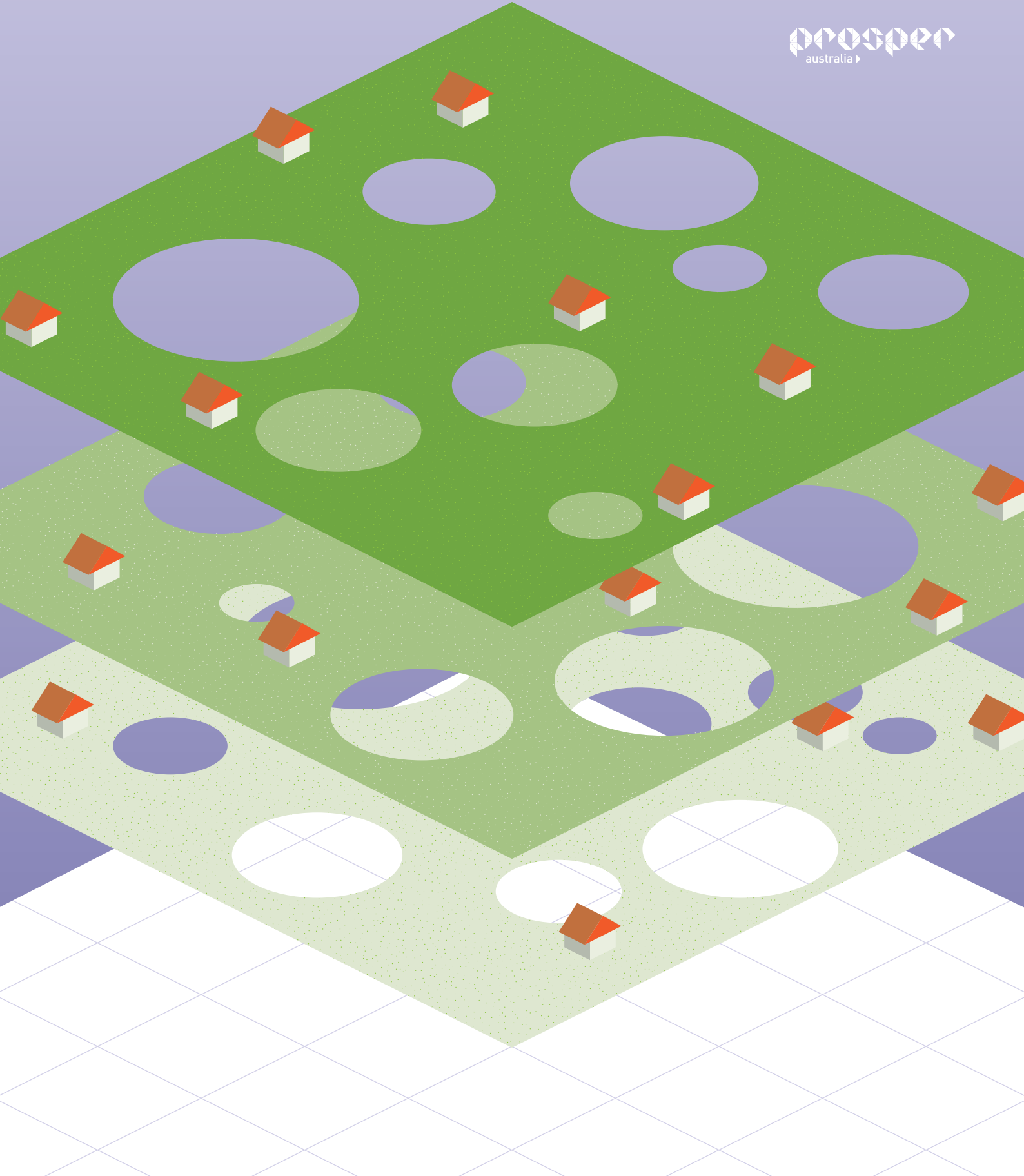


Staged Releases

Peering Behind the Land Supply Curtain

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About Prosper Australia

Prosper Australia is an independent, not-for-profit organisation campaigning for economic justice. Prosper's mission is educate policy makers and the general public in the economics of locational advantage. We advocate for the taxation of the economic rents arising from property rights in land and natural resources, including government created monopolies.

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A special thanks to Dr Cameron Murray for his assistance in this report.

Author: Karl Fitzgerald

Karl has been passionate about revealing Melbourne's hidden housing supply. He has always thought it strange that in a 'housing supply era' we barely measure under-utilised supply. His work on Speculative Vacancies - identifying idle sites by using abnormally low water consumption- did not go far enough up the supply chain, to measure what was happening in the land banks of major developers. It was here that hundreds of thousands of lots sit unmeasured and without any oversight.

Karl recently established the Global Empty Homes Network along with US NGO Local Initiatives Support Corporation & UK campaigners Action on Empty Homes. His monthly podcast, The Renegade Economists, ran for 601 episodes over 14 years.

This is Karl's final report for Prosper, where he has built up the group's research focus over 18 years. He is leaving to set up a sister organisation called Grounded - an advocacy group for Community Land Trusts. He holds a Bachelor of Economics from Monash.

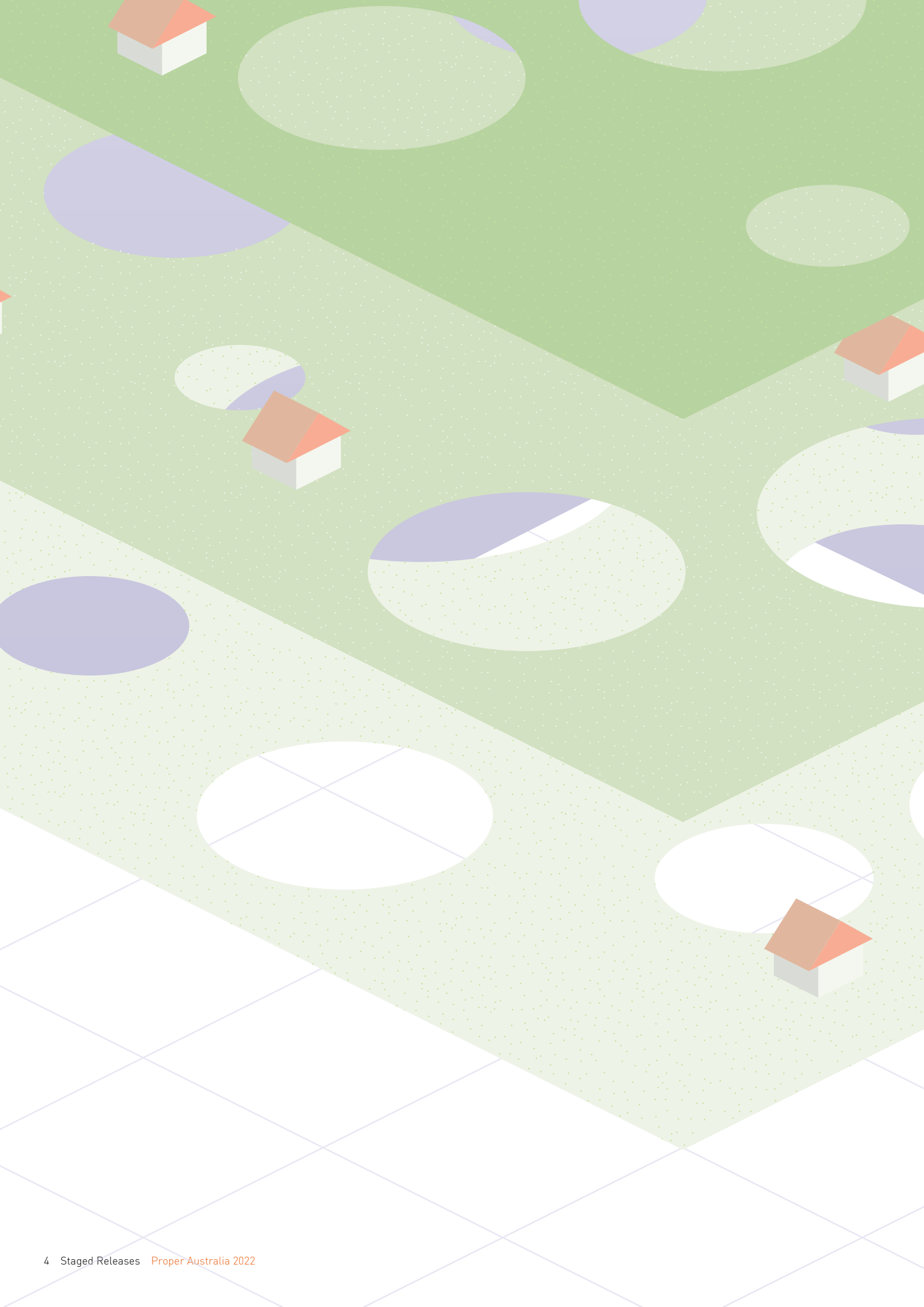
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Executive Summary

This report investigates the rate of lot sales in nine major master-planned housing developments. Our research reveals a “staged release” approach that responds to price growth but appears crafted to avoid supply-led price declines.

Based on these findings, we cannot rezone our way to affordability.

After an average 9.5 years of production time, these Master Planned Communities (MPCs) still held 76.2% of their land bank vacant across all forms of permitted housing.

Instead of prices falling with the supply capacities at hand, the average land price inflation rate was 5.5% annually in real terms i.e. after subtracting CPI. Wage growth ran at only 2.4%, some 55% less than the land price increase.¹

At average sales rates, the expected total development time frame will be 40 years, well above the stated aim of 20 years.

The analysis undertaken in the report provides insights into the strategies of developers in terms of:

- the speed at which properties are released to the market (in stages),
- what determines those sales rates, and
- the resultant pricing outcomes.

The complete record of over 25,000 sales in these nine sample subdivisions was analysed, revealing that sale rates in these large approved MPCs vary significantly according to market conditions. Markedly higher sales occurred when the market was running hot (mid 2015-mid 2017) compared to when the market cooled (18-19). The rate of sales, and hence the rate of new dwelling development, contracted 48.7% between the two periods as the promise of supply-led affordability was held at bay.

Other notable findings:

- Average lot sale prices increased \$194,010 across these projects
- The rate of sales between boom and bust periods varied by a factor of 41.4%
- Yearly supply rates were delivered at a median of 3.4% of total lots approved.

¹ ABS, [Wage Price Index](#), Table 1.

TOTAL AVERAGE SALES TO LAND PRICES

Across all 9 MPC's (3 month moving average)

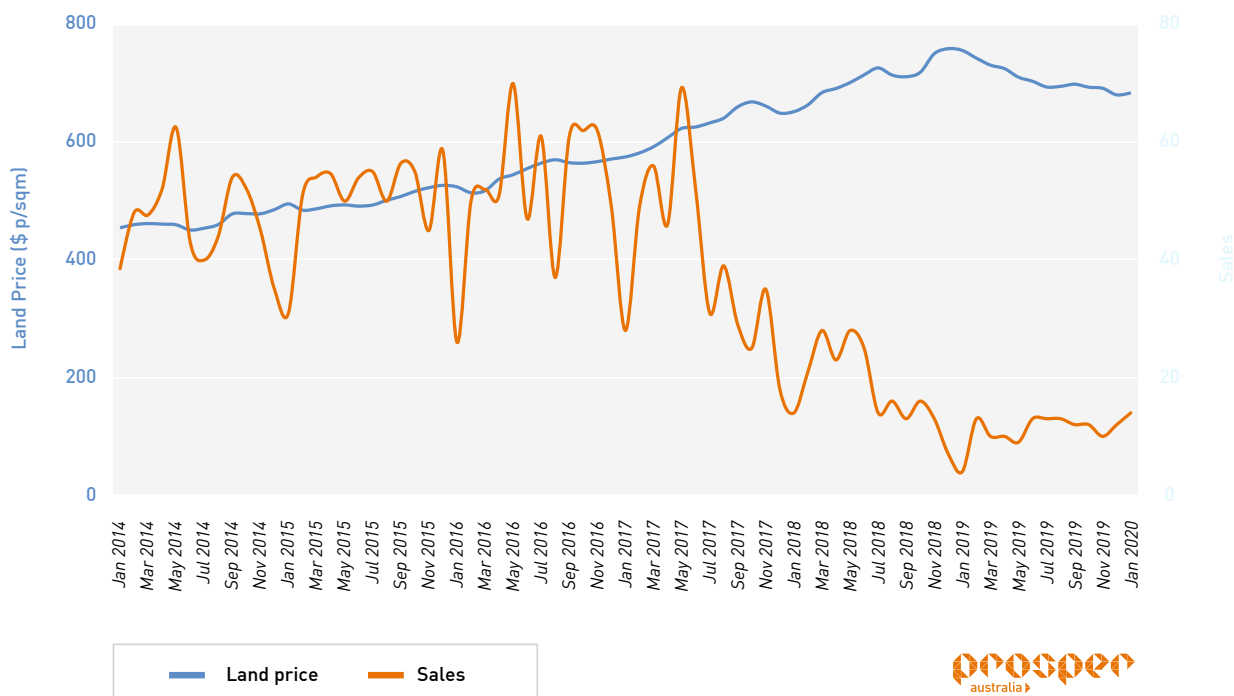


Figure 1

We can see from figure 1 that the 3-month moving average sales rate dropped rapidly from mid-2017.² However, prices kept increasing, indicating that high prices did not continue to generate new home sales. This market response, which was common across all states and planning authorities, does not meet expectations of many economists and policymakers.

It might appear sales are falling due to higher prices. But why would developers keep increasing prices if it meant losing sales or market share? The low supply response of developers allowed prices to increase for another 15 months.

If supply can be curtailed in this way, we suggest it shows that property markets are inherently monopolistic, rather than competitive, and unlike markets for goods and services. Property is an asset: land banks are patiently managed and development projects are timed to maximise overall returns.

