

Housing and Business Market Indicators Quarterly Monitoring Report

Meeting the requirements of the National Policy Statement on Urban Development Capacity (PB6 and PB7)

Q4 December 2017 & Q1 March 2018

1. FUTURE PROOF MARKET INDICATORS SUMMARY

Residential indicators

The Future Proof sub-region has continued to experience a moderate slowdown in the rate of house price growth in the December quarter of 2017 and the March quarter of 2018. Rents however continued to steadily increase. The high levels of buyer activity from Auckland based multiple property owners in Hamilton has remined at a low level, however still higher than the historical average. The proportion of activity from first home buyers has increased across Hamilton , Waikato and the Waipa Districts. These trends suggest that first home buyers have found it easier to access the market in the six months to March 2018.

Residential consents numbers remain elevated, with high numbers for more intensive types of residential development in Hamilton in the March 2018 quarter. While the indicators suggest that conditions in the housing market, and supply responsiveness, may be improving across the Future Proof sub region ongoing monitoring is required of affordability indicators.

Business indicators

The available business indicators currently suggest that the supply of office and retail capacity in Hamilton is sufficient to meet demand. There has been a slight increase in office vacancy rates and a small decline in retail vacancies however further supply (via new development and refurbishment) is expected.

The overall industrial vacancy rate in Hamilton has declined to a historic low and has been described as 'extremely tight'. Why industrial land supply may be constrained requires investigation. Work continues to identify additional supply data and information for the other major towns within the Future Proof sub-region.



TABLE OF CONTENTS

1. FUTURE PROOF MARKET INDICATORS SUMMARY	1
2. INTRODUCTION	3
3. PURPOSE OF REPORT	3
4. OUTLINE OF REPORT	3
5. RESIDENTIAL INDICATORS	4
5.1 DWELLING SALE PRICE AND RENT TRENDS Indicator 1: Dwelling sales prices (actual) Indicator 2: Change in dwelling sale price (inflation adjusted) Indicator 3: Dwelling rents (actual)	4 4 5 5
5.2 HOUSING AFFORDABILITY TRENDS Indicator 4: Housing Affordability Indicator 5: Rental Affordability	6 6
5.3 INDICATORS OF SUPPLY AND DEMAND Indicator 6: New dwelling consents compared to household growth [NO UPDATE] Indicator 7: Buyer classification- Hamilton Indicator 8: Residential Building consents by territorial authority	7 7 8 9
5.4 PRICE EFFICIENCY INDICATORS Indicator 9: Housing Price to Cost Ratio [NO UPDATE] Indicator 10: Rural Urban differentials [NO UPDATE]	10 10 11
6. BUSINESS INDICATORS	12
6.1 INDICATORS OF SUPPLY AND DEMAND Indicator 11: Hamilton City CBD office vacancy rates Indicator 12: Hamilton City central business district retail vacancy rates Indicator 13: Hamilton City Industrial vacancy rates	12 12 13 13
6.2 PRICE EFFICIENCY INDICATORS [NO UPDATE] Indicator 14: Land price differentials across industrial zone boundaries	14 14
7. NOTES AND DATA SOURCES	15

2. INTRODUCTION

The National Policy Statement on Urban Development Capacity (NPS-UDC) came into effect on 1 December 2016. The overarching purpose of the NPS-UDC is to ensure that planning enables development by providing sufficient development capacity for housing and businesses over the next 10 to 30 years. The NPS-UDC identifies the Future Proof sub-region¹ as a high-growth urban area. As such, the Future Proof councils are required to meet all the requirements in the NPS-UDC. This includes monitoring, and reporting, on a quarterly basis of the housing and business market indicators (PB6) and indicators of price efficiency (PB7). Other demand and supply drivers outside of the scope of NPS-UDC monitoring that impact on urban development include: natural population growth; strong migration; interest rates; investor confidence and activity; tax incentives; and low measured construction productivity².

3. PURPOSE OF REPORT

The purpose of this quarterly monitoring report from the Future Proof partners is to fulfil the requirements of PB6 and PB7 of the NPS-UDC. These policies direct local authorities to monitor a range of indicators on a quarterly basis to ensure that local authorities are well informed with timely information about demand, urban development activity, how well the market is functioning and how market changes may affect the sufficiency of development capacity for housing and business land in the Future Proof sub-region. The NPS-UDC encourages local authorities to publish the results of their monitoring. This report includes the following PB6 market indicators:

- a. Prices and rents for housing, residential land and business land by location and type; and changes in these prices and rents over time,
- b. The number of resource consents and building consents granted for urban development relative to the growth in population; and
- c. Housing affordability indicators.

