

# The Impact of Aircraft Noise on Brisbane Residential Property Sectors: 1988-2020

2020 BRISBANE RESIDENTIAL PROPERTY  
INVESTMENT PERFORMANCE UPDATE

FULL SUBURB SUMMARY

QUT Business School, Economics and Finance



[qut.edu.au](http://qut.edu.au)

Professor Chris Eves (RMIT University)  
Dr Andrea Blake (QUT)  
November 2020

Commissioned by  
Brisbane Airport  
Corporation



# 1. Introduction

This is the first property update since the opening of Brisbane Airport's New Parallel Runway (NPR) in July 2020.

The initial study, completed in 2014, analysed residential property sales transactions for the period 1988 to 2013.

These sales comprised a range of suburbs in Brisbane that were:

- » Subject to varying degrees of aircraft noise complaints
- » Located under the various aircraft flight paths that were operating in 2013
- » In locations that were not subject to aircraft noise or flight paths, and
- » Suburbs that could be subject to or located under flightpaths when the NPR was open for operations.

Following the initial study, an annual update has been carried out from 2014 to 2020. During this time period additional suburbs have been added to the initial suburb list to reflect changes in aircraft noise complaints and specific requests from Brisbane Airport Corporation (BAC).

The study has increased from an initial 36 suburbs to 53 suburbs and comprises all residential property sales for each of these suburbs from 1988 to 2020. The update in 2020 included a 5-month period when both Brisbane Airport runways were in operation, with the NPR opening on 12 July 2020. From this date the revised flight paths were in operation. However, it is noted that the number of flights was reduced in 2020 as a result of the closure of international and at times the domestic borders due to the COVID-19 pandemic.

As previously stated, the initial report provided an extensive literature review in relation to studies on aircraft noise, a review of popular media and comments in relation to aircraft noise and a longitudinal analysis of the capital return performance and sale ability over the period 1988 to 2013.

In line with the previous updates the following Tables represent the investment performance of 53 geographically diverse suburbs across Brisbane based on all residential property sales over the period 1988- 2020, with the analysis showing the 2020 capital returns as well as the long-term capital returns from 1988-2020. These 53 suburbs are subject to varying exposures to the flight paths for the existing runway at Brisbane Airport, as well as the revised flight paths following the NPR commencing operations in July 2020.

The suburbs analysed cover the following geographic locations:

- » Brisbane Inner City Suburbs
- » Brisbane Northern Suburbs
- » Brisbane Southern Suburbs
- » Brisbane Eastern Suburbs
- » Brisbane Western Suburbs

Each of these groupings contain a range of suburbs based on socio-economic status and current impact from the existing runway flight paths from high exposure, moderate exposure and limited (no) exposure to aircraft noise. Annexures 1 and 2 provide an alphabetical listing of the suburbs analysed in the study together with their investment performance in 2020 and 1988 to 2020. The full study period now covers 33 years and also a number of Brisbane property cycles and includes periods of positive and negative residential property periods including the GFC, 2011 Brisbane floods and the oversupply of residential apartments from 2014 through to 2017, with the 2020 analysis also based on the first 12 months of the COVID-19 pandemic.

In addition to the investment performance analysis based on suburb exposure to aircraft noise, the 2020 update also compares the investment performance for individual suburbs located under flight paths, legacy and NPR. It also reviews suburbs that were first subject to aircraft noise following the opening of the NPR and suburbs that are currently not and have never been impacted by aircraft noise.

In all cases, the analysis is based on both the annual median house price and the annual average house price for each of the suburbs analysed. The investment performance analysis comprises:

- » 2020 capital return (median house price)
- » 2020 capital return (average house price)
- » 1988-2020 capital return (median house price)
- » 1988-2020 capital return (average house price)
- » 2020 capital return (inner city unit median price)
- » Average annual volatility (median and average house and unit price)
- » Risk/Return Ratio.