In 2017-18, for example, MPC developers reported concerns of “stock overhang” to investors, indicating that they were able to sell more, but were unwilling to reduce prices to do so.³ Instead, major developers preferred to wait for market conditions to improve. This pricing and sales response reflects an astute result for shareholders and financiers, at the cost of public policy expectations.

2 Note the Royal Banking Commission was not announced until Dec 17, 2017. Auction clearances had started to fall by mid year. [See CoreLogic weekly clearance rate.](#)
 3 Stockland, [H1FY19 Creating Sustainable Communities](#), August 21, 2019, p28.

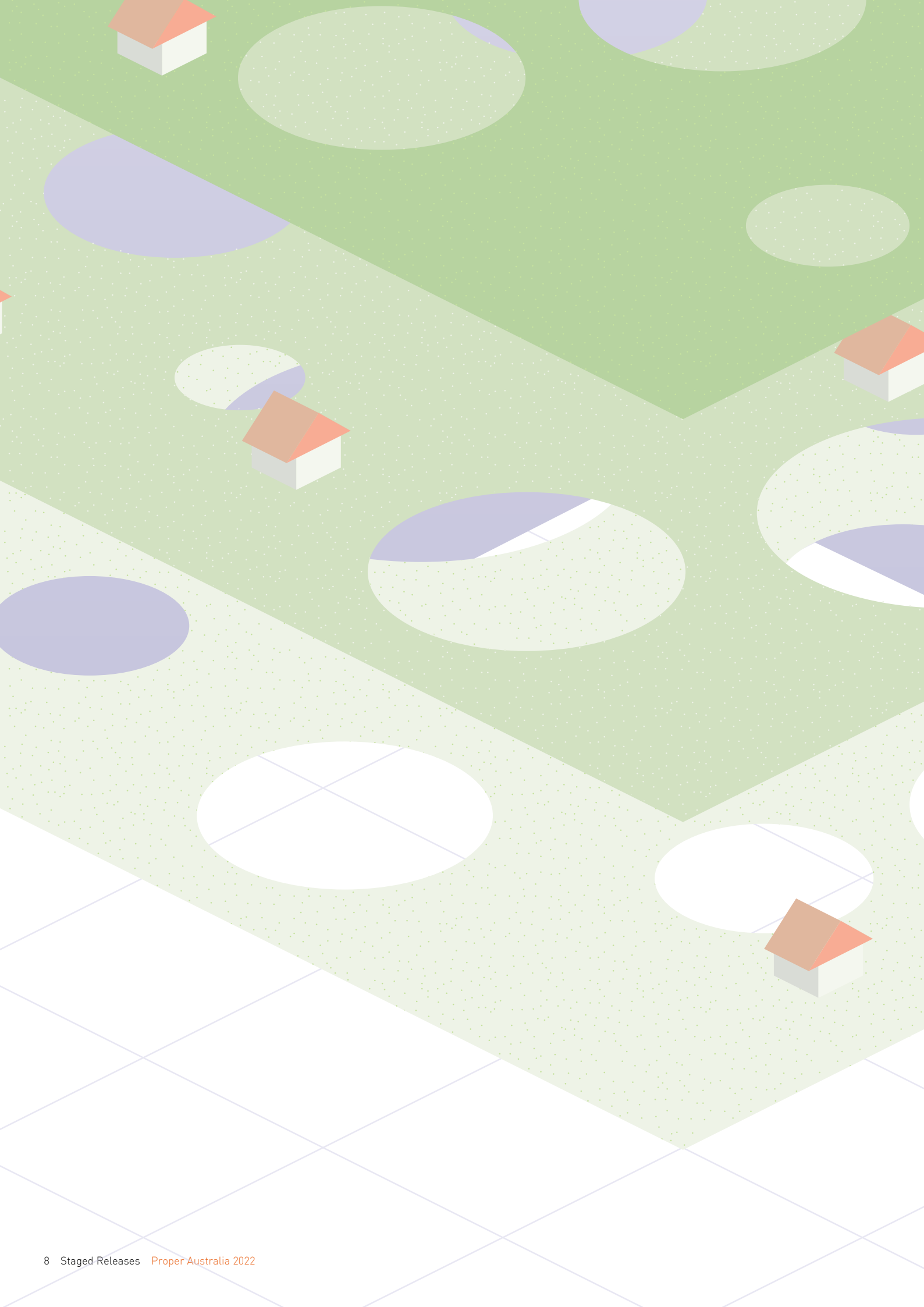
Governments and consumers do not enter this market with the same access to information. The development industry is increasingly served by a sophisticated “proptech” industry and its platforms: algorithmic analysis of trend data including auction clearance rates, days on market, listings over time, regional supply, pricing and demographics to name a few.⁴ Public officials would benefit from a more complete understanding of what is going on behind the land supply curtain when in meetings with developers over inclusionary zoning or works in kind.

Further, if we really are to understand the importance of supply, consumers should be entitled to witness the size and timing of staged releases with regards to housing affordability.

The privatisation of property data has created a significant barrier to analysis, undermining the ability of housing researchers to calculate the public policy return of decades of rezoning. This must improve.

With better data, society may well decide that new tools are needed to incentivise supply delivery instead of land banking.

⁴ *Fields, D. (2022) 'Automated landlord: Digital technologies and post-crisis financial accumulation', Environment and Planning A: Economy and Space, 54(1), pp. 160–181.*



Introduction

“I don’t know of any land developers who are not trying vigorously to bring every piece to [of] land in their bank to market as quickly as they can—to get it out there to the buyers in what has been a boom market for a couple of years now.”⁵

“The key part for us is you need to trade and trade quickly, otherwise your rate of return—we’re an internal rate of return business and the longer periods of time that we actually take to deliver products means our internal rate of return is less, and our shareholders don’t reward us for that, because we’re a publicly listed company. Our whole thing is about speed trying to get it to market...”

“Because we’re developers, we don’t hang on to what we buy. We buy it and we basically bring it to market and sell it.”⁶

Housing developers often claim that they are building new housing as quickly as possible, for economic reasons, but that planning regulations are the limiting factor.

So popular is this view, that the Parliamentary Inquiry into Housing Affordability and Supply in Australia (‘the Falinski inquiry’) was simply the most recent in a long line of reviews to look at the link between planning, the rate of new housing development, and house prices in Australia.⁷

Similar debates are occurring elsewhere. The United Kingdom’s Independent Review of Build Out inquiry (Letwin Review) pointed to local council planning delays, alongside Not-In-My-Backyard (NIMBY) opposition, as the prime determinants of high land and housing prices.⁸

The planning constraint thesis contends that prices remain high because the supply of new dwellings in accessible, desirable locations has not kept pace with demand.

The suggested policy intervention is for governments to rezone more land from non-residential to residential uses, and at higher densities, as quickly as possible. Removing regulatory barriers, rezoning and investing in enabling infrastructure such as transportation, is assumed to “allow” the market to be flooded with dwellings, depressing the price of housing.

Private sector property developers say they will build sufficient new housing to push prices down if they are allowed.

⁵ Helmers, Mr Andrew, Managing Director, MJH Group, [Falinski Inquiry Transcript](#), p1.

⁶ Rhydderch, Mr Richard, General Manager, New South Wales, Stockland, [Falinski Inquiry transcript](#), p6, 26 November, 2021.

⁷ https://www.aph.gov.au/Parliamentary_Business/Committees/House/Tax_and_Revenue/Housingaffordability

⁸ Letwin, O, [Independent Review of Build Out, UK Housing, Communities and Local Government](#), 2018.

This policy thesis is supported by various theoretical analyses and a number of empirical approaches. For example, there are many findings of a relationship between areas reported in surveys to have more restrictive planning and lower housing construction and (therefore) higher rents and prices (for example, see the review by Gyourko & Molloy 2015, pp 1316-1317).

Critiques of these studies have centred around the absence of time-based analysis to evaluate supply outcomes (Murray & Phibbs 2022; Phibbs & Gurran 2021). Indeed, despite the political acceptance of the planning constraint thesis in Australian and many peer countries, there remains a contested academic debate about the underpinning supply-side theory and the hidden assumption in some of the empirical work. (Murray 2020, 2021, Lange and Teulings 2021, J Rose 2017, Freeman & Schultz 2017).⁹

In Canada for example, the City of Mississauga, Ontario pioneered unlimited development rights yet: "...staff have found that developers phase growth in order to manage any downward pressure on unit prices."¹⁰

Like Australian state governments, the Ontario government continues to pressure cities to rezone in the hope of supply-led price declines.

When pushed about the reality of a supply-led price declines, the Real Estate Institute of Victoria chief Quentin Killan gave this response: "What you don't want to do is to have a massive rollout of supply and suddenly flood the market because then you get the inverse happening, where you actually crush the market,".¹¹

Comments like these point to a contradiction at the heart of the planning constraint thesis. Rezoning has been equated with housing supply, with no further questions asked.¹²

In this report we ask whether the private choices of property owners to supply new housing according to market conditions works against the stated public policy outcome of supply-driven affordability through rezoning.

For example, do developers curtail their rate of supply when the market softens, enforcing a pricing floor right at the time affordability could be enabled? Does this behaviour add value to projects?

This oversight is partly due to a lack of accessible, trusted and transparent inventories of latent supply, including speculative vacancy rates¹³ and zoned capacity.¹⁴ We also recognise that developers face many constraints, such as taxes and charges (i.e. infrastructure funding) that may impede their ability to supply more quickly.

⁹ For example, see also a recent series of papers published in *Urban Studies* by Rodríguez-Pose & Storper (2020), Manville et al (2022), Rodríguez-Pose & Storper (2022) that is representative of the ongoing debates.

¹⁰ [Ontario Housing Affordability Taskforce](#), p12, Feb 24, 2022.

¹¹ Graham, J, [Developers Blame Planners for Limited Housing Supply, Critics Say They're Banking Land](#), May 16, 2022.

¹² Tulip, P, [Planning Restrictions Harm Housing Affordability](#), Centre for Independent Studies, 2020.

¹³ Fitzgerald, K, [Speculative Vacancies 10 - A Persistent Puzzle](#), Prosper Australia.

¹⁴ Zoned capacity is land already zoned, but not yet built upon. A cumulative figure over time would assist the understanding of latent supply.

Neither should we ignore the political-economy of private rent capture through rezoning. Excessive focus on enabling private sector supply responses as the driver of affordability outcomes serves a useful distractory purpose for those with thousands of housing opportunities at their fingertips.

Lobbying for additional supply whilst papering over the land banks already zoned works as a driver for additional rezonings. This strategy delivers millions in rezoning windfalls to property investors in 'the right place at the right time'.

Moreover, focus on supply distracts us from the more challenging redistributive politics: the impact of investor-led demand, and the role of tax incentives for property investment.

Falling demand due to tightening credit conditions could also be a factor, but as the days on market analysis shows (as limited as it is), there is a need for further clarity around this market tension. Does demand purely drop due to credit and unemployment, or does lower supply act to level out the market?

Developers utilise staged releases to assist liquidity and financing pressures. Staging can also assist channelling homebuyers into coordinated infrastructure regions within the MPC.

There are also supply chain capacities that need scheduling within the construction industry.

We expect that each MPC has its own constraining factors in terms of planning and infrastructure delivery. Some might be due to governmental inefficiencies, some might be tactical - playing politics etc. Qualitative research is the only way to reveal these tensions in detail. Regardless, looking behind the supply curtain can help us understand why thousands of lots enter the market with no significant impact on prices.

It is not our intention to 'call out' the private sector. Rather, we call attention to the way that property markets operate in reality, which is much different to the way they are assumed in the planning constraint thesis.

The report's aim is to challenge governments at both the Federal and State levels to appreciate that significant land supply is not enough to alter the trajectory of runaway land prices.

Methodology

This report uses new metrics to show the degree to which developers vary the rate of sales in response to market conditions. We add descriptive analysis of market conditions and MPCs lifecycles.¹⁵

What we want to show is whether, independent of any planning controls on density, there is a “speed limit” on the supply of new housing - in the form of the market absorption rate.

Market absorption is the point at which developing and selling new housing fast works against the economic interests of the developer. At market absorption, we would expect to see sales rates fall.

These metrics are described in detail in Murray (2022), and are as follows.

1. Development rate ratio (DRR) — average production rate to peak rate ratio.
2. Development rate variability (DRV) — minimum production rate to peak rate ratio.
3. Delay premium ratio (DPR) – average minus minimum price divided by minimum price.
4. Delay premium variability (DPV) – maximum minus minimum price divided by minimum price.

The first two metrics (DRR and DRV) describe the variation of the rate of new sales, and the last two (DPR and DPV) describe the economic payoff from varying sales and prices. We use sales as the measure of the new housing development. It is standard in Australian greenfields to build-to-order whereby housing is only built after a sale occurs. A three month moving average window was used to smooth out both pricing movements and supply outcomes.

Each Master Planned Community (MPC) was analysed from the point of first sale until January 2020. Whilst we had access to data until mid 2021, we removed this data due to the uncertainties surrounding the pandemic.

Land price inflation (LPI) is the calculation of the increase in per metre land values over time. When calculating the LPI, comparisons are made on an inflation adjusted basis.

Comparing the typical supply rate to the boom supply rate provided another perspective on supply differentials. The average boom supply rate was calculated by identifying the highest two year period above the moving average sales rate.

¹⁵ Murray, C, [*“What’s the Rush? New Housing Market Absorption Rate Metrics and the Incentive to Slow Housing Supply.”*](#) OSF Preprints, 23 May 2022.

These figures were compared to the most significant two year sales downturn to produce the metrics on boom versus bust supply rates.

The land bank vacancy rate (or % of lots remaining) was formed by analysing the publicly available lots per development (predominantly from the developer's online listing) and measuring the potential to total sales.

The total lot numbers supporting all Master Planned Communities is conservatively estimated in that it only includes the initial development approval and not subsequent rezoning additions. For example, Manor Lakes had an extra 103 lots approved according to the Planning Department of Wyndham City Council, but these were not included in our figures.¹⁶

To ensure the relevant new property sales data is selected from the complete record of property sales, the data for each subdivision was selected based on the latitude and longitude of property coordinates falling within the subdivision boundary. The date being after the start date of sales releases for the project, the sale being the first recorded at that address, and the lot size falling within the ranges in the approved subdivision plan. All projects remained in progress as of June 2022.