PB7 requires the use of indicators of price efficiency in the local land development market to understand how well the market is functioning and how planning rules may affect this, and when additional development capacity might be needed. This report presents the following PB7 price efficiency indicators which have been made available to date by MBIE³:

- a. Price-cost ratio, and
- b. Price differentials between zones.

4. OUTLINE OF REPORT

The indicators described in this second indicator report are presented in two broad categories; residential and business. Ten residential and four business indicators are presented. An overview narrative is provided at the start of each section with some further commentary provided for each indicator. Where available, indicators include data for each territorial authority (Hamilton City Council, Waikato District Council and Waipa District Council), and for the combined Future Proof sub-region ('Greater Hamilton').

Technical notes and data sources are provided at the end of the report. Ongoing refinements to the reporting framework and indicators will be made in successive quarterly reports.

^{1 1} The combined Hamilton City Council, Waikato District Council and Waipa District Council geographic area.

² Auckland Chief Economist, June 2017

³ The Ministry of Business, Innovation and Employment are responsible for providing the key NPS-UDC indicators.

5. RESIDENTIAL INDICATORS

The Future Proof sub-region has continued to experience a moderate slowdown in the rate of house price growth in the December quarter of 2017 and the March quarter of 2018. Rents however continued to increase steadily. The high levels of buyer activity from Auckland-based multiple property owners in Hamilton City has remained at a lower level, however this is still higher than the historic average. The proportion of activity from first home buyers has increased across Hamilton City, Waikato District and the Waipa District. These trends suggest that first home buyers have found it easier to access the market in the six months to March 2018.

Residential consents numbers remain elevated, especially for more intensive types of residential development in Hamilton in the March 2018 quarter. While the indicators suggest that conditions in the housing market, including supply responsiveness, may be improving across the Future Proof sub region ongoing monitoring is required particularly of affordability indicators.

5.1 DWELLING SALE PRICE AND RENT TRENDS



Indicator 1: Dwelling sales prices (actual)

After the recent period of rapid price increases (between 2015 and 2017) house price growth across the Future Proof sub-region appear to be stabilising with slower rates of growth evident in the latest quarters (December 2017 and March 2018). Waikato District however has seen comparatively stronger house price growth over the last three quarters with the rolling dwelling sales average for the December quarter reaching over \$600,000.

Through the period of rapid price increases (between 2015 and 2017) the average dwelling sales price in the Waipa District fell below the sub regional and Hamilton average. The average dwelling sale price in the Waipa District has now returned to a position above the sub regional average and has plateaued in the March '18 quarter. House prices in Hamilton City have continued the trend of slower growth that first become apparent in the September Quarter 2017.

	June '17 (Q3)	Dec '17 (Q4)	March '18 (Q1)
Future Proof Area	\$531,313	\$540,375	\$543,063
Hamilton City	\$516,750	\$521,750	\$524,250
Waikato District	\$581,750	\$598,000	\$605,375
Waipa District	\$527,000	\$556,250	\$559,250

Indicator 2: Change in dwelling sale price (inflation adjusted)Change March 2016 to March 2017Change March 2017 to March 2018



The maps above display the change in dwellings sale price (adjusted for inflation) by ward (for the year to March 2017 on the left, and the year to March 2018 on the right). As evident in the dwelling sales prices graph above (Indicator 1, pg. 4) the sub-region experienced a period of rapid growth over the year to March 2017 and has seen slower rates of growth over the year to March 2018.

House price change at the ward level reveals that the slowing growth at the territorial authority (TA) level, in the year to March 2018, has masked some significant declines in dwelling sales prices, particularly in the predominantly rural wards across the sub region. Also evident is the pattern of decline in dwelling sales prices in the areas closer to Auckland, in the Awaroa ki Tuakau Ward, which includes Tuakau and Pokeno, prices declined by 1.9% over the year to March 2018. At the TA level prices increased by a moderate 1.9% over the year to March 2018, compared to a 17% increase over the year to March 2017. The strong price increases in the Waipa District urban wards of Cambridge and Te Awamutu over the year to March 2017 (26% and 14.2% respectively) have reversed in the Cambridge Ward (down 6%) but continued at a similar rate of increase (12.5%) in the Te Awamutu Ward over the year to March 2018.