# 2. Major Findings 2020

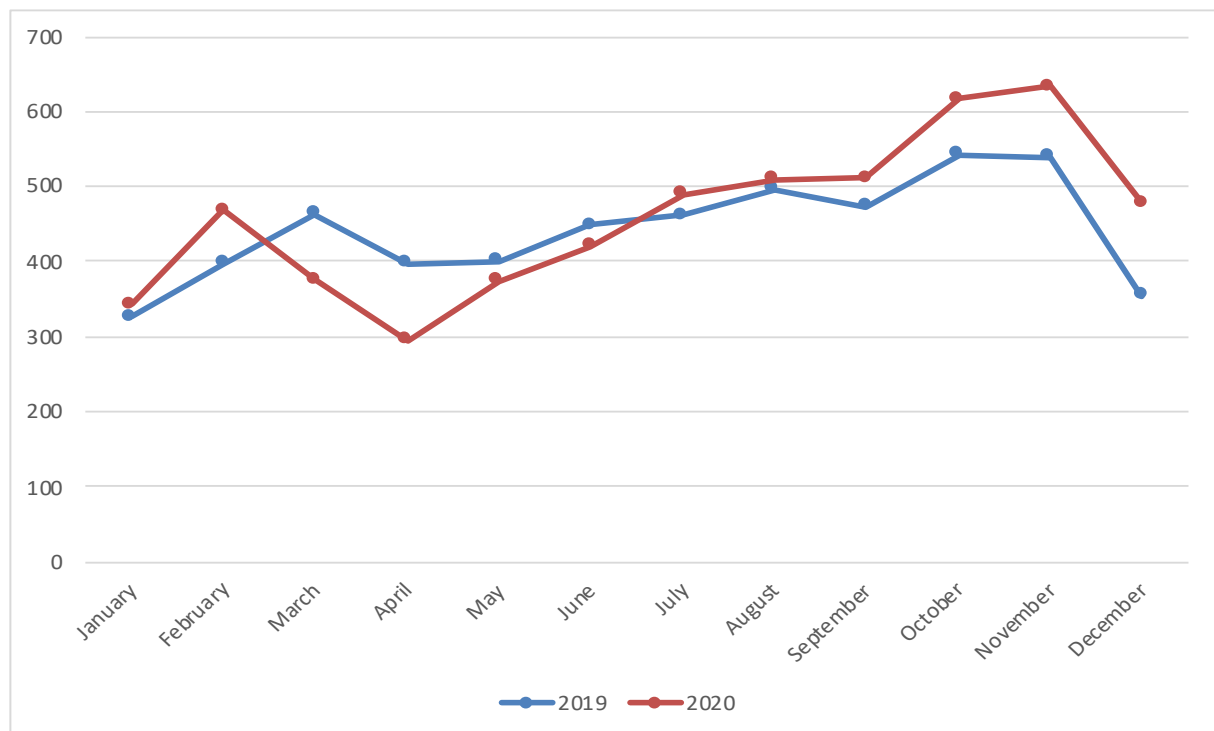
It was anticipated that COVID-19 may have had a significant impact on the residential housing markets in Brisbane. To test this a comparison has been made between the volume of house sales across the suburbs in the study in 2019 to 2020.

During 2019 there were a total of 5,301 house sales across the 53 suburbs in the study. During 2020 there were 5,515 house sales across the same 53 suburbs.

Although the number of sales transactions were greater in 2020, Figure 1 shows that the trend sales transactions were considerably lower from February 2020 to May 2020 compared to the same period in 2019. However, from June 2020 through to December 2020, there were considerably higher sales transactions compared to 2019 for this period.

Figure 1 also shows that the trend in sales transactions on a monthly basis over the two periods were very similar. This is particularly evident in the period July to December. On this basis it appears that impact from COVID-19 on the Brisbane residential property sales sector was limited to 3 months in 2020, with the residential sales market returning to levels greater than 2019 in the second half of 2020. This period coincides with the opening of the new Brisbane runway.

Figure 1: House Sale Transaction Comparison 2019 to 2020



2020 has seen an overall increase in the Brisbane residential housing market compared to 2019. In 2019 there were 18 suburbs in the study that recorded a negative median house price capital return. The 2020 results show that in this 12-month period only 11 of the 53 suburbs in the study recorded negative capital return. Of these 11 suburbs the most significant decrease was in Pinkenba (-19.77%); however, there was only one house sale in this suburb in 2020 and this result may not be reflective of the short- and long-term trends. If the Pinkenba result is removed the negative returns for the remaining 10 suburbs ranged from -0.36% (Morningside) to -4.47% for Hawthorne. The negative capital returns based on median house prices were spread geographically and were not specific to particular locations in Brisbane. Only two of the suburbs in the study have recorded negative growth in both 2019 and 2020 (Ascot and Northgate). This is a better result than 2019 when there were 5 suburbs in the study recording negative growth in 2018 and 2019.