We use the data to calculate the absorption rate metrics to sales contracted prior to January 2021. According to the investor reports of some publicly-listed companies, it became common during 2021 for new sales contracts, conditional upon completion of future stages not ready for settlement, to be signed and deposits taken.

The option-value of an MPC is the value of engaging in further density over time.¹⁷ This infers that as population grows, infrastructure develops and therefore the potential for an additional number of homes could be possible. By not building, developers can increase the land value of their site through natural growth factors - an increase in the option-value of the MPC. This has been largely ignored as a driver of land banking.

¹⁶ Private correspondence with City of Wyndham, June 28, 2022.

¹⁷ C Murray, [A Housing Supply Absorption Rate Equation](#), *Journal of Real Estate Finance and Economics*, Jan 2021.

Findings

We describe our nine case study projects and the supply dynamics (absorption rate, boom supply rate, typical supply rate) showing clearly the importance of monitoring what occurs behind the supply curtain.

How waiting pays

Table 1 explains the supply and pricing dynamics across the number of years in development. The supply side is understood by looking at the number of lots remaining to be developed (total lots approved minus sales) and a comparison between the boom and bust supply rates.

The supply differential was calculated as a sustained two year period above the median sales rate, and the bust period was the lowest two year average below the median.

The remaining two columns look at the demand side implications, with real land price inflation and the excess price paid for an average lot over and above the minimum price.

By comparing the % of lots remaining to the total price gain for an average lot, we can see that the 76.17% of lots remaining has contributed to an average \$194,010 in higher costs for land.

Macro findings

Master Planned Community	Years in development	% Lot remaining	Boom vs bust supply difference %	Real land price Inflation p.a	Total price gain for an average lot
Atherstone	9	69.51%	57.97%	0.17%	123,907
Aura	3.83	94.06%	19.99%	1.58%	74,916
Googong	7.91	75.61%	31.89%	3.34%	264,787
Jordan Springs	9.92	39.79%	48.33%	3.28%	260,554
Manor Lakes	16	43.31%	51.93%	7.16%	251,059
Springfield	19.1	77.24%	56.67%	8.07%	293,458
Willowdale	6.42	43.63%	38.39%	6.47%	216,873
Woodlea	5.0	76.26%	41.07%	14.55%	168,906
Yarrabilba	8.16	81.38%	26.28%	1.26%	91,627
Average / Total	9.5	76.17%	41.40%	5.45%	\$194,010

Table 1

The MPCs are now analysed in detail, per state.

New South Wales

The nation's largest city also faces the most significant geographical boundary with the beauty of the Blue Mountains acting to constrain sprawl. With this pressure one might expect the most comprehensive land supply data available.

However, of the three east coast states, NSW has the most limited transparency. The ePlanning Dashboard provides developer friendly data points such as average net determinations days (for planning approvals), number of subdivisions approved and certificates of occupation.¹⁸ However, it does little to peek behind the rezoning approvals to analyse the supply outcomes developers provide.

Background



Willowdale

*Figure 2
Willowdale masterplan
Source: Stockland*

Willowdale is a 350 hectare development 50km south west of Sydney, NSW, a few kilometres from Leppington Train station.¹⁹ It is the smallest Master Planned Community in the study. With 3,722 residential lots approved, development began in 2011. The first residents moved in during September 2013. The Master Planned Community will include 270 townhouses and a retirement village.

The subdivision masterplan is in figure 2.

As of June 2020, the company's Property Portfolio report to investors stated the project was 81% fulfilled.²⁰ By June 2021, the development was 90% completed.²¹ However, our sales records find that by April '21, the latest data we have for the site, only 58.2% of lots were sold. This could be due to data gaps from the Valuer General.

¹⁸ Dept of Planning NSW, [Local Development Performance Monitoring](#).

¹⁹ Stockland, [Willowdale's Location](#).

²⁰ [Property Portfolio report](#), Stockland, June 30, 2020.

²¹ [Property Portfolio report](#), Stockland, June 30, 2021.

Analysis

The outcomes of lots sold over our period of analysis can be seen in figure 3:

WILLOWDALE: Supply Outcomes and Pricing Dynamics

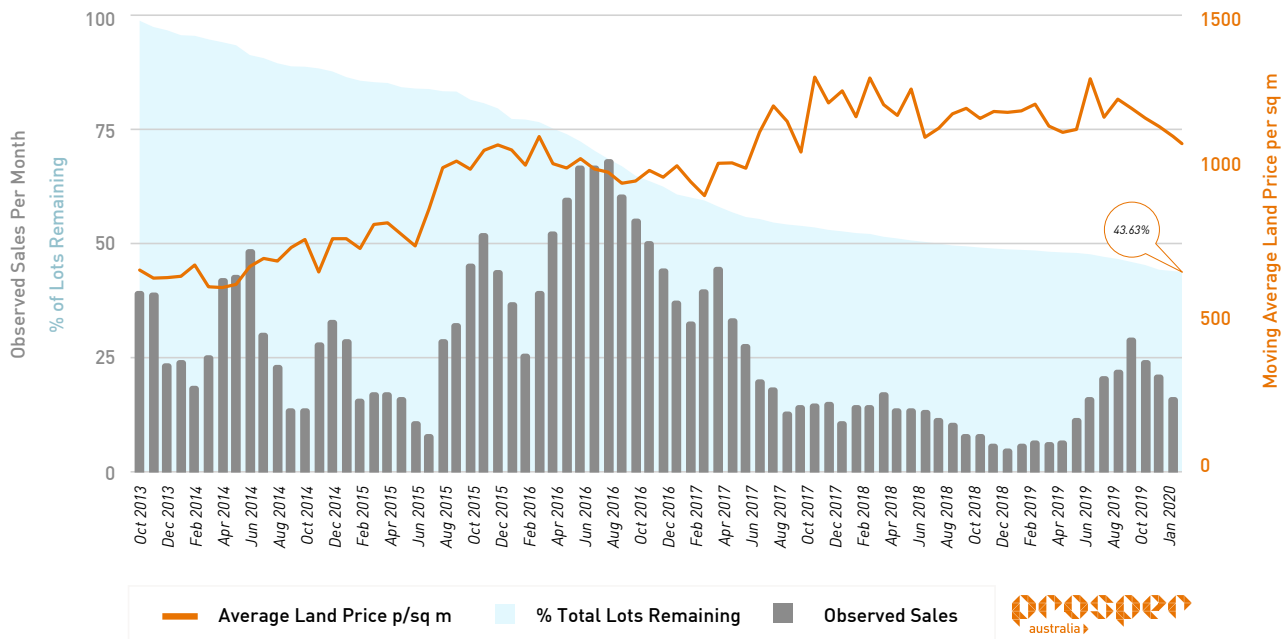


Figure 3

After 6.4 years, the development has 43.6% of supply available. This is the fastest supply delivery rate in the study, at 8.78% of total supply. This is more than twice the average supply rate of 3.9% across all developments. Despite this, prices within the development have still increased by 49.5% above CPI, at an annual rate of 6.47%.

Affordability does not improve over any six month period, even during 2018-19, when national land prices fell by twice the Global Financial Crisis.²² The developer did not maintain a sales rate at new, lower prices. Supply all but disappeared when sales price pressure was the greatest.

If we instead apply the boom supply rate of 2016-17 to the 43.6% of land supply remaining, 531 homebuyers could access sites each year rather than the 327 average.

Sales fell in May 2015, but instead of prices falling or moderating, they increased markedly. This suggests that supply was itself reduced. We can see similar reductions in sales alongside price increases from June 2017 through to June 2019.

'Days on market' data was unavailable for Willowdale. If we could see that sales were falling but days on market were constant or falling as prices increased, this would give a clearer picture of supply rationing despite steady demand.

²² ABS, [Australian System of National Accounts](#), table 61.

Summary of absorption rate metrics

Metric	Value	Interpretation
Development rate ratio (DRR)	0.38	The average speed of sales was slightly less than half the peak speed (at 38%).
Development rate variability (DRV)	0.08	The minimum speed of sales was 8% of the peak speed.
Delay premium rate (DPR)	0.53	53% additional revenue was gained by varying price.
Delay premium variability (DPV)	1.05	Revenue could have varied 105% given the price ranges observed during the project.

Table 2: Absorption rate metrics for Willowdale's detached homes

Table 2 informs us that the typical development rate average was 38% of the highest demonstrable development rate. This shows that the developer was willing to produce less than half of the sites compared to the most favourable conditions over time.

The Development Rate Variability shows that the slowest sales rate was 8% of the peak rate over the lifetime of the development. This infers that the project supply is being managed, rather than limited by supply impediments.

How do these supply outcomes influence the overall profitability of the estate? The DPR of 0.53 implies that 53% more revenue was generated than if sold at the minimum price. The delay premium variability of 1.05 demonstrates that revenues could vary by 105% when comparing the minimum to maximum price offered.

When applying the Delay Premium Variability to lots sold, the ability to reduce supply to support upward pricing has resulted in a multi-million cost burden for home buyers.

Despite this, Willowdale is forecast to be the fastest selling community in our study at 11.3 years.



Jordan Springs

Figure 4: Jordan Springs masterplan
Source: Lendlease

Background

Jordan Springs is a 900 hectare residential subdivision located in Penrith, NSW (55km west of Sydney's CBD). It was approved for development in 2009 with the first residents moving in during 2010.

By 2012 the development was owned by Lendlease. Its annual report that year stated that the area would ultimately provide over 2,080 detached dwellings and 200 apartment dwellings, with an expected 10 year development timeline.²³ The subdivision masterplan is in figure 4.

Available data on all land lot and house sales in the subdivision were analysed from 1st March 2010 to January 2020. This provided an estimated 2,890 land lot and dwelling sales in this subdivision.

²³ [Lendlease Annual Report 2012](#).

Analysis

The supply and pricing dynamics are represented in the following:

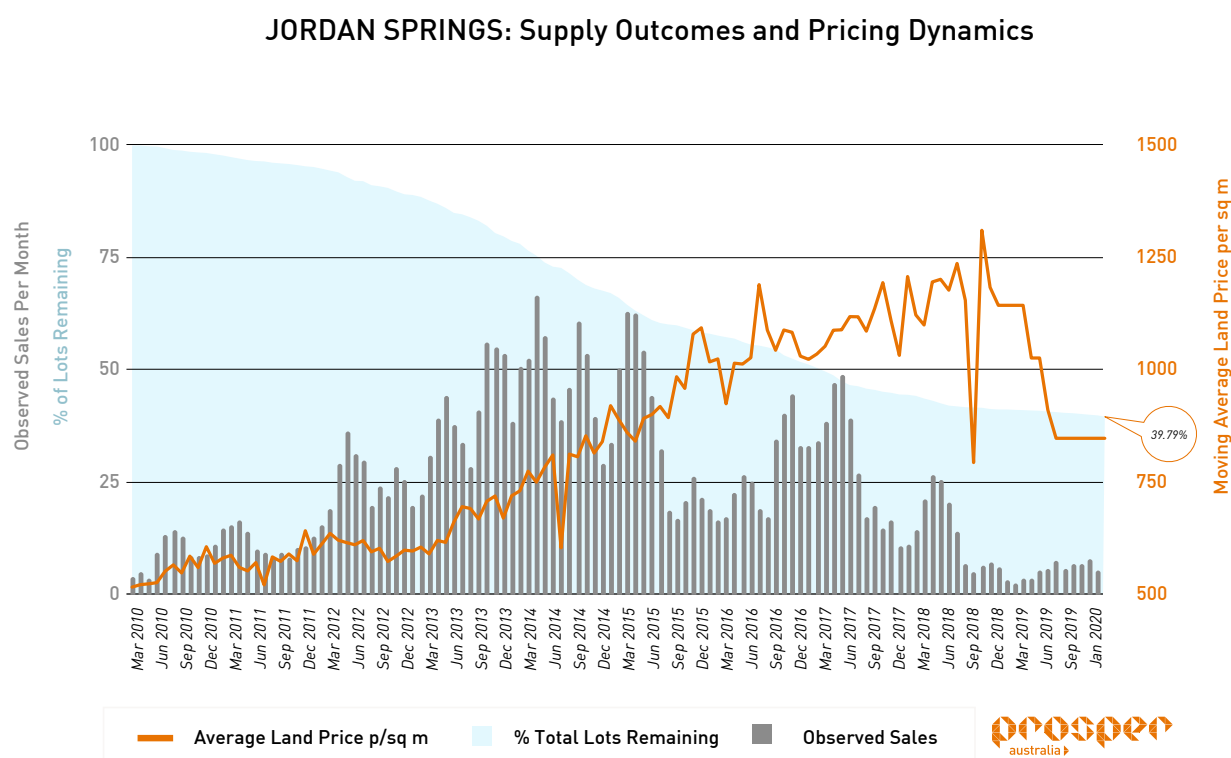


Figure 5

Figure 5 shows the 9.9 years of development, with 39.79% of supply still available. Developer Lendlease was able to maintain reasonably high sales rates from May 2012 to June 2017, seeing 1.36 of the typical sales delivered to the market compared to the total time frame analysed. Real prices increased at an annualised rate of 3.28%, with the majority of this increase coming after July 2015, a period which coincided with very low sales.

This is the only example of the nine Master Planned Communities where falling sales were followed by falling prices.

With prices still inflating in Greater Sydney,²⁴ why did median land prices start falling in late 2017?

The development has faced some difficulty, with reports reaching the media by Jan 2020 that land was sinking within the MPC.²⁵ The issue started to come to light in early 2018.²⁶ This affected property values, with over 800 property holders offered \$600m in compensation from Lendlease.²⁷

²⁴ *Op cit*, ABS, National Accounts.

²⁵ [Jordan Springs Concerns](#), Channel Nine News, Jan 10, 2020.