Indicator 3: Dwelling rents (actual)

The trend of steady quarterly increases in geometric mean weekly rents continued across the sub region in the December '17 and March '18 quarters. Higher rates of mean weekly rents have continued in the Waipa District, whereas weekly rents in the Waikato District and Hamilton City remain comparable. The mean weekly rent in the Future Proof sub-region in the March quarter 2018 was \$359, Hamilton City was \$357, Waikato District was \$358 and the Waipa District was \$379.



5.2 HOUSING AFFORDABILITY TRENDS

The experimental MBIE housing affordability measure (HAM) has been updated to March 2017. This measure compares the income after housing costs (including the cost of a mortgage, home insurance and rates) of potential first home renters or buyers in different parts of New Zealand to the national median income after housing costs for all households. The HAM identifies the proportion of potential first home buyers in an area whose income after housing costs is above or below the national median. The most recent Infometrics March 2018 quarter affordability indicators, are also provided below to provide a more timely indication of the affordability of renting and home ownership.

Indicator 4: Housing Affordability

The Infometrics housing affordability indicator (a ratio of the average current house value to estimated average annual earnings) indicates a period of increasing unaffordability from early 2015 to late 2016. Since then the levels of housing affordability have remained largely unchanged in the year to March 2018 in Hamilton City where as Waikato and Waipa Districts have seen some futher decrease in affordability.

The MBIE housing affordability measure (which draws on actual household incomes) confirms that housing affordability declined between March 2016 and March 2017. By this measure potential house purchases in the Waipa District are generally in a better position when compared with Waikato District and Hamilton City, largely due to Housing Affordability: Quarterly to March 2018 (Infometrics)



HAM Buy: Share of first home buyer households with less than above average left over income after housing costs



higher incomes amongst potential first home buyers resident in the district.

Indicator 5: Rental Affordability

The Infometrics rental affordability measure (average weekly rents over average weekly incomes) suggests that rental affordability has generally declined across the sub-region partners since March 2013.

The HAM Rent, which draws on the actual household incomes of renters, suggests that renting has become more affordable over this time (between March '13 and March '17). However, rather than suggesting improved rental affordability this may reflect an increase in households, with higher incomes, renting rather than transitioning to purchasing a dwelling as suggested by the Housing affordability indicators above.

Rental Affordability: Quarterly to March 2018 (Infometrics)



HAM Rent: Rental households with less than above average leftover income after housing costs



5.3 INDICATORS OF SUPPLY AND DEMAND

Waikato District (consents)

Waikato District (growth)

Waipa District (consents)

-•• Waipa District (growth)

Indicator 6: New dwelling consents compared to household growth [NO UPDATE]

The graphs below provide a rough estimate of movements in both demand and supply for new residential dwellings, and, to some extent, the gap between the two. The first graph shows the subregion has, since 2013, continued to experience both strong population growth (demand) and increase in the number of new residential consents (supply). Overall a shortfall in supply is suggested for the sub-region (notably in Hamilton City). However, this shortfall appears to have narrowed/improved recently. Supply and demand appear to be matched in Waikato and Waipa. What the net shortfall of demand that may not be satisfied (latent demand) for the Future Proof sub-region may currently be will be difficult to quantify. Other market factors that may also contribute to the shortfall in supply.



8

Indicator 7: Buyer classification-Hamilton

Future Proof TAs experience markedly different patterns of house buyer activity, as indicated by the quarterly buyer classification provided by CoreLogic.

The surge of Auckland multiple property owner activity in Hamilton City that has taken place over the over the last five years, appears to have abated, although levels remain above the historical average. In the Waikato District activity by Auckland multiple property owners appears to have remined elevated above historical averages.

CoreLogic Buyer Classification - Hamilton City

While Hamilton City buyers have long been dominated by local multiple property owners, Waikato District and Waipa District have since 2012 had larger numbers of Movers suggesting that the two districts have attracted more people permanently rather than property investors. The recent growth in Pokeno in the Waikato District and Cambridge in the Waipa District could account for this increased activity.