Again, a significant result from the 2020 data is the considerable variation in property investment performance from 2019. A number of the better performing suburbs in 2019 showed a reversal in returns in 2020, with some of the poorer performing suburbs in 2019 being the better performing suburbs in 2020. The negative 10.97% return for Dutton Park in 2019 has been reversed with a capital gain of 12.99% in 2020 (this also followed a significant capital return in 2018) and Nudgee Beach showing a negative return of 7.93% in 2019 but a positive capital growth of 20.76% in 2020 (although this growth was based on a limited number of sales transactions for the suburb in 2020). Clayfield also had a significant improvement in the residential house investment performance with a negative capital return in 2019 of 9.25% followed by a positive capital return of 17.92% in 2020. The reverse situation occurred in Coorparoo, where median house prices in this suburb in 2019 recorded a capital gain of 15.64%, this has been followed by a negative return of -1.47 in 2020. The inner-city suburbs of Highgate Hill and Kangaroo Pt also showed a reversal of the significant positive returns of 17.78% and 21.01% respectively in 2019 to a capital loss respectively of -4.47% and -2.27% in 2020.

Generally, those suburbs (apart from Ascot and Northgate) that recorded negative or low positive capital returns in 2019 have generally shown an improved investment performance with positive price growth in 2020.

In 2020 the suburbs that recorded a negative median house price capital return were:

- » Ascot
- » Bulimba
- » Coorparoo
- » Dutton Park
- » Highgate Hill
- » Kangaroo Pt
- » Morningside
- » Northgate
- » Pinkenba
- » Sherwood
- » Teneriffe

The suburbs that recorded positive price growth increases in 2019 but a reduction in median house prices capital returns in 2020 were:

- » Albion
- » Balmoral
- » Belmont
- » Chelmer
- » Chermside West
- » Fairfield
- » Hamilton
- » Highgate Hill
- » Holland Park West
- » Seven Hills
- » Stafford
- » The Gap

There were 32 suburbs in the study that recorded a higher capital growth in 2020 compared to the capital return recorded in 2019. These suburbs were:

- » Annerley
- » Ashgrove
- » Bardon
- » Camp Hill
- » Cannon Hill
- » Carindale
- » Chapel Hill
- » Clayfield
- » Dutton Park
- » East Brisbane
- » Forest Lake
- » Gordon Park
- » Graceville
- » Jindalee
- » Kenmore
- » Mansfield
- » Mitchelton
- » Moorooka
- » Mt Gravatt East
- » Murrarie
- » New Farm
- » Norman Park
- » Nudgee Beach
- » Rocklea
- » Sherwood
- » Tarragindi
- » Tingalpa
- » Toowong
- » Virginia
- » Woolloongabba
- » Woolloowin
- » Wynnum

Of these 32 suburbs the suburbs recording capital returns greater than 10% for 2020 were:

- » Ashgrove (19.54%)
- » Bardon (17.26%)
- » Cannon Hill (11.67%)
- » Clayfield (17.92%)
- » Dutton Park (12.99%)
- » Graceville (16.07%)
- » Highgate Hill (13.43%)
- » Murrarie (15.06%)
- » Nudgee Beach (20.76%)
- » Tingalpa (11.11%)
- » Virginia (24.17%)
- » Woolloongabba (14.74%)

In 2020 the median house price capital return for greater Brisbane was 2.24%. The study suburbs that did not outperform the greater Brisbane median house price capital return were:

- » Ascot
- » Balmoral
- » Bulimba
- » Coorparoo
- » Fairfield
- » Forest Lake
- » Gordon Park
- » Hawthorne
- » Kangaroo Pt
- » Morninside
- » Northgate
- » Pinkenba
- » Sherwood
- » Teneriffe

Overall, the average residential median house capital return for the 53 suburbs in the study was 5.96%, compared to the 2019 average residential median house capital return of 4.46%.