²⁶ Tabet, T, [Jordan Springs East Sinking Suburb](#), The Urban Developer, March 03, 2021.

²⁷ Jordan, L, [Lendlease Digs Deep for Sinking Suburb](#), Dec 15, 2020.

Despite the sinking sites, land prices within the development still increased over time by a CPI-adjusted 37.37% or 3.28% annually.

The project still has a projected 6.6 years of land supply remaining. If developers were incentivised to sell at the maximum sales rate forecast forward, supply would only last 3.4 years.

From our detailed analysis of sales data, the Delay Premium Variability rate informs that Lendlease benefitted by some \$333 million due to their pro-cyclical supply strategy.

This behaviour maximised returns for shareholders. The case study suggests developers do have the ability to reduce sales, thereby minimising price falls.

Summary of absorption rate metrics

The four absorption rate metrics for the available data on this large subdivision project are summarised in Table 3.

Metric	Value	Interpretation
Development rate ratio (DRR)	0.34	The average speed of sales was less than half the peak speed (at 34%).
Development rate variability (DRV)	0.04	The minimum speed of sales was 4% of the peak speed.
Delay premium rate (DPR)	0.59	59% additional revenue was gained by varying price.
Delay Premium Variability (DPV)	1.33	Revenue could have varied 133% given the price ranges observed during the project.

Table 3: Absorption rate metrics for Jordan Springs detached homes

On the data analysed, total revenue equated to almost \$1 billion. The 0.59 Delay Premium Rate represents \$333 million gained by varying prices during the project, rather than setting the minimum profitable price and selling all lots at that price.

Further analysis

The project’s 2017 investor prospectus indicates that over the five years the master-planned community had been underway, ‘Jordan Springs has seen a 45.2% increase in median land prices.’²⁸ Figure 6 from this investor prospectus highlights this in green:

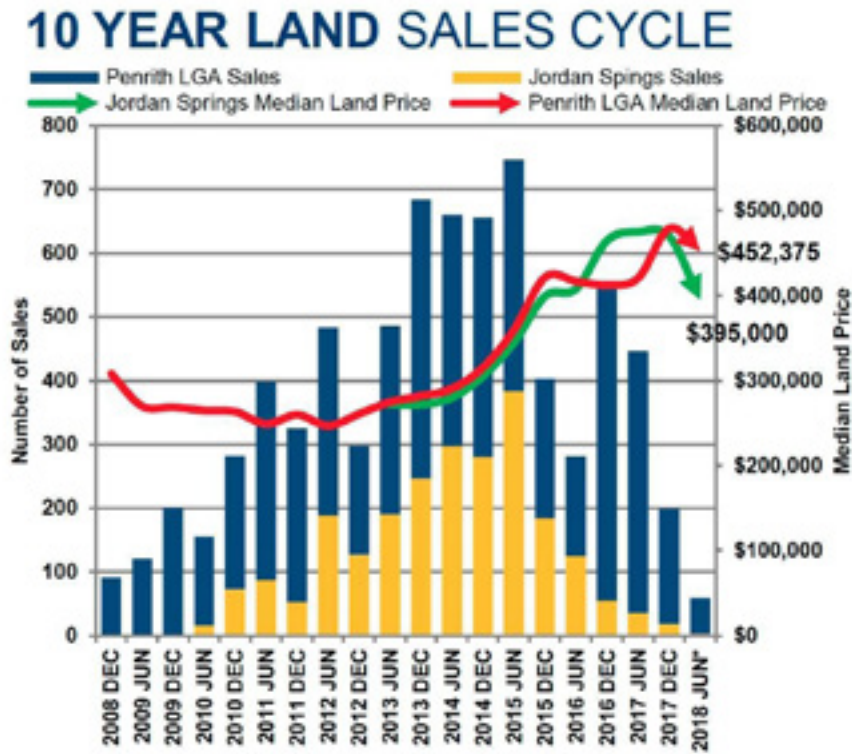


Figure 6

Of note in yellow is the falling number of sales from December 2015. As sales halved from June 2015 to June 2017 in a softening market, prices still continued their upward journey.

In most markets, prices would follow sales. However land is a sticky market, in part due to its monopolistic features. These include the ability to withhold supply, to only work with certain builders, and to only accept the listed price.

Prices continued to increase until lot offerings all but disappeared in December 2017, with less than an estimated 20 sales over the quarter. However, if we look at the number of days on the market in figure 7 (blue), the time taken to sell a property barely moved, sitting at the second lowest during this timeframe.

28 [Lendlease Investor Report, 2017.](#)

HOUSE AVERAGE DAYS ON MARKET



Figure 7
Source: PRD Nationwide Investor report, 2017

Note that the developer is reporting:

- a significant decline in sales numbers (figure 6, yellow, June 15 onwards)
- prices continuing to rise
- houses selling in a similar timeframe during a period of sales contraction

Consistent days on market suggests that the slowing lot sale rate was not simply a corollary of falling demand. Had the number of lots offered remained consistent, we would expect to see higher average days on market, and more rapid price falls as developers cut their prices to meet the fall in demand.

The developer's response to the fall in demand could be described as sales rationing; land banking must have occurred.

The enormous variation in the rate of supply in large projects such as Jordan Springs, with thousands of approved dwellings, is a clear indication of macroeconomic conditions being the main determinant of the rate of new housing supply.



Googong

Figure 8
Googong masterplan
Source: Mirvac

Background

Googong will see 18,000 people living just 16 kms from Parliament House, on the NSW side of the ACT border. The \$1.8billion project is expected to run for 20-23 years, from 2014-2034,²⁹ in a joint venture between Mirvac and Peet.

The site was acquired in 2011 and three years later the development opened.³⁰ It sold 138 sites in the first 12 months.

²⁹ [Mirvac 2022 Property Portfolio report.](#)

³⁰ *ibid.*

Analysis

With reference to the total land bank, the supply and demand dynamics resulted in figure 9:

GOOGONG: Supply Outcomes and Pricing Dynamics

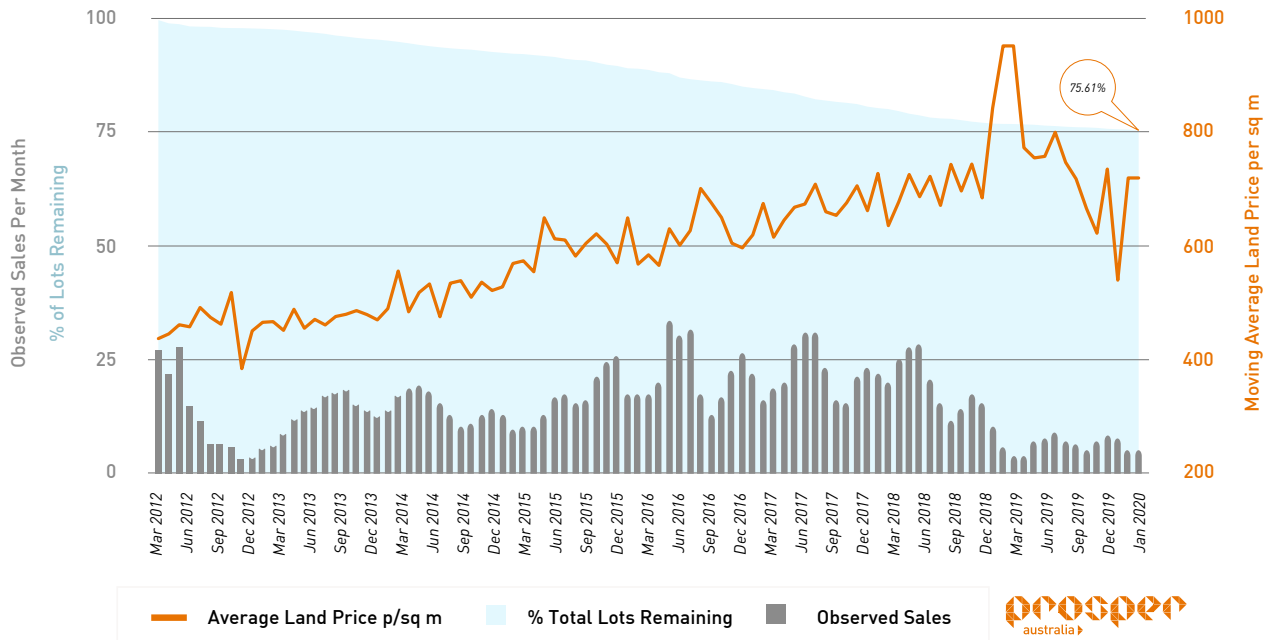


Figure 9

Over the 7.9 years of analysis, we find that 75.7% of the land bank remains vacant. Supply was provided at 3.1% of the total land bank, which was lower than the average 3.9% across the study. Over this timeframe, land prices have increased by 29.7% or 3.3% p.a above inflation.

On our estimates, if the peak sales rates were extended over the remaining lots, the development would reach completion 7.8 years ahead of schedule, delivering an improved supply outcome of 31.9%.

The relatively standard planning approval timeframe of three years from purchase to first sale demonstrates that planning delays were not significant in this case. For example, in 2019, the average time taken for a council to approve a subdivision development was 71 days across NSW.³¹

Let’s think about what a “sales rate delay” might look like? If we calculated the difference between the typical and the fastest sales rate across our study areas, and assumed a counterfactual in which developers sold lots at 80% of their fastest rate, we find that the “sales rate delay” is 1,257 days. By comparing NSW subdivision planning delays³² of 71 days to the land banking delays, we see that planning is just 5.6% of the delay. This infers that land banking delays cost the consumer 93.4% more in time than planning delays. Such a metric may help prioritise policy makers towards the key supply impediments.

In Googong, declining sales were responsible for more than twice the delays of the planning

³¹ Dept of Planning NSW, op. cit.

³² Note that during the planning delay, the value of land often increases, offsetting outlays.

approvals process.³³ If we were to compare 3 years in planning delays to the 7.8 years in land banking delays, we could see that the land banking delays were 51.9% greater than planning.

Supply rationing can be seen in the Nov 2012 period, March - Oct 2014 and most significantly in the months following Dec 2018.

While developer Mirvac expects the Master Planned Community will be completed in 20-23 years, the typical supply rate we have seen so far is expected to last 32.4 years to completion. Even if the remaining 4,507 lots were sold at the boom supply rate, the initial sales have been so slow that it would still take 25.25 years to complete the project.

Summary of absorption rate metrics

The four absorption rate metrics for the available data on this subdivision project are summarised in Table 4.

Metric	Value	Interpretation
Development rate ratio (DRR)	0.42	The average speed of sales was 42% the peak speed.
Development rate variability (DRV)	0.08	The minimum speed of sales was 8% of the peak speed.
Delay premium rate (DPR)	0.53	53% additional revenue was gained by varying price.
Delay premium variability (DPV)	1.06	Revenue could have varied 106% given the price ranges observed during the project.

Table 4: Absorption rate metrics for Googong's detached homes

Googong's DRR rate was the second fairest of the study, reflecting that the average sales rate was 42% the peak rate.

During downturns supply dropped by 92% to just 8% of the peak speed. The delay premium rate of 53% was at the lower end. However, prices were more consistent than other developments in the study.

The impact of supply restraints is that the Delay Premium Ratio, quantifying the economic gains from varying sales rates totals \$193million in higher costs. If we look at the more aggressive Delay Premium Variability, looking at minimum prices compared to the maximum price, the economic gain from varying sales rates reaches \$385m.

³³ *The role of property options was not possible to include in our calculations, potentially overstating this finding. As mentioned in the methodology, this may be offset by the fact the total lot numbers we analyse only includes the original development approval, and not subsequent rezonings.*

Queensland

In 2007, the Queensland government released their Housing Affordability strategy to 'ensure that the state's land and housing is on the market quickly and at the lowest cost.'³⁴ This included a dedicated 'implementation team' that would remove any regulatory hurdles. In 2017, the Shaping SEQ report stated 'Best practice regional planning requires monitoring of land supply and development.'³⁵ In 2018 the Land Supply Development Monitoring reports were launched,³⁶ and in 2021 a Growth Areas Monitoring Team established,³⁷ building on the previous work of the implementation team.

Planning for significant Greenfields precincts is fast tracked in Priority Development Areas under the jurisdiction of Economic Development Queensland.

Whilst Queensland does seem to have been proactive in identifying land supply corridors and working to remove barriers for developers, it appears little investigation has been undertaken behind the curtain of land supply. Not once in the above documents is land banking mentioned or effective supply rates once zoned capacity has been granted.

³⁴ Dept of Infrastructure and Planning, [Queensland Housing Affordability Plan - 2007](#), p1.

³⁵ Dept of Infrastructure, Local Government and Planning [Shaping SEQ - South East Queensland Regional Plan 2017](#), p165.

³⁶ State Development, Infrastructure, Local Government and Planning, [Land Supply and Development Monitoring Report 2021](#).

³⁷ State Development, Infrastructure, Local Government and Planning, [Growth Areas Team - Who We Are](#), March 2021.

Aura



Figure 10
Aura masterplan
Source: Stockland

Background

Located at the southern end of the Sunshine Coast, QLD this \$5 billion development is expected to deliver more than 20,000 lots over 2,360 hectares. The city will take over three decades to complete.³⁸ Developer Stockland is set to assume the project's entire risk portfolio, declaring it the nation's largest single owner Master Planned Community.³⁹ First construction began in October 2015, with residents moving in from April 2016, making this the youngest development in our study.

Figure 10 shows the master plan, for which Stockland had been awarded a *6 Star Green Star – Communities* rating by the Green Building Council of Australia which includes an affordability criteria.⁴⁰

38 [Stockland starts construction of Aura, Oct 2015.](#)

39 Donaghey, K, [Water world: Stockland fast-tracks first lakes estate in Aura as demand surges](#), May 3, 2022, *Sunshine Coast News*.

40 [Green Star rating system.](#)

Analysis

As of June 2021, Stockland's Property Portfolio declared 17% of the site had been settled. Total sales as compiled by CoreLogic to April 2021, find our calculations reflecting only 7.1% of the master planned community having been sold.