First home buyer activity in Hamilton has continued to increase to March 2018 from 23.7% in the September 2017 guarter to 24.8% in the March 2018 Quarter. Corelogic has commented that this is likely due to first home buver finding less completion in the market due to tougher lending criteria affecting investors' desire and ability to buy. Increasing rental cost may also be a contributing factor.

In the Waikato District and the Waipa District, first home buyer activity has increased again after a decline in the December 2017 quarter and is now sitting at 24.6% and 17% of activity respectively. The share of buyer activity by local multiple property owners has declined over the last two quarters and now represents 19.9% of activity in the Waikato District and 24.8% of activity in the Waipa District.



CoreLogic Buyer Classification - Waikato District

50.00%

40.00%



CoreLogic Buyer Classification - Waipa District





Indicator 8: Residential Building consents by territorial authority

New dwellings consents have continued to rise in the subregion, continuing the upward trend since the low levels experienced after the GFC.

Hamilton residential consents numbers remain elevated, with high numbers for more intensive types of residential development (as opposed to detached, or standalone houses, see further comment on this category below). Waipa District, when compared with Waikato District,



has also continued to see greater numbers of the intensive dwelling category.

The Statistics NZ building consent category of 'Apartments, townhouses, units etc.' (see graph below to the right) covers a range of smaller, usually more compact types of housing development. Growth in this category indicates both a shift in the types of dwellings that are being built and the intensification of urban areas. Also captured in this category are the units in retirement villages.

As can be expected Hamilton City has the majority share of dwelling consents in the apartments, townhouses, units etc.' category. The impact of the GFC (after 2007) clearly evident, followed by increasing numbers of consents from 2010 to 2017. Lower levels of dwelling consents are evident in Waikato District throughout the monitoring period, expect for a peak in 2006. Waipa District has experienced а growing trend in the 'apartments, townhouses, units etc dwelling category'. This is most evident in central Cambridge where several townhouse and apartment dwellings have been constructed in recent years. Compared to the historic average there have been many dwellings of this type consented in the March quarter of 2018.

Builling consents: Apartments, townhouses, units ect (Annual to March 2018)



5.4 PRICE EFFICIENCY INDICATORS

Indicator 9: Housing Price to Cost Ratio [NO UPDATE]

The price-cost ratio indicator compares house prices to construction and other costs, in order to estimate how much of the remaining house price is driven by the cost of land. It provides a general indication of the degree to which the supply of land and development opportunities are constrained relative to demand. A modest ratio is considered to be between 1 and 1.5, where land comprises up to one third of the price of a home. A high ratio *may* indicate insufficient land supply, impact on prices due to a surge in houses prices or illustrate the extent of a lag in the supply of houses.

As seen in the graph to the right, in the 1990s the price-cost ratio for the subregion remained largely constant at a little over 1. The ratio then increased in the early 2000s, reaching 1.4 at the time of the property boom in 2003 and rising again to around 1.5 in 2007



in the pre GFC property boom. The ratio then gradually declined to 1.2 in 2014 suggesting that land supply over this period was responsive to the lower level of demand, post GFC. Between 2014 and 2017 the ratio rose sharply to reach 1.59, suggesting that the supply of land, and development opportunities, may not have kept up with demand. The price-cost ratios for Tauranga/Smart Growth and the Future Proof sub-region appear to follow a similar pattern over the period. Auckland's price-cost ratio, on the other hand, has been over 1.5 for the last 20 years and has trended upward to more than 2.5 in the last year.

In the graph below Hamilton City, Waikato District and Waipa District have largely followed a similar trend since 1993, with Hamilton generally having a slightly higher ratio than the two districts. Since about 2015 there has been a marked increase in the ratio for all three TAs. The significant spikes in the Waikato District ratio are due to a small number of high priced sales skewing the indicator. These outlying sales will be accounted for in a future update to the measure.



Indicator 10: Rural Urban differentials [NO UPDATE]

Rural-urban differentials compare the values of residential land 2km either side of the boundary between urban and non-urban zones, after removing the impact of differences in amenities, geographic characteristics and infrastructure. If the value of land changes sharply where the zone changes, this may indicate that various land-use regulations are constraining urban development capacity. The differential estimates how much urban residential land values are being elevated because of these regulatory constraints. It is a key indicator of whether the District Plan provides

sufficient development capacity.