The variation in the overall capital returns for 2020 are across all geographic areas of Brisbane and are not confined to a single location or location under a flight path. Some of the strongest capital growth suburbs such as Bardon, are under the new flight path. This growth has continued into 2021, which will be covered in the 2021 report.

An analysis of the apartment market in the six inner city suburbs in the study has also shown that this sector of the housing market in Brisbane continues to underperform compared to the residential housing sector. Only Teneriffe and Toowong recorded significant capital returns in 2020 (7.08% and 4.00% respectively). These suburbs are both located on the Brisbane River with access to riverside bike/walkways, which would be a driver in market demand over 2020 due to the impact of COVID-19 lockdowns. Woolloongabba recorded a negative capital return of -1.85%. The other suburbs in the apartment market sector analysis all recorded capital returns in 2020 of less than 1%.

The analysis based on average house prices recorded slightly different results across the suburbs. Overall, the average capital return for the 53 suburbs based on average house prices was 5.16% in 2020, down from the 2019 capital return of 6.28% and lower than the 2020 capital return based on the median house price for these suburbs.

In 2020 there were 13 suburbs recording a negative capital return based on average house prices for these suburbs. Excluding Pinkenba, there were four suburbs in the study with negative 2020 capital returns greater than 10% (Belmont, Bulimba, Hawthorne and Kangaroo Pt), with Belmont being the only suburb in the study to record a positive return in 2020 based on median house prices but a negative return based on average house prices.

The average house price analysis shows that the suburbs recording the highest capital returns in 2020 were Highgate Hill (26.65%), Virginia (18.53%) and Ashgrove (15.83%).

Ascot, Morningside, and Sherwood recorded negative capital returns in 2020 based on median house prices but a positive return when the capital returns were based on average house prices for the suburbs.

The full 33-year analysis also confirms that the suburbs under the existing runway flight paths and within the inner city and middle ring locations of Brisbane are still showing higher average annual capital returns compared to other less well-located suburbs of Brisbane. This is still evidenced by the 33-year average annual returns for Brisbane suburbs under existing flight paths showing average annual returns over 33 years in excess of 8% per annum, well above the Brisbane average of 6.53%. If aircraft noise was the main driver of values in these suburbs it would be expected that the average annual returns would be lower than the Brisbane median house price average capital return.

The base data for the years 1988 to 2013 can be found in the full QUT/BAC report released in 2013, with the 2015, 2016, 2017, 2018 and 2019 data update available in separate reports.

The 2020 residential sales analysis does not provide substantial evidence that the change in aircraft movements following the opening of the NPR in July 2020, has had a definable impact on the movement in house prices in suburbs that are now subject to increased exposure to aircraft noise. There is no evidence of decreased prices and decreased capital growth and there has not been a definable increase in prices and returns for suburbs that are now less impacted by aircraft noise.

# 3. Individual Suburb Performance:

## Median and Average House Prices 1988-2020

This suburb comparison has been initially broken down based on geographic location in Brisbane. The classifications are:

- » Inner City Suburbs
- » Northern Suburbs
- » Southern Suburbs
- » Eastern Suburbs and
- » Western Suburbs.

For each of these suburbs the investment performance is recorded in respect to the capital return for 2020, based on the change in median and average house prices from 2019 to 2020, as well as the long-term investment performance of houses in these suburbs over the period 1988 to 2020. In addition to the capital returns, the volatility and risk return ratios for these suburbs are analysed.



# 4. Individual Suburb Performance:

## Inner City

Table 1: Inner City Houses: Median Price: 1988-2020

Suburb	2020 Capital Return (%)	Average Annual Capital Return (%)1988-2020	Average Annual Volatility (%)	Risk return Ratio
East Brisbane	9.88	8.85	13.78	1.56
Highgate Hill	13.43	9.26	12.68	1.37
Kangaroo Pt	-2.27	10.21	23.96	2.35
New Farm	5.26	11.20	14.27	1.27
Teneriffe	-3.95	12.69	25.46	2.01
Woolloongabba	14.74	8.81	12.35	1.40
Greater Brisbane	2.24	6.53	8.15	1.25