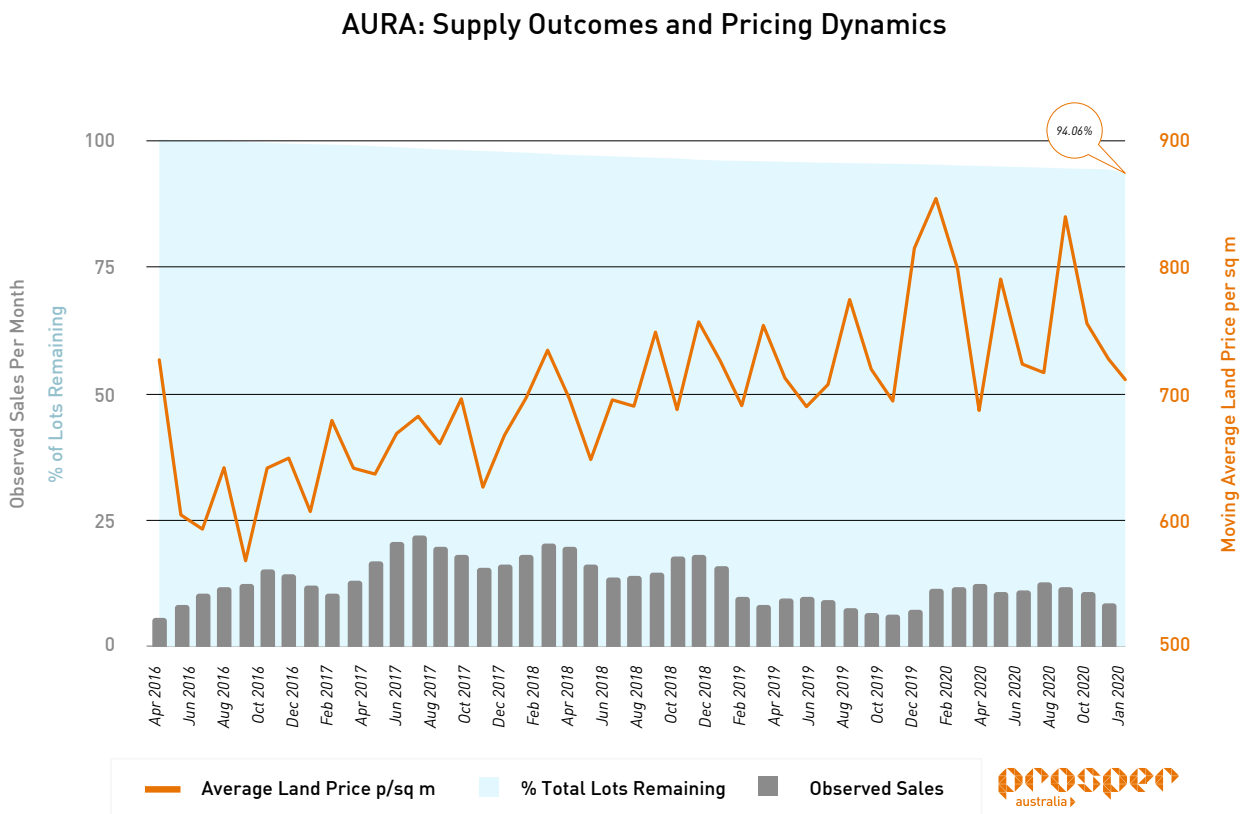


Figure 11

Based on the typical sales rate of 310 lots per annum, the development could take 64.5 years to reach completion under a business as usual process. This is shown by the ‘% lots remaining’ highlighted in blue (figure 11).

After just 3.83 years of sales, 94.06% of the land bank remains vacant.

The expectation of public investment in enabling infrastructure, and associated windfall gains benefitting property, is a factor that may influence the speed at which it is rational to sell lots.⁴¹

⁴¹ [Stockland contributed \\$1.5m towards a community hub despite a total cost of \\$34m in Aura Community Hub, State Development Queensland](#). Whilst the Queensland taxpayer was the dominant funder of the hub, Stockland's Aura land bank will be the primary beneficiary - ["Value Capture and its Beneficiaries"](#). A fairer system of value capture is urgently required to close this loop between the need for infrastructure and the beneficiary in terms of windfall gains. Infrastructure gifts may play a role in staggered supply rates in a new Master Planned Community such as Aura.

This development is notable in that sales did actually depress prices for the first 18 months.

However, since then prices have increased, despite such a large percentage of the land bank still being available.

If the boom supply rate was maintained, the estate would reach completion some 12.1 years earlier.

The Delay Premium over the four years and the 1,138 sites sold equates to an additional \$89 million return. This is calculated by comparing the median sales price over the life of the project (so far) to the minimum price.

Readers should note that the Aura median was calculated over nearly four years of the moving average per square metre sales price, which saw a 6.19% CPI adjusted increase.

The annual rate was just 1.58% above inflation. This is likely to be well shy of the median in another 10 years, let alone 30 years.

What were the mean lot price increases over the older Master Planned Communities in our study? Manor Lakes' first 4 years of sales saw a 27.49% increase in the median price, with the decade following delivering a 40.26% increase. By June 2021, the median increase since inception had increased by 49.88% over and above the first 4 years.

In Springfield, there was an increase of 54.68% in the decade following the first 4 years. By the third decade of development, the rolling decade median lot price had increased by 75.09%. This suggests that future mortgage holders will pay significantly more in these Aura developments for sites that were purchased decades ago. Have costs increased proportionately?

Summary of absorption rate metrics

The absorption metrics in Table 5 show that Aura's average speed of sales was just less than half the peak speed, which was the most consistent level across the developments surveyed.

Metric	Value	Interpretation
Development rate ratio (DRR)	0.45	The average speed of sales was less than half the peak speed (at 45%).
Development rate variability (DRV)	0.29	The minimum speed of sales was 29% of the peak speed.
Delay premium rate (DPR)	0.15	Just 15% additional revenue was gained by varying price.
Delay premium variability (DPV)	0.37	Revenue could have varied 37% given the price ranges observed during the project.

Table 5: Absorption rate metrics for Aura's detached homes

Aura's DRV was the highest of those measured, with the lowest end of their sale rate only 29% of the peak. After only four years of development, the smaller timeframe may explain why revenues have been bolstered by just 15% (DPR).

One question raised by Aura is whether a single developer should be allowed to deliver 20,000 housing opportunities.

How much control is too much market control in a scarce, popular locality like the Sunshine Coast? Is there an optimally sized master planned community?



Springfield

Figure 12
Springfield Masterplan
Source: Springfield Development Corporation

Background

Springfield is a city development located in the City of Ipswich, with 1442 hectares of land approved for residential use in the Springfield Structure Plan.⁴² It is the largest development of our study and it is expected to accommodate 138,000 residents⁴³ at 3.2 people per dwelling.⁴⁴ Based on this, we estimate the site has 43,125 lots available.

The development has been underway for 20 years, with housing produced by a number of competing developers such as Lendlease and Mirvac. Our survey covers all such developments.

In a sign of its size and importance, Springfield is the only development in our study to have its own enabling legislation - the 'Local Government (Springfield Zoning) Act 1997'.⁴⁵ The law gave planning and development powers for Greater Springfield to the Springfield Development Corporation.⁴⁶ This gave the development state-granted kudos with the 'planning intention' assisting financing at a delicate time.⁴⁷

The dedicated Act has enabled the development to plan its roll-out with reduced regulatory oversight: "[Maha] manages to get Queensland Parliament to back a special act of Parliament that puts all the planning and development powers for Greater Springfield in the hands of SGC."⁴⁸

42 Ipswich City Council, [Springfield Structure Plan](#).

43 [Greater Springfield town centre plan](#).

44 [ABS Census, 2016](#).

45 [Local Government \(Springfield Zoning\) Act 1997](#).

46 Boyd, T, [Maha Sinnathamby's Greater Springfield was nearly strangled at birth](#), AFR, Nov 2, 2016.

47 *ibid*.

48 Thompson, J, [A billionaire's plan to turbo-charge his private city](#), AFR, Dec 2, 2019.

The related Ipswich Council's Springfield Structure Plan aims to ensure "the creation of an urban structure which uses land efficiently .."⁴⁹

Springfield made a clean sweep of the awards circuit in 2010 with World's Best Master Planned Community (International Real Estate Federation), Australia's Best Master Planned Community (PCA), and Queensland's Best Master Planned Community (UDIA).⁵⁰ Brochures talk about 'embracing the opportunity', with an introduction from the former Premier Campbell Newman⁵¹ - who controversially went to work for Springfield following his political career.⁵²

Over \$1.2 billion has been invested by state and Federal governments in infrastructure beneficial to the MPC.⁵³

With its own planning act designed to improve certainty and efficiency, such influence over the planning mechanism (so often blamed for delaying housing projects) bestows upon this MPC the ideal qualities to investigate supply side efficiencies.

⁴⁹ Ipswich City Council, *op. cit.*

⁵⁰ [Greater Springfield Brochure](#) 2013.

⁵¹ *ibid.*

⁵² C Murray, P Fritjers, [Game of Mates](#), 2017.

⁵³ *ibid.*

Analysis

As we can see from the figure 13 below, there is no period where lower prices have been conveyed.

SPRINGFIELD: Supply Outcomes and Pricing Dynamics

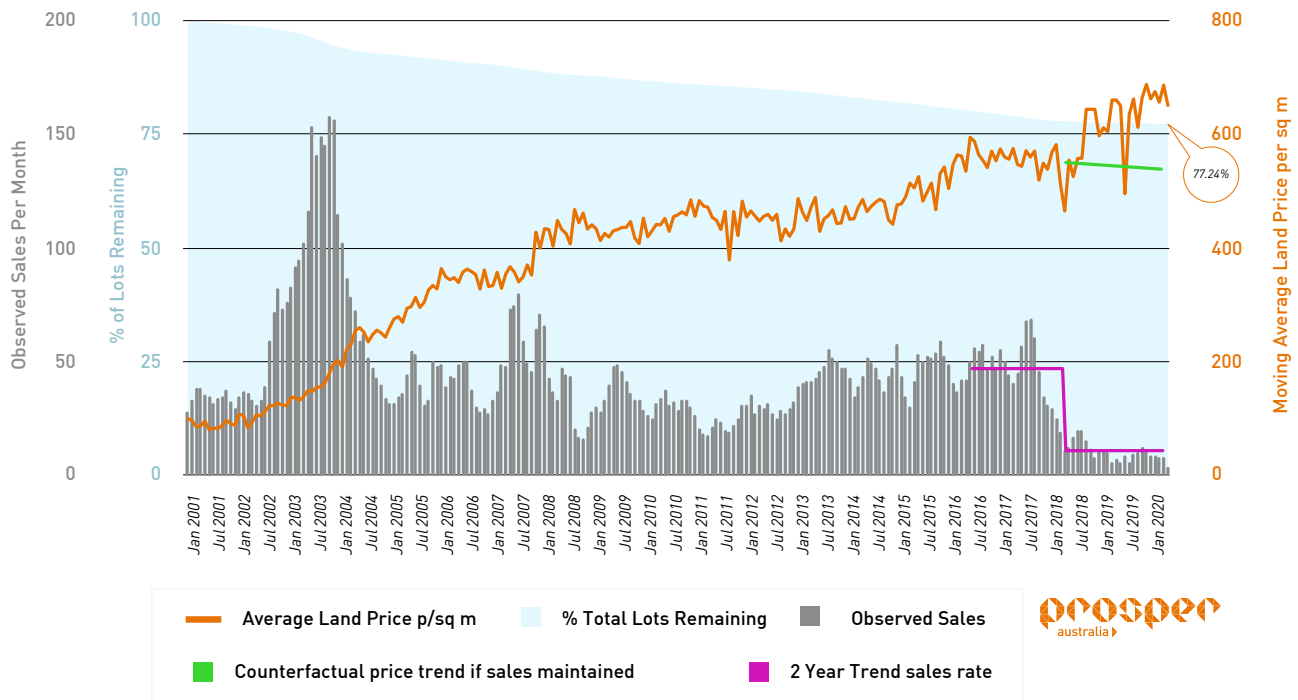


Figure 13

As a case in point, in 2011, as the GFC continued to apply pressure to the real estate market, prices reduced for eight months - by 2.61% in nominal terms. Looking forward another 8 months, we see that land prices were back up by 5.49%, more than doubling any savings. Just 355 home buyers were able to buy in during this suppressed period.

Figure 13 demonstrated how after 19.1 years in development, 77.24% of the land bank remains vacant. Despite this, prices have increased by an annual CPI-adjusted rate of 8.1%.

At the current project sales rate, it will take a further 64.77 years for this autonomous Master Planned Community to meet its full supply quota (84 years in total). If the Master Planned Community was to allow the boom supply rate enabled in the period Sept 02 - Aug 04, we would see the estate sell out nearly 65 years earlier than currently forecast.

Springfield Development Corporation demonstrates what is typical in a number of developments - that supply is higher in the first few years. We surmise that this helps build a critical population mass in the formation of the community, enabling key infrastructure delivery e.g. retail and community services. Early buyers do seem to enjoy price appreciation, as we can see in other developments such as Atherstone, Aura and Yarrabilba.

How much could this supply have helped prices? A potential estimate was forecasted by looking at what would happen to prices if Springfield's 2016 -17 supply rate was maintained into 2018-2019. By applying the elasticities of demand and supply commonly referenced by the housing industry, we were able to gauge how much the missing supply (referenced by the purple indice in figure 13) may have assisted affordability.

Using a conservative demand elasticity of -0.26 for the construction of dwellings, it is possible land prices would not have risen by the 21.41% we saw over the two years to January 2020. Land prices would have potentially edged lower by 2.32%, as we see in figure 13 with the teal trendline moving downwards.

This suggests that if supply was maintained at the previous two year average, it could have delivered a total potential saving of 23.73% in inflation adjusted figures.