Area of study: The calculation of this differential is focused on an area greater than the Hamilton City Council boundary (see Map to the right), encompassing Ngaruawahia to the north and the Airport to the south. The areas classified as urban are marked in light blue and the rural areas are marked as red.

Data source: The rural-urban differential for this area was calculated using the November 2015 valuation data for Hamilton City, the 2014 data for Waikato District and the November 2016 data for Waipa District. All data was updated to 2017 values using the Sales Price Appraisal Ratio. The underlying data reflects the land use permitted at the time of the valuation, consequently any subsequent enabling District Plan changes, which may permit new land use activity to take place, are not reflected in this analysis.

Results: Figure 1 shows that land values drop sharply at the rural urban boundary. After removing major non-regulatory factors affecting land values, urban residential land close to the rural-urban boundary is worth just over 2.4 times the value of rural land next door, or \$227 more per square meter. The analysis suggests that regulations may be constraining development capacity and adding up to \$113,500⁴ to the value of a typical section in the Hamilton area.

Commentary: Monitoring both the ratio level and change in the ratio over time is important. The current results suggest that development capacity is constrained. However, as noted



Map: Location of rural and urban zones





above, the differential measures the impact of Hamilton City District Plan operative in 2014 which was less permissive than the 2016/17 District Plan. Areas in the city with deferred zoning (e.g. Te Rapa North, Ruakura, Peackocks and Rotokauri) are also not captured in this analysis. The extent to which this extra capacity will be reflected in urban land values when the next revaluation is undertaken in November 2018 is unknown. Other factors, not controlled for, may also be reflected in the results of this analysis.

⁴ Note that this estimate may be overstated by as much as \$22,000 as the cost of local infrastructure and the net cost of growth infrastructure is not fully captured by development contributions. See Net Cost of Growth Report.

6. BUSINESS INDICATORS

The latest vacancy reports for the Hamilton City central business district (CBD) note a slight increase in office vacancy rates and small decline in retail vacancies. However the expectation is that further supply, via new development and refurbishment, will be forthcoming and capacity supply issues are not expected.

The latest NIA Harcourt's industrial occupier survey (to December 2017) indicates that the overall industrial vacancy in Hamilton has declined to a low of 1.5%, the lowest ever recorded in Hamilton. This level is comparable to the 1.3% industrial vacancy rate in Auckland, described as 'extremely tight'. Why industrial land supply remains constrained requires further investigation. Work continues to identify additional supply data and information for the other major towns within the sub-region.

6.1 INDICATORS OF SUPPLY AND DEMAND

Indicator 11: Hamilton City CBD office vacancy rates

The overall vacancy rate in Hamilton's CBD increased to 7% in the six months to December 2017. This increase is the first overall vacancy increase in two years and in up from an historic low of 6.3% in June

2017. Despite the vacancy rate increases amongst all quality segments, except for grades B and E, a positive office leasing environment still exists.

The Hamilton CBD office market is characterised by average to lower quality grade space (C, D and E) which forms the bulk of stock. However composition is slowly changing as local developers are actively converting older secondary premises and refurbishing them to a higher standard (A and B).

CBD Office Vacancy by Grade





CBRE NAI Harcourt comment that this recent increase in overall vacancy should not be cause for concern as the ongoing refurbishment and uptake of new office space has been strong in the higher quality grades suggest a buoyant supply pipeline underpinning the long-term trend of occupier demand for higher quality space, most notable in the cost-effective B Grade category.

Indicator 12: Hamilton City central business district retail vacancy rates

The Hamilton CBD retail vacancy rate decreased to 6.8% in December 2018, down from 8.3% in June 2017, and only a little higher than the low of 6.2% the year prior. The overall decrease in vacancy was led by strong take up of secondary and tertiary retail space, which offset the increase in prime vacancies.

Other than the now completed ASB building, there were no new builds completed within the year to December 2017 however multiple redevelopments and refurbishments were underway. Strong

demand continues for smaller well-located tenancies.

The overall vacancy rate for the Hamilton CBD is well above the overall Auckland vacancy rate of 3.5% (December 2017),

The amount of space under refurbishment may continue to have a dampening effect on vacancy rates. Despite this outlook overall vacancy levels still remain high and do not suggest any capacity supply issues.



(Source: NAI Harcourts CBRE, February 2018)

Indicator 13: Hamilton City Industrial vacancy rates

The latest NIA Harcourt's industrial occupier survey (to December 2017) indicates that the overall industrial vacancy in Hamilton has declined to a low of 1.5%, the lowest ever recorded in Hamilton.