The movement in median house prices for the inner-city suburbs was more mixed in 2020 compared to the previous year. In 2019, only East Brisbane recorded a decrease in the median house price, with Highgate Hill and Kangaroo Pt recording capital growth of 17.78% and 21.01% respectively (Refer to Table 1). 2020 has seen several of these inner-city suburbs recording significant changes in the median house price from 2019 to 2020. The low return for East Brisbane in 2019 (-3.42%) has been reversed with a 9.88% increase in the median house price in 2020. Highgate Hill continues to show well above average capital growth in 2020 with a return of 13.43%. The very high capital growth in 2019 for Kangaroo Point has been followed with a reduced median house price in 2020 showing a negative capital return for 2020 of -2.27%. Woolloongabba has also shown a significant increase in median house prices from 2019 to 2020, with a capital growth in 2020 of 14.74%. This may be attributable to the connectivity that will be provided to Woolloongabba through the

Cross River Rail infrastructure. The only suburbs in this grouping to show 2020 capital returns greater than the 1988-2020 average were East Brisbane, Highgate Hill and Woolloongabba. The lower or negative returns for the other suburbs in the study have seen their long-term average annual capital returns based on median house prices fall slightly compared to the 2019 results. Kangaroo Pt and Teneriffe were the only inner-city suburbs in the study to record a 2020 capital return lower than the Brisbane median house price return of 2.24%. These inner-city suburbs are still continuing to show average annual capital returns over the full 33 year study well above other middle and outer ring suburbs and the Brisbane median house price average annual capital return of 6.53%. Despite the high volatility for these inner city suburbs, their higher average annual capital returns still result in similar risk/return ratios to suburbs located in the middle and outer rings of Brisbane.

It is again noted that these suburbs comprise mainly of apartments as opposed to houses and the low volume of sales transactions in these suburbs can result in considerable volatility in median house prices from year to year, with all the suburbs in the inner city grouping showing volatility across the period 1988 to 2020, from 12.35% for Woolloongabba to 25.46% for Teneriffe.

Table 2 shows that when the capital return performance is measured on the average house price basis for these inner-city suburbs, there is some variation in the 2020 compared to the median house price investment performance. Three suburbs (East Brisbane, Kangaroo Pt and Teneriffe) recorded a lower

average house price in 2020 compared to the median house price returns.

The high 2020 average house price capital returns for Highgate Hill and New Farm has seen the long term investment performance of these suburbs increase slightly compared to the 2019 results, while all other suburbs have shown a slightly lower 1988-2020 average annual capital return decrease from the 2019 levels. Volatility has remained at very similar levels to the pre 2020 results. It is noted that Highgate Hill is not impacted by aircraft noise whereas parts of New Farm are impacted. The strong market performance of both of these suburbs would indicate that aircraft noise is a significant value driver.

**Table 2: Inner City Houses: Average Price: 1988-2020**

Suburb	2020 Capital Return (%)	Average Annual Capital Return (%) 1988-2020	Average Annual Volatility (%)	Risk return Ratio
East Brisbane	-0.67	9.54	17.57	1.84
Highgate Hill	26.65	9.16	16.69	1.82
Kangaroo Pt	-10.39	11.72	38.46	3.28
New Farm	11.64	11.33	14.36	1.27
Teneriffe	-1.77	13.65	31.66	2.32
Woolloongabba	6.44	8.95	12.84	1.43

# 5. Individual Suburb Performance:

## Northern Suburbs

Tables 3 and 4 show the capital returns and investment performance for a range of suburbs located in areas north of the Brisbane CBD.

Again, the results for Nudgee Beach and Pinkenba in 2020 need to be viewed separately to the other suburbs in the Northern grouping. These two suburbs had very limited sales transactions in 2020. There was only one house sale in Pinkenba and four sales in Nudgee beach. These suburbs returned median house price capital returns in 2020 of -19.77% and 20.76%.

Due to the low number of sale transactions on an annual basis for these two suburbs, the yearly figures are not a reliable indication of long-term average annual capital returns, with these two suburbs showing 1988-2020 average annual capital returns of 15.39% (Nudgee Beach- median House price) and 10.41% (Pinkenba- median House price), with similar high long term average annual capital returns based on average house prices (refer to Table 4).