Over the length of the project to January 2020, each home purchaser has had to pay an average \$301,805 higher than the most affordable lot sold. Land prices have not fallen for any significant period, contrary to the expectations of supply-side policy.

Home buyers have contributed \$2.880 billion in higher charges than the minimum price offered.

As the most profitable of the Master Planned Communities across the DPR and DPV metrics, alongside a significant land bank set to benefit from future land price inflation, it is reasonable to ask why this prodigious new city has not put a dent in local housing prices?

Summary of absorption rate metrics

The four absorption rate metrics for the available data on this subdivision project are summarised in Table 6.

Metric	Value	Interpretation
Development rate ratio (DRR)	0.25	The average speed of sales was 25% of the peak speed.
Development rate variability (DRV)	0.04	The minimum speed of sales was 4% of the peak speed.
Delay premium rate (DPR)	3.03	303% in additional revenue was gained by varying price.
Delay premium variability (DPV)	7.27	Revenue could have varied 727% given the price ranges observed during the project.

Table 6: Absorption rate metrics for Springfield's detached homes:

We can see from these metrics that the development maintained an average speed of sales 25% of the peak over the 20 years. This has enabled considerable market power such that a 303% increase in revenues was possible (DPV), when compared to the minimum price.

The DRR shows sales over time at one quarter the peak rate, with the minimum speed of sales (DRV) down to just 4% of the peak. Remember, the DRV shows the observed maximum extent that private landowners are willing to slow the rate of production in response to the market conditions. Even within approved projects already under development. Springfield's DRV rate was well under the average 14% range, reflecting the willingness to deploy an aggressive scarcity trap to preserve returns.

As the most profitable of the Master Planned Communities across the DPR and DPV metrics, alongside a significant land bank set to benefit from future land price inflation, it is reasonable to ask why this prodigious new city has not put a dent in local housing prices?

Yarrabilba



Figure 14
Yarrabilba Masterplan
Source: Lendlease

Background

Located 45km south east of Brisbane, QLD, this 2,000 hectare development is expected to house some 45,000 residents in 17,000 dwellings. The \$11 billion dollar development will run for over 20 years. Promotional material for Yarrabilba states that it is “the fourth fastest selling community in Australia since 2012, with over 1,000 people moving here each year.”⁵⁴

Over 10,000 residents already call this home, with another 35,000 to come.⁵⁵ It was also awarded the 6 Star Green Star Communities Award (2017), highlighting its drive towards a circular economy.

⁵⁴ [Yarrabilba brochure](#), p6-7.

⁵⁵ *Ibid*, p8-9.

Analysis

In the eight years of our sales data coverage, 19.4% of properties were sold, totalling 3,304 sales to April 2021. The market outcome for the supply capacities at hand resulted in figure 15.

YARRABILBA: Supply Outcomes and Pricing Dynamics

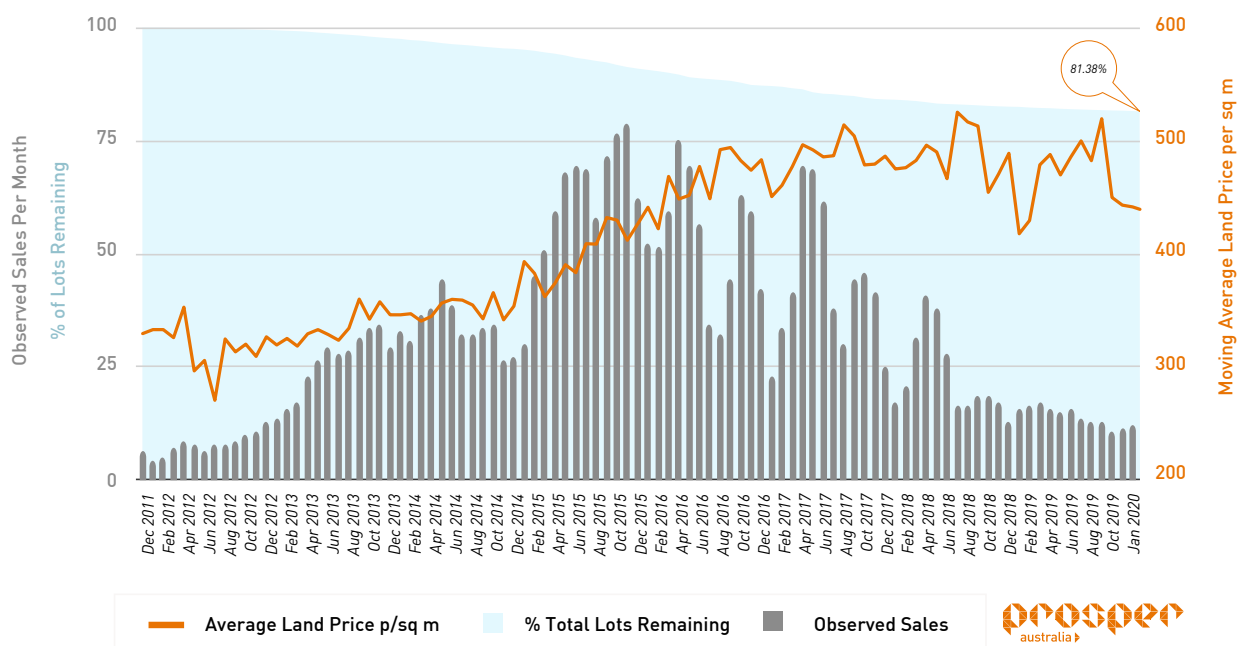


Figure 15

Yarrabilba is the third largest development in our study. We can see that prices have increased by 10.8% over time. The annualised increase of 1.26% shows that prices have moderated, but not decreased.

At current sales ratios, we expect the development lifespan will run for 43.9 years. If the boom supply rate was met, the development would sell out some 9.4 years earlier. This would see an additional 138 home buyers access sites each year.

As of January 2020, 83.0% of the proposed development remained in the land bank.

In late 2016, PRD analysis conducted an investor report on the Master Planned Community,⁵⁶ revealing the following:

"In 2016 the Yarrabilba house and land market price growth is 2.9% and 6.0% respectively, outperforming Brisbane Metro (0.5% and 5.3% respectively)"

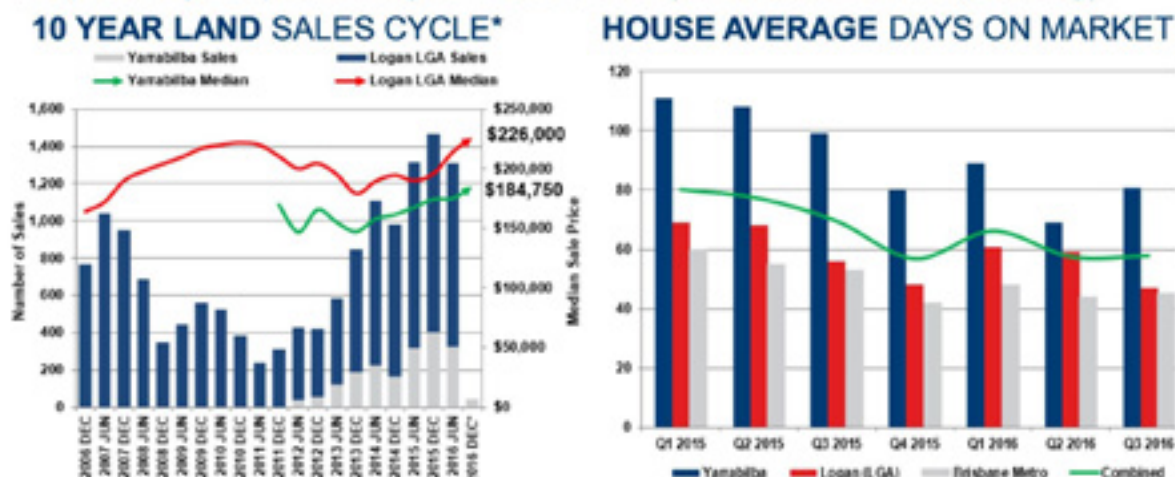


Figure 16
Source: PRD Nationwide

We can see in the right hand panel that the days on market moderates downwards, whilst the price continues its appreciation. Scrolling up to figure 15, we see that sales falls during the middle of 2016 and then again at the end of the year. We can see behaviours from both sides of the market, with demand measured by 'days on market' and sales a proxy for supply. Admittedly this is only for a short time period, so it is hard to ascribe much more other than this trend being indicative rather than absolute, but such time based analysis is worthy of further investigation⁵⁷

From early 2016 we see supply moderating downward, as prices are forced up to a new plateau by mid-2016.

If we look at the sales behaviour, we can see developer Lendlease underwent some challenging times particularly early on, with the estate launching right into the depths of the GFC downturn. Prices fell for 6 months on very low volumes. The market picked up into 2015 with supply levels increasing until that mid 2016 period. As was a typical trend across the Master Planned Communities, supply fell as the market soured in late 2018 and had not recovered by the end of our study period.

56 PRD Nationwide Research, [Yarrabilba investor report](#).

57 The pursuit of both days on market and auction clearance rates will be key to further evolutions in this report.

Summary of absorption rate metrics

The four absorption rate metrics for the available data on this subdivision project are summarised in Table 7.

Metric	Value	Interpretation
Development rate ratio (DRR)	0.37	The average speed of sales was slightly 37% the peak speed.
Development rate variability (DRV)	0.06	The minimum speed of sales was just 6% of the peak speed.
Delay premium rate (DPR)	0.43	43% in additional revenue was gained by varying price.
Delay premium variability (DPV)	0.78	Revenue could have varied 78% given the price ranges observed during the project.

Table 7: Absorption rate metrics for Yarrabilba's detached homes

The DRR was typical across the nine Master Planned Communities. Most developers are willing to maintain a supply rate around 34-37% of the rate observed during a fervent market period. The DRV shows that supply fell dramatically during downturns, to just 6% of the peak.

By altering supply levels to sites that already have permitted approval, the development secured a potential 43% in additional revenue.

Will Queensland's Growth Areas Monitoring Team ask any questions about the mid-2017 supply cutbacks?

Victoria

The state has firmly committed to enabling supply to ease pressure on new house costs. Over the last 20 years, the Victorian Government has enacted a series of aggressive expansions of the Urban Growth Boundary and the Precinct Structure Plans within it.⁵⁸

In a 2010 gazette highlighting the ALP government's supply commitment, they stated "The GAA's PSP program is on track to approve land for an additional 110,000 residential lots by 2012, slicing two years of red tape out of the process helped by new precinct planning guidelines and new biodiversity mapping arrangements."⁵⁹

Despite these efforts, the state's residential land prices have increased by an inflation adjusted 63.02% (2012-21).

⁵⁸ Victorian Planning Authority, [Urban Growth Boundary - Key Facts](#).

⁵⁹ Victorian Planning Authority, [Growth Areas news](#), April 2010.



Atherstone

Figure 17
Source: Lendlease

Background

Atherstone is a 481 hectare Lendlease development located in Melton South. It will see 4,500 homes produced for 15,000 residents.⁶⁰ Figure 17 shows the masterplan.

⁶⁰ Melton City Council, [Atherstone Project Overview](#).

Analysis

ATHERSTONE: Supply Outcomes and Pricing Dynamics

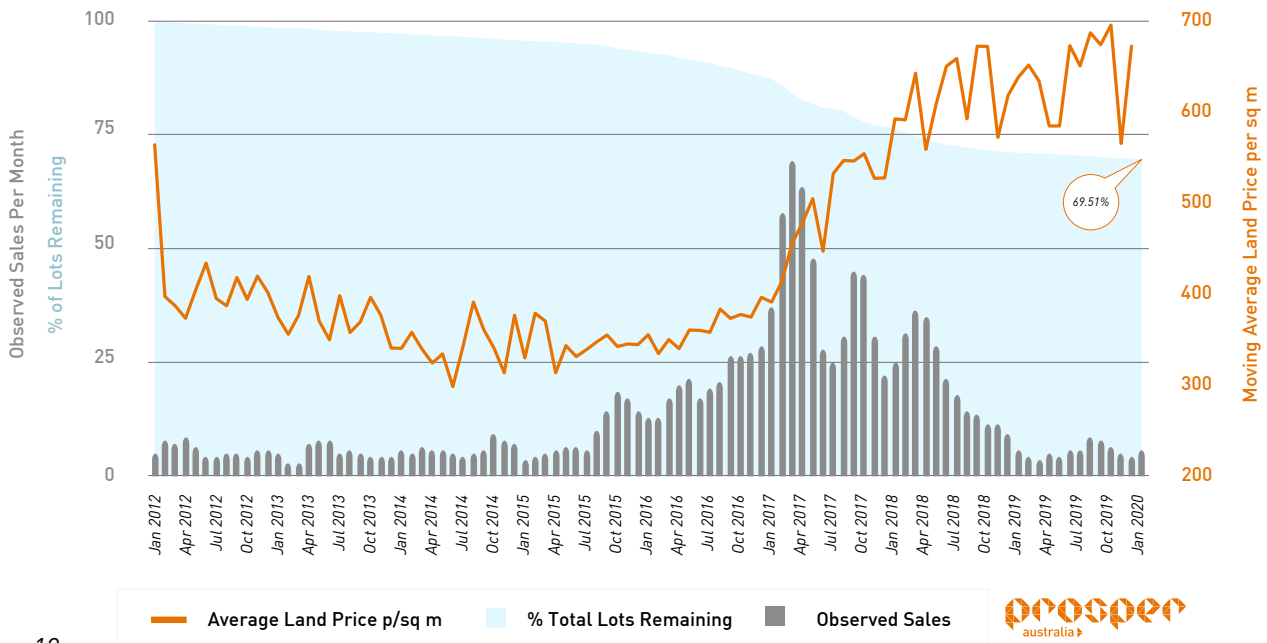


Figure 18

We see in blue the total lots approved (4500), falling from 100% to 69.51% over nine years. Based on the 3 month moving average, land prices increased by 1.53% in total. In what was the most competitive market we studied, the yearly land price inflation was just 0.17% in real terms.