This level is comparable to the 1.3% industrial vacancy rate in Auckland, described as "extremely tight".

While overall stock increased by 3.2% over the year to December 2017, demand was particularly strong for new, high quality spaces particularly in Hamilton's newer industrial precinct of Te Rapa North.

It is anticipated that the low vacancy environment in Auckland and the continued improvement of transport connections between Auckland and the Waikato will continue to boost industrial growth in Hamilton as well as Northgate

Industrial Vacancy by Precinct



at Horotiu and Titanium Park at Hamilton Airport. Nevertheless, the continued declines in industrial vacancy levels suggest that supply side constraints be investigated.

6.2 PRICE EFFICIENCY INDICATORS [NO UPDATE]

Indicator 14: Land price differentials across industrial zone boundaries

If the value of land jumps significantly where zoning changes between an industrial zone and other activity zones, this indicates that zoning and other regulations may not match current relative demands for different land uses in that location. Consistent differentials may indicate insufficient development capacity for the more expensive land use city-wide.

Area of Study: This report focuses the five largest industrial zones identified on the map to the right in red); the three industrial areas within Hamilton City, the area around the Airport to the south and the Horotiu Industrial area to the north.

Data source: As with the rural-urban differentials, the industrial zone differential has been calculated using the 2015 valuation data for Hamilton City. The underlying data reflects the land use permitted at the

time of the valuation. Consequently any subsequent changes are not reflected in the results of this analysis.

Results by Zone:

- 1) Frankton-Te Rapa: Not including TeRapa North. Industrial land worth less than adjoining commercial and residential and worth a little more than adjoining rural. Some suggestion of need for further industrial land, however clear boundary effect not evident.
- Hamilton Airport: Titanium Business Park and 2) Mystery Creek Event Centre. Industrial land is worth only slightly more than the surrounding rural land suggesting no shortfall of industrial land capacity.
- 3) Horotiu: North Gate Business Park. Industrial land is worth less than small pockets of adjoining commercial land, rural and residential land, suggesting that there is no shortfall of industrial land.
- 4) Riverlea: Rural worth slightly less than industrial. Residential is worth more than industrial suggesting greater demand for residential in location.
- 5) Ruakura: Small block either side of Wairere Drive. Residential is worth more than

industrial. Differentials between Industrial and rural significant. Inconclusive as very few data points. Commentary: Higher land values in the Hamilton City industrial land areas suggest a level of insufficient capacity in 2015. Further Industrial land has been made available via the 2016/17 District Plan (including the Ruakura Plan Change), however some capacity is currently held in deferred 'Future Urban Status' due to infrastructure constraints.

-and



Hamilton: Parcel land values near selected industrial borders



7. NOTES AND DATA SOURCES

The information was primarily sourced from the Ministry of Business, Innovation and Employment (MBIE) dashboard for Hamilton City, Waipa District, Waikato District and the Greater Hamilton Urban Area. Information was also sourced from Statistics New Zealand NZ.Stat website and publicly available reports from CoreLogic/QV, CBRE NAI Harcourts and Colliers International.

Indicator 1: Dwelling sales prices (actual) (Source: MBIE Dashboard, June 2018)

This indicator shows the median prices of residential dwellings sold in each quarter. This median price series is not adjusted for the size and quality of dwellings. Prices are presented in nominal terms; they have not been adjusted for general price inflation.

Indicator 2: Dwelling Sales price (SPAR Index) (Source for both images: MBIE Dashboard, June 2018)

The Sales Price Appraisal Ratio (SPAR) provides an index of percentage change in dwelling sales prices relative to a common base year. It is constructed by comparing the sales price of each dwelling sold in a period with its valuation estimate. It adjusts for the composition and quality of the dwellings sold over each period. Data is sourced from CoreLogic.

Indicator 3: Dwelling rents (actual) (Source for both images: MBIE Dashboard, June 2018)

Notes: This indicator reflects nominal mean rents as reported in new rental bonds lodged with MBIE. The mean used is a geometric mean. The reason for using this mean is that rents cluster around round numbers, and tend to plateau for months at a time (spiking up by say \$10 or \$10 at a time). This makes analysis of time series difficult and using the geometric mean is a way of removing this clustering effect.