**Table 3: Northern Brisbane Suburbs: Median Price: 1988-2020**

Suburb	2020 Capital Return (%)	Average Annual Capital Return (%)1988-2020	Average Annual Volatility (%)	Risk return Ratio
Albion	3.84	9.43	18.91	2.01
Ascot	-3.72	8.32	15.42	1.84
Chermside West	1.61	5.96	10.65	1.79
Clayfield	17.92	8.25	12.32	1.49
Gordon Park	1.66	8.42	10.21	1.21
Hamilton	3.90	10.42	20.94	2.01
Mitchelton	4.79	7.74	9.24	1.19
Northgate	-3.60	7.92	11.84	1.49
Nudgee Beach	20.76	15.39	40.39	2.62
Pinkenba	-19.77	10.41	27.61	2.65
Stafford	3.88	7.62	10.31	1.35
Virginia	24.17	8.43	11.29	1.34
Woolloowin	2.38	8.37	14.03	1.68
Greater Brisbane	2.24	6.53	8.15	1.25

Excluding Nudgee beach and Pinkenba, Table 3 shows that the range in median house prices and subsequent capital returns has ranged from -3.72% for Ascot to a high of 20.76% for Virginia and 17.92% for Clayfield. As in previous years, suburbs recording high median house price growth in 2019 tended to have a lower capital return in 2020. In 2019 Hamilton had a capital return of 18.46% but only a 3.90% median house price increase in 2020. On the reverse the low return in 2019 for Clayfield has been offset by a 17.92% increase in median house prices in 2020. Ascot and Northgate are the only suburbs in this grouping that have recorded a negative median house price return in both 2019 and 2020, with a subsequent reduction in the long term average annual return from 8.77% in 2019 to 8.32% in 2020 for Ascot and 8.25% in 2019 and 7.92% in 2020 for Northgate.

The northern suburbs to record a 2020 median house price capital return less than the Brisbane median

house price return were Ascot (-3.72%), Chermside West (1.61%), Gordon Park (1.66%), Northgate (-3.60%) and Pinkenba (-19.77%). The capital growth for Woolloowin was 2.38% for both 2019 and 2020. On a long-term investment performance basis only Clayfield, Nudgee beach and Virginia recorded 2020 median house price increases that also resulted in an increase in the 1988-2020 average annual capital returns compared to the 1988-2019 period.

Table 3 continues to show that the higher value suburbs continue to show a higher average annual capital return compared to the lower value Northern Brisbane suburbs of Chermside West, Mitchelton and Stafford. The significant increase in the median house price in 2020 for Virginia now has this lower value suburb recording similar long term returns to higher value suburbs in this grouping (7.93% 1988-2019 and 8.37% 1988-2020).

**Table 4: Northern Brisbane Suburbs: Average Price: 1988-2020**

Suburb	2020 Capital Return (%)	Average Annual Capital Return (%) 1988-2020	Average Annual Volatility (%)	Risk return Ratio
Albion	4.67	9.06	17.06	1.88
Ascot	8.39	8.21	12.45	1.52
Chermside West	2.37	5.99	10.04	1.68
Clayfield	11.40	7.87	12.45	1.58
Gordon Park	9.18	8.59	9.18	1.07
Hamilton	10.32	8.84	17.10	1.93
Mitchelton	4.99	8.07	10.64	1.32
Northgate	-3.06	8.27	12.14	1.47
Nudgee beach	46.61	15.64	35.33	2.26
Pinkenba	-19.77	14.78	45.77	3.10
Stafford	-0.14	7.92	10.76	1.36
Virginia	18.53	8.39	10.37	1.28
Woolloowin	5.82	8.29	12.80	1.54

When the 2019 capital return for the Northern Brisbane suburbs is based on average house prices, again there is a noticeable difference in the returns compared to the Median house price analysis. Based on median house prices and excluding Pinkenba due to the low sale transactions, two suburbs had negative capital returns in 2020 (Ascot and Northgate), when the sales are analysed on an average house price basis the suburbs recording negative returns in 2020 were Northgate (-3.06%) and Stafford (-0.14%). The only suburb recording a positive 2020 capital return based

on average house prices compared to negative return based on median house prices was Ascot (Median -3.72%, Average 8.39%). Other Northern suburbs in the study that recorded higher capital returns based on average house prices were Gordon Park (1.66% median, 9.18% average house price) and Hamilton (3.90% median, 10.32% average house price).