At typical sales rates, the remaining land supply will continue to be fed out for a further 17.5 years. The challenge is whether the supply and pricing dynamics will continue a similar moderate trajectory over time.

If supply was delivered at the boom sales rate, the development would sell out 10.7 years earlier, representing a potential 58% acceleration in sales over the remaining period.

We doubt this will occur.

Despite the incessant calls in the press about the need for more land supply, on this evidence, sales rates slow very quickly with signals of lower auction clearance rates, days on market, age of stock on market, credit availability, souring price growth, and a host of additional factors feeding into a supply algorithm.

We see that in mid 2017, with sales levels failing to increase even as prices accelerate.

One could posit that a strategy existed to suppress supply until Cobblebank Station was completed (2019). In the meantime, the land bank increased its option-value, which we imagine kept financiers happy.

When we look at total property listings in this postcode, it suggests that developers maintain a watchful eye on supply levels once an excess of old stock is on the market. This is apparent in the following figure 19 through 2015-16.⁶¹

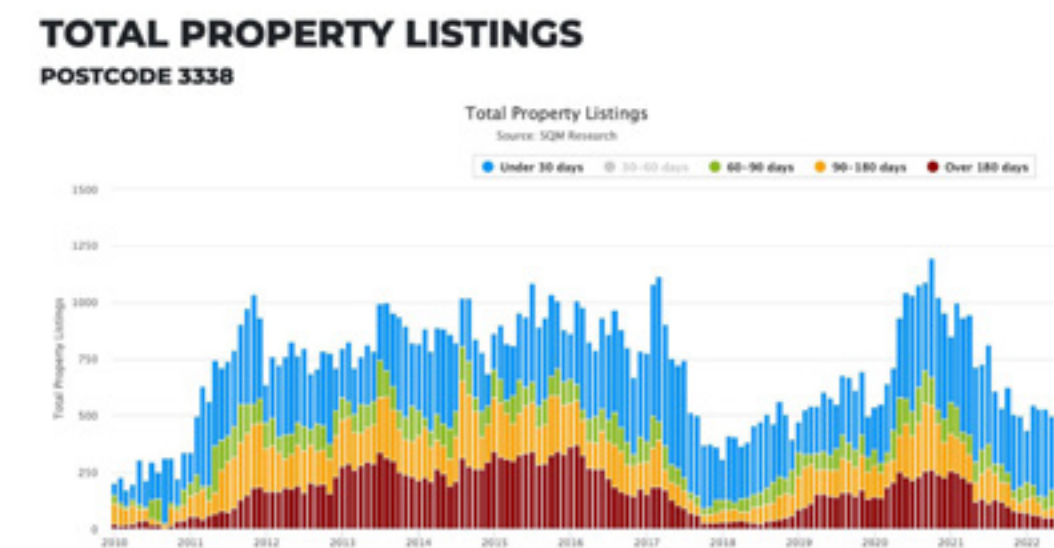


Figure 19
Source: SQM Research

Unfortunately we cannot tell how many of these listings were withdrawn from sale at this point in the market,⁶² even as land prices boomed around the nation.

Will we see supply accelerate now that Cobblebank Station is open and the post-pandemic market settling back into a routine?

⁶¹ SQM Research, [Total Property Listings](#), * this includes other estates in the growth area.

⁶² SQM Research, [Terminology Total Property Listings](#).

Summary of absorption rate metrics

The four absorption rate metrics for the available data on this subdivision project are summarised in Table 8.

Metric	Value	Interpretation
Development rate ratio (DRR)	0.21	The average speed of sales was just 21% of the peak speed.
Development rate variability (DRV)	0.04	The minimum speed of sales was 4% of the peak speed.
Delay premium rate (DPR)	0.42	42% additional revenue was likely gained by varying price.
Delay premium variability (DPV)	1.15	Revenue could have varied 115% given the price ranges observed during the project.

Table 8: Absorption rate metrics for Atherstone's detached homes.

The DRR of 21% sees that sales were consistently lower than the peak sales rate. The DRV of 4% was below the average supply rationing observed across the 9 estates, with a 96% reduction in supply compared to the most favourable conditions.

When calculated across the 1,372 lot sales, we find that sales revenues were likely 42% higher than if sold at the minimum price. This saw \$170 million summoned from buyers, adding a potential \$123,907 to the cost of an average home purchase (Table 1).

The median number of sales per annum over the nine years since commencement is 170. If that rate of sales were to continue, it would take 26.5 years to fulfil the estate. By comparison, when the market was buoyant, the peak sales rate saw 404 homes sold in a year.

Of the developments studied, Lendlease appears to be more aligned to its Corporate Social Responsibility than other major developers.



Woodlea

Figure 20
Woodlea Masterplan
Source: VIP

Background

Woodlea is a 711 hectare estate with a \$2 billion development envelope situated 29km from the Melbourne CBD. It is a joint venture between VIP (a Malaysian developer) and Mirvac. The roll-out is expected to run over 18 years, from 2016 to 2033.⁶³ It has widely been billed as Australia's fastest development,⁶⁴ making it a prime choice for further investigation, with some staged release pre-registrations booking out in under 30 seconds.⁶⁵ The master plan is seen in figure 20.

The limited investor relations information suggests that 50% of the Master Planned Community has been sold.⁶⁶ The above masterplan also suggests significant sales. However, all sales as assessed by the Victorian Valuer General and on-sold to CoreLogic find that only 25.1%, or 1,652 out of 6,584 lots had been sold by July 2021. We cannot determine why there is such a disparity.

We can see in figure 21 that Woodlea had a high sales rate in the opening few years of the development. However, sales decelerated during the boom year of 2017, despite the initial willingness to sell.

⁶³ Mirvac, [Investor overview - Woodlea](#).

⁶⁴ Staff writer, [Woodlea crowned Australia's fastest selling community](#), *The Urban Developer*, Feb 5, 2016

⁶⁵ *The Urban Developer*. *op. cit.*

⁶⁶ Mirvac, [Property compendium - Woodlea](#).

Analysis

The following figure 21 demonstrates how these trends played out over time:

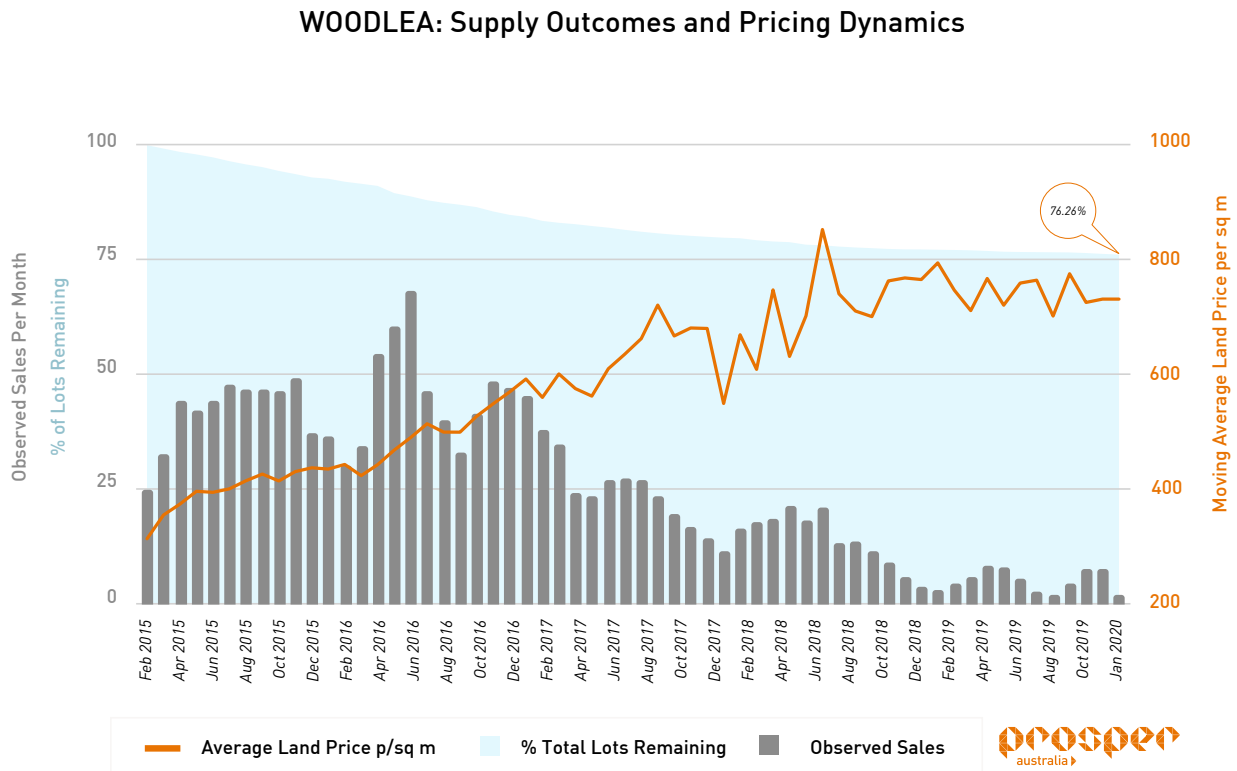


Figure 21

After 5 years of development, 76.26% of the Master Planned Community was still vacant.

In the first two years they sold 13.8% of stock, but just 6.5% of stock was sold over the next three years. It is unclear why sales slowed.

Regardless, the value of the underlying asset base increased by an annualised rate of 14.6% (inflation adjusted), or 97.21% over barely five years. This was the highest annualised rate in our study.

Perhaps the rising option value of the asset was seen as superior to selling, even during one of the nation’s most profitable real estate years - 2017. Supply effectively reduced from February 2017 all the way through to January 2020, despite rising prices.

TOTAL PROPERTY LISTINGS POSTCODE 3350

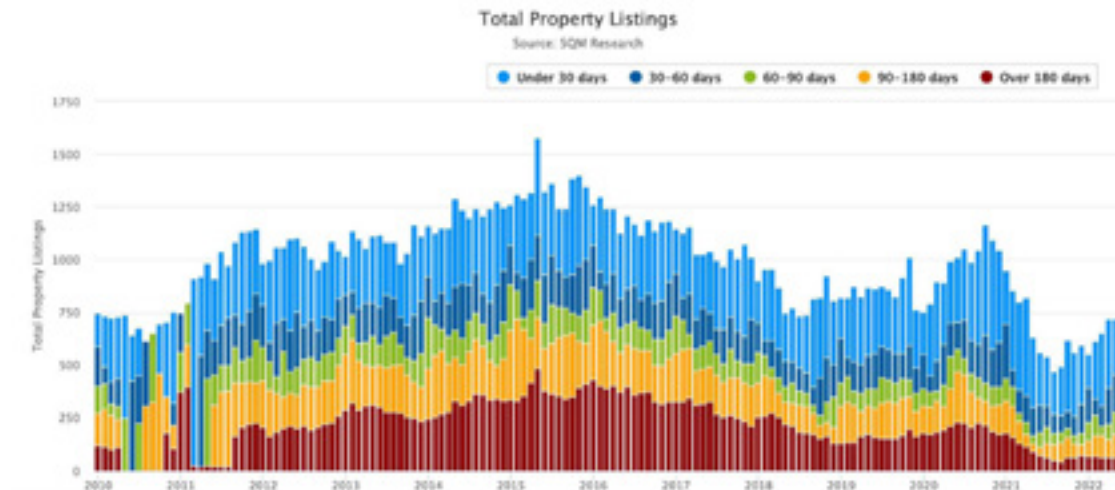


Figure 22
Source: SQM Research

During the year the development was named the fastest selling in the nation, it sold an average 42.2 properties per month.⁶⁷ Over the first two years to February 2017, it averaged 45.3 properties per month. For the remainder of our study period, lots sales crunched down by 71%, to only average 13.2 properties per month.

Again we can only suggest, but looking at the total property listings in postcode 3350 (which covers the wider market),⁶⁸ we can see a rise in stock listed for greater than 180 days through 2016 as providing an indication that supply needed to be wound back for fear of price reductions.

When comparing the typical sales rate to the boom sales rate, there is a difference of 41.1%. The estate would sell out 6.6 years earlier if the boom sales rate was maintained.

⁶⁷ *The Urban Developer. op. cit.*

⁶⁸ SQM Research, [Total Property Listings, postcode 3350](#).

Summary of absorption rate metrics

The absorption metrics (Table 9) reflect how during market downturns, estate sales rates were reduced by 97% (DRV), ensuring the price floor was securely in place.

Metric	Value	Interpretation
Development rate ratio (DRR)	0.32	The average speed of sales was slightly less than one third the peak speed (at 32%).
Development rate variability (DRV)	0.03	The minimum speed of sales was 3% of the peak speed.
Delay premium rate (DPR)	0.46	46% additional revenue was gained by varying price.
Delay premium variability (DPV)	1.23	Revenue could have varied 123% given the price ranges observed during the project.

Table 9: Absorption rate metrics for Woodlea's detached homes

Over time, their sales were not especially fast, with the DRR revealing only 32% of the peak supply rate was maintained over time. Pricing was more consistent than others though, with the DPR rate only enabling a potential 46% increase in revenues, most likely due to the relatively short period of operation.

The Delay Premium Variability, showing the range of economic returns available, saw an extra \$264 million paid by home buyers. An average home purchase was \$168,906 more expensive than the minimum price, a price that many policy experts thought would reduce rather than increase.

For a development that was so public about being the fastest seller in the nation, we were surprised at how supply rapidly slowed after the award, whilst land price inflation continued at the aggressive annual rate of 14.6%.

Manor Lakes



Figure 23
Manor Lakes Masterplan
Source: Dennis Family Homes

Background

Manor Lakes is a 750 hectare development 40 minutes west of the Melbourne CBD, Victoria. The second phase of the project has been underway since 2004. A 1994 Development Plan Overlay had seen 3000 homes developed and sold by the parent company, Dennis Family Homes, at the eastern edge of their holdings.⁶⁹ The more recent western precinct aims to house a further 25,000 residents.