Indicator 4: Housing Affordability

• Infometrics housing affordability index (Source: Informetric Quarterly Economic Monitor – March 2018) Infometrics housing affordability index which is the ratio of the average current house value to average annual earnings. The levels quoted in the report are average current values over the past 12 months. An average current value is the average (mean) value of all developed residential properties in the area based on the latest house value index from QVNZ. Housing affordability in the four most recent quarters is based on estimated average annual earnings, while earnings data from earlier years is based on actual figures from Linked Employer Employee Data published by Statistics New Zealand.

HAM Buy: (Source: MBIE Dashboard, May 2018)

The MBIE Housing affordability measure identifies the proportion of potential first home buyers in an area whose income after housing costs is above or below the national median. This measure is based on real incomes of real households. Note that housing affordability in the four most recent quarters is based on estimated average annual earnings, while earnings data from earlier years is based on actual figures from Linked Employer Employee Data published by Statistics New Zealand.

Indicator 5: Rental Affordability

- Infometrics rental affordability Source: Informetric Quarterly Economic Monitor December 2017 March 2018
- HAM Rent - share of renting households below the benchmark (Source: MBIE Dashboard, May 2018) This Comparison of average weekly rents with average weekly earnings (which are calculated from estimated average annual earnings). A rental affordability index which is the ratio of the average weekly rent to average weekly earnings. A higher ratio, therefore, suggests that average rents cost a greater multiple of typical incomes, which indicates lower rental affordability. Rents (\$ per week) are averaged across the quarter in question from monthly rental data sourced from MBIE. Rental data pertains to averages from data collected when bonds are lodged and does not control for specifications of the home (eg. size, number of bedrooms, age of home, etc). Note that rental affordability in the four most recent quarters is based on estimated average annual earnings, while earnings data from earlier years is based on actual figures from Linked Employer Employee Data published by Statistics New Zealand.

Indicator 6: New dwelling consents compared to household growth (Source: MBIE Dashboard, May 2018) Notes: This indicator approximates the demand for, and supply of, new dwellings. It measures changes in demand and how responsive supply is. The number of new dwelling building consents is lagged by six months (presented as a 12 month rolling average), to account for the time taken from consenting to completion. It is not adjusted for non-completions, or for demolitions. It is used as a proxy for supply. The most recent resident population, divided by the local average housing size, is used as a proxy for demand. Both sets of data are sourced from Statistics New Zealand.

Indicator 7: Core Logic Buyer classification (Source: Corelogic Buyer Classification, Hamilton December, March '18)

First home buyer (FHB)	Purchasing a single house with mortgage finance and buyer names have not previously appeared on a residential property title. Genuine FHBs purchasing with cash will appear as new to market cash buyers.
Multi-property owner (MPO, 'investor')	Adding to an existing portfolio of at least one property, except those classified as new to the market (see below). Includes purchases where the intent is to owner occupy.
Auckland Multi- property owner (MPO, 'investor')	As per the MPO definition above, with at least half of their portfolio based in Auckland.
Mover	Buying a single house having recently sold (or subsequently selling within a short timeframe) existing property. Movers will be labelled 'investors' for short periods if there is a lag between settlement and the sale of existing property.
New to market (NTM)	Purchasing a house with cash (or purchasing multiple properties on the same day) having not previously appeared on a residential property title nationwide, or purchasing a house in a region where buyer names have not previously appeared on a residential property title.
Re-entry	Buying a single house following an extended period of absence from the housing market (buyer names have previously appeared on a residential property title).
Other	Classification is unknown. Less common in the classification of buyers relative to sellers.

Indicator 8: Residential Building consents by territorial authority (Source: Statistics NZ Infoshare, March 2018)

Indicator 9: Housing Price to Cost Ratio (Source: MBIE Dashboard, January 2018)

Indicator 10: Rural Urban land price differential (Source: MBIE Dashboard, January 2018)

Indicator 11: CBD district office vacancy rates (Source: CBRE NAI Harcourts , March 2018)

Indicator 12: CBD retail vacancy rates (Source: CBRE NAI Harcourts, February 2018)

Indicator 13: Industrial vacancy rates (Source: CBRE NAI Harcourts, March 2017)

Indicator 14: Land price differentials across industrial zone boundaries (Source: MBIE Dashboard, January 2018)