Generally, the volatility and risk return ratios for these suburbs have remained at similar levels to the 2019 results.

# 6. Individual Suburb Performance:

## Southern Suburbs

Table 5 shows the 10 suburbs classified as southern Brisbane suburbs in the study. All these suburbs are currently located under, adjacent to the current Brisbane Airport runway and southern flight paths and under the new flight paths following the commencement of operations with the 2<sup>nd</sup> Brisbane Airport runway.

As has been the case with the previous annual updates there has been significant variation in median house

price returns based on 2020 house sales in these suburbs. Unlike the inner-city and Northern Suburb's results there have been no suburbs in this grouping that recorded a negative capital return in 2020. These Southern suburbs had capital gains for 2020, ranging from a low of 1.14% for Forest Lakes to a high of 12.99% for Dutton Park. The Dutton Park result of a 12.99% in 2020, followed a negative return in 2019 of -10.97%.

**Table 5: Southern Brisbane Suburbs: Median Price: 1988-2020**

Suburb	2020 Capital Return (%)	Average Annual Capital Return (%) 1988-2020	Average Annual Volatility (%)	Risk return Ratio
Annerley	9.29	7.74	9.62	1.24
Dutton Park	12.99	8.79	13.15	1.50
Fairfield	1.94	8.14	10.74	1.32
Forest Lake	1.14	4.23	12.57	2.98
Holland Park West	3.45	7.49	9.85	1.31
Mansfield	4.32	6.85	9.14	1.33
Moorooka	9.03	7.54	9.19	1.22
Mt Gravatt East	7.00	7.44	9.01	1.21
Rocklea	5.17	7.64	13.64	1.79
Tarragindi	9.33	8.11	9.54	1.18
Greater Brisbane	2.24	6.53	8.15	1.25

The better performing suburbs for this grouping in 2020 were Dutton Park (12.99%), Tarragindi (9.33%), Annerley (9.29%) and Moorooka (9.03%). These suburbs had significantly lower capital returns in 2019 ranging from -0.74% for Moorooka to 2.95% for Annerley, showing a similar trend across Brisbane for high or low returns in one year to be offset by higher or lower capital returns in the following year. Lower performing suburbs in this grouping in 2020 such as Fairfield at 1.94% capital return recorded a capital return of 9.93% in 2019.

In 2020 the only suburbs in the Southern grouping not to achieve a capital return greater than the Brisbane median house price return were Fairfield (1.94%) and Forest Lake (1.14%).

The significant 2020 capital returns for Annerley, Dutton Park, Moorooka, and Tarragindi has seen their long term average annual capital returns increase slightly compared to the 2019 results. These suburbs will see gains in connectivity through the construction of the Cross River Rail.

When the 33-year period is compared there is a very strong relationship between the high middle value suburbs in this geographic grouping (Annerley, Dutton Park, Fairfield, Tarragindi). Although a number of these suburbs are directly under the Brisbane Airport

southern flight path and the revised flight paths with the operation of the second runway commencing, they have shown long term average annual capital returns ranging from 7.74% (Annerley) to 8.79% (Dutton Park). This similarity in long term investment performance is also prevalent in the middle value suburbs of Holland Park West, Mansfield, Moorooka, Mt Gravatt East and Rocklea, with the returns for these suburbs still ranging from 6.85% to 7.64% (refer to Table 5). Apart from Forest Lake, all these suburbs have recorded higher average annual capital returns to the average annual capital returns for the 33-year period based on the Brisbane median house price (1988-2020).

The variation in the volatility of the capital returns for these southern suburbs is still within a much narrower range than the suburbs classified as Northern, Eastern and Western suburbs in the study. For these suburbs, the range in volatility for the movement in median house prices from 1988 to 2020 was 9.01% for Mt Gravatt East to a high of 13.64% for Rocklea. For this suburb grouping there are six suburbs recording an average annual volatility of less than 10% based on median house prices from 1988 to 2019. These high capital returns and lower volatility have generally resulted in better risk/return ratios compared to the suburbs located to the north, east and west of the Brisbane CBD.