Manor Lakes was the Master Planned Community that piqued our interest in staged releases over a decade ago.⁷⁰

The vision for the Manor Lakes Precinct Structure Plan as stated in the 2012 Precinct Structure Plan is:

“Manor Lakes: A place where people can enjoy a healthy, affordable and quality lifestyle.

...The Manor Lakes community will be developed in a logical and orderly manner and provide for services and facilities which not only support the community at an early stage of development, but which can be built with sufficient capacity to maintain high standards of services in perpetuity.”⁷¹

⁶⁹ Victorian Planning Authority, [Precinct Structure Plan](#), P9, 2012.

⁷⁰ K Fitzgerald & G Emmanuel, [Real Estate 4 Ransom documentary](#).

⁷¹ *Op cit*, VPA 2012, p13.

Founding chairman Bert Dennis states:

“We understand families and their desire for affordable homes with all the modern facilities. Our commitment is to provide excellent service, a superior quality product in the homes we construct, cutting edge urban design and honesty and integrity in everything we do.”⁷²

The 2012 Precinct Structure Plan was approved with 4,996 approved lots.

In 2019, the most recent public data available, it was stated over 9,000 people had moved in.⁷³

MANOR LAKES: Supply Outcomes and Pricing Dynamics

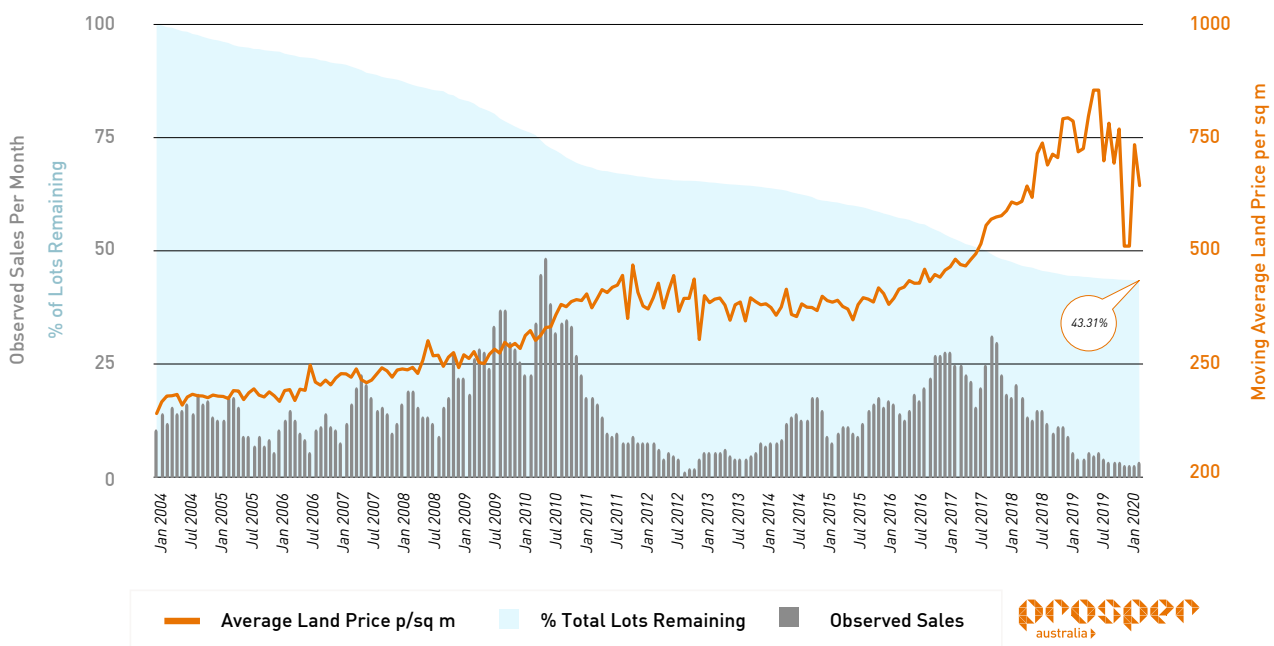


Figure 24

At an average 3 people per household, that suggests at least 3,000 homes have been sold.⁷⁴ This is similar to our sales records.

As we can see in figure 24, the current development has been underway for 16 years, selling 56.7% of its approved stock.

Over this time we can see that sales (grey) increased during the two big property bull markets of 2009-10 and 2016-mid 17. During these periods the median supply was 47.22% greater than the long term average. This is also reflected in the Development Rate Ratio, where the average supply was 37% of the maximum over the entire period.

⁷² Dennis Family Homes, [About Us - The Developer](#).

⁷³ Dennis Family Homes, [Live Here](#).

⁷⁴ [ABS Census, 2016](#).

The boom supply rate saw 366 properties offered per month, but the typical supply rate was about half at 176 lots.

At this typical sales rate it will take a further 12.3 years to complete the development. ensuring 28.4 years to sell all 4,996 lots.

However, if supply was delivered at the rate it was during the boom supply period, the development would sell out in half the time, 6.4 years ahead of schedule.⁷⁵

This reminds us why there is such a focus on planning delays and inadequate land supply being the primary barrier to housing affordability, when scarcity traps are so often enacted once the development has the land supply approved.

For example, if the remaining 2164 empty lots (at December 2019) were added to the speculative vacancy rate Prosper calculates, the total vacancy rate would equate to 22.5%. If this level of vacancy was more widely understood, we believe there would be greater scrutiny of idle land.

When we look at real prices, the average land price per square metre has increased by 204.3% above inflation over the period from Jan 2004.⁷⁶ Each year prices have increased by 7.16% above inflation. This is nearly four times wage growth.

Such behaviour has seen mortgages increase by \$251,059 more than the minimum price offered (Table 1). A total of \$711m in higher prices has been paid by purchasers in the estate, curtailing local employment, wages and growth.

We can see from figure 24 that the developer did not discount prices in order to sustain their sales rate for even one 3 month period.

The land price inflation seen at Manor Lakes is the third most aggressive of the nine Master Planned Communities covered. Instead of prices coming down as public policy expected, they have increased all the way through this development.

⁷⁵ Based on the highest two year moving average sales rate, of Nov 08 - Oct 2010.

⁷⁶ [RBA Inflation calculator](#).

Summary of absorption rate metrics

Manor Lakes' absorption rate metrics summarised in Table 10 were bold.

The speed of sales (DRR) at 29% of the peak was toward the more forceful range. When the market cooled, estate sales dropped 97% from the peak rate. This resulted in the DPR being second highest, with a 125% revenue potential enabled.

Metric	Value	Interpretation
Development rate ratio (DRR)	0.29	The average speed of sales was 29% of the peak speed.
Development rate variability (DRV)	0.03	The minimum speed of sales was 3% of the peak speed.
Delay premium rate (DPR)	1.25	125% in additional revenue was potentially gained by varying price.
Delay premium variability (DPV)	4.13	Revenue could have varied 413% given the price ranges observed during the project.

Table 10: Absorption rate metrics for Manor Lakes detached homes

It is worth noting that the highest land price inflation rates were recorded amidst smaller developers in VIP (Woodlea), SDC (Springfield) and here at Manor Lakes. Lower levels of transparency may have encouraged such rent-seeking.

Implications

This report has provided a detailed series of absorption metrics covering the various aspects of supply and its impact on pricing. Further metrics for transparent analyses include planning delays compared to land banking delays, market conditions and their role in influencing available supply, impact on mortgage size and the economic gains from reducing supply.

A public dashboard allowing consumers to witness what goes on behind the supply curtain is a necessary step forward. If developers base their decisions on highly tuned algorithms that help them to turn on a dime, then so too should home buyers.

Further analysis could look at median supply levels and ensure minimum supply rates are maintained during market downturns. This is a red tape oriented technique. Prosper prefers a market oriented strategy, as discussed in 'policy lessons'.

What have we learnt about the strategies adopted by the development industry? After careful consideration of the data trails, it appears that developers maintain a reasonable supply in years 1-4. Loans are not available for taxes, providing some impetus to move early stock - particularly for smaller developers. This initial liquidity may appease financiers who gain confidence in the repayments, allowing the developer to slow supply to maximise the rising option-value of the project.

When boom periods appear, supply opens up for a few years, but then is willingly pincered to enforce a new higher pricing plateau⁷⁷ - rather than letting prices fall. Development is certainly a challenging industry, as highly leveraged developers face margin calls if they cannot halt the slide in land values.

Master Planned Community development strategy also appears to favour back ending the project - delivering more supply in the final stages of the project timeline. This allows for the option-value of both land and the permitted density to grow, alongside further infrastructure gifts.

Major developers Lendlease and Stockland both had a number of MPCs in our study. Stockland's Willowdale and Aura were younger developments whilst Lendlease had Atherstone, Yarrabilba and the more challenging Jordan Springs. We averaged the findings from these developments by company.

Developer	Land supply delivery average	Boom supply difference	Land Price Inflation
Stockland	5.17%	29.19%	4.03%
Lendlease	3.39%	48.33%	1.26%

Table 11

⁷⁷ See Springfield, Manor Lakes, Googong.

Table 11 reflects that whilst Stockland had the superior land supply delivery rate, the impact of the supply on land price was negligible, at 4.03% per annum above inflation. Lendlease had a lower supply rate but demanded less in land price growth to deliver the supply, at just 1.26% inflation-adjusted. On the face of it, these results appear to confound our hypothesis. Stockland's lot sale rate was more consistent with a 29% difference between boom and typical supply - but for a higher price. Lendlease was more aggressive in selling into a buoyant market but with lower pricing demands.

Whilst analysts will find competing pressure points that may have contributed to the varied supply outcomes, it is certain that the finance industry must be recognised as a key player in the market failure revealed throughout the report. Developers are encouraged to offer free cars or carpeting rather than reduce the price of land. Falling land prices affect banks by forcing them to write down their loan books, which in turn limits credit creation.⁷⁸ The role of private money supply creation and the finance industry's reliance on rising land prices is a key aspect to the pressures developers face.

Policy makers must recognise that profit oriented supply will not push prices lower as financing obligations and shareholder responsibility reinforce market power parameters over and above rights to affordable housing.

⁷⁸ Philip Anderson, [*The Secret Life of Real Estate and Banking*](#), Economic Indicator Services, 2009.

Policy lessons

Government must recognise the monopoly characteristics of property markets. A “scarcity trap” occurs when supply is reduced to rebalance falling demand such that a pricing floor is established. It is reasonable to think of such actions as a market failure under standard economic assumptions.

A further implication is that the way property owners are able to vary new housing supply suggests that the cost of waiting and holding undeveloped property assets is a price worth paying. Thus, rather than a policy focus on density and upzoning, a focus on increasing the cost of waiting to develop could be the lever to accelerate supply, even in the face of flat and falling prices. Policy focussed on supply expects the private development sector to build excess supply, in effect undercutting their own product.

For example, ratcheting up land value taxes to increase the cost of holding undeveloped land can change the ‘develop or delay trade-off’. This is a route that needs further investigation. Indeed, it seems that the very opposite is the current policy stance. For example, QLD provides a land tax discount to developed new housing lots that remain unsold, which decreases the cost of delay.

At a wider level, the government must reorientate land supply away from the private market and towards third market alternatives like Community Land Trusts.⁷⁹ Because new market supply relies on buyers able to pay market prices, supply of these alternatives may add to the total by allowing other households who cannot buy in the private market to build new dwellings.

It is paradoxical that 2017 was a key year in our analysis. Instead of the promised land supply pushing down market prices, national land prices increased by \$683.5bn, the biggest annual increase on record - until 2021’s \$1.7 trillion increase.

When the market was buoyant, sales were capable of lifting by 41.4%.

Yet in mid 2017, aggressive supply cutbacks averaged 48.7% across all developments. This should shake society’s confidence in the current reliance on sales to deliver affordable outcomes.

We see in Table 1 that the average number of lots remaining is 76.2% of the total rezoning. Despite this, land prices have increased by 5.45% over the average 9.5 years of development.

By restraining sales when the market is in a typical state, the increase in land prices is likely to add an additional \$194,010 to the average home buyer purchase. This impedes local consumption, job creation and wage growth over the life of the mortgage.

If there was a competitive market, one would expect developers to increase sales to undercut opponents, pushing prices down. In a reflection of monopolistic power, the evidence suggested sales were reduced to enforce a scarcity trap, so that a pricing floor was maintained.

This is the market absorption rate at work, reflecting the built-in speed limit on the supply of housing.

⁷⁹ Foley, L, [Community Land Trusts Explained](#), May 2008.

Instead of over 1 million approved development lots along the eastern seaboard affecting prices, control over so many housing opportunities only acted to embolden a raw market power for extracting further economic rents from the home buyer. This led to \$5.997 billion in higher land and housing costs leaving the consumer and their new community, and instead heading towards those who had promised supply would matter.

What is most disappointing is the complete lack of oversight from government at all levels. It was endemic of the political mindset to find not one public official had questioned what goes on behind the land supply curtain - until we challenged MP Falinski to ask these types of questions at his inquiry. The quotes we reference on p6 from that Inquiry, by both Stockland and Lendlease, could be summed up as cognitive dissonance: "we don't hang on to what we buy." Is this borne out by the evidence in this report? Perhaps, developers do in fact landbank and adjust their lot sales to maximise their returns and the net present value of their holdings. Of course, we know this is not the only reason that developers stage releases, however, we believe that it has been too often overlooked.

In terms of the pressures developers place in delivering supply, we have not seen statements from inside the development industry applying pressure on finance to allow flexibility during downturns. Financiers make so much easy credit out of rising land values, but appear unwilling to allow prices to meet the market when required without great cost to the developer.

Responsibility and accountability are the cornerstones of our social contract, but yet we see it sorely lacking for the nation's largest asset base - land. Instead, first home buyers are lured into MPCs under the false premise that supply is the key to their dreams.

The reformed National Housing Supply and Affordability Council must take into account the strategies that play out behind the land supply curtain so that a balance can be achieved between private profit and the public interest.

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