**Table 6: Southern Brisbane Suburbs: Average Price: 1988-2020**

Suburb	2020 Capital Return (%)	Average Annual Capital Return (%) 1988-2020	Average Annual Volatility (%)	Risk return Ratio
Annerley	8.70	7.96	11.91	1.50
Dutton Park	17.95	9.89	21.69	2.19
Fairfield	-3.60	8.04	14.13	1.76
Forest Lake	0.64	4.29	12.02	2.80
Holland Park West	0.37	7.36	9.91	1.35
Mansfield	3.25	7.10	10.97	1.55
Moorooka	8.55	7.68	10.44	1.36
Mt Gravatt East	4.34	7.35	9.57	1.30
Rocklea	6.55	8.50	17.85	2.60
Tarragindi	12.30	8.34	9.72	1.17

Again, when the investment performance of these southern suburbs is based on average house prices the results for a number of the southern suburbs is different to the median house price analysis. Table 6 shows that a number of suburbs that recorded a positive capital return in 2020 or a median house price capital return prices recorded a negative return in 2020 or a capital return lower than the Brisbane median house price return for 2020. These suburbs were Fairfield (-3.60%), Forest Lake (0.64%) and Holland Park West (0.37%).

During 2020, and based on average house prices, the better performing suburbs in the southern grouping were Dutton Park (17.95%) and Tarragindi (12.30%). The high volatility for Dutton Park (21.69%) and Rocklea (17.85%) reflects the very low sale transactions that occur each year with individual high or low sales impacting on the capital growth each year.

On a risk return basis, the better performing suburb in this grouping continue to be Tarragindi, Mt Gravatt East, Moorooka and Holland Park West.

# 7. Individual Suburb Performance:

## Eastern Suburbs

The suburbs included in the eastern suburbs grouping comprise a diverse range based on their socio-economic status. Within this grouping there are Brisbane suburbs with some of the highest median house prices such as Bulimba, Balmoral and Hawthorne and several suburbs such as Murarrie and Tingalpa that are classified as lower value suburbs, with a greater concentration of industrial properties.

Most of these suburbs in this classification are subject to varying degrees of aircraft noise, with Balmoral, Coorparoo, Hawthorne, Morningside, Norman Park, and Seven Hills being located under the main legacy runway southern flight paths, which were anticipated to have reduced aircraft movements with the NPR coming into operation in 2020.

Table 7 shows the median house price capital return for these six suburbs from 2018 to 2020.

**Table 7: Eastern Suburbs: Capital Return Comparison; 2018 to 2020**

Suburb	2018 Capital Return %	2019 Capital Return %	2020 Capital Return %
Balmoral	1.16	9.83	6.95
Coorparoo	-4.18	15.64	-1.47
Hawthorne	-4.17	5.13	-4.47
Morningside	-10.19	14.11	-0.36
Norman Park	12.75	-5.60	6.59
Seven Hills	-10.62	10.91	8.20

This Table shows that there has not been a consistent trend across these six suburbs over the past three years, with Norman Park being the only suburb to record a significant positive capital return in 2018 and a negative capital return in 2019, when all other suburbs recorded significant capital returns.

Of particular interest is the results for these suburbs for 2020 where three suburbs (Coorparoo, Hawthorne and Morningside) recorded a negative return despite a reduction in flight paths crossing these suburbs with the opening of the second runway. In the case of Coorparoo and Morningside, these 2020 negative returns followed very high capital returns in 2019.



Table 8: Eastern Brisbane Suburbs: Median Price: 1988-2020

Suburb	2020 Capital Return (%)	Average Annual Capital Return (%)1988-2020	Average Annual Volatility (%)	Risk return Ratio
Balmoral	6.95	9.25	12.20	1.32
Belmont	2.25	6.88	10.17	1.52
Bulimba	-6.67	10.94	19.37	1.77
Camp Hill	6.89	8.66	12.87	1.49
Cannon Hill	11.67	8.56	11.30	1.32
Carindale	5.43	6.39	11.14	1.74
Coorparoo	-1.47	8.55	12.53	1.47
Hawthorne	-4.47	9.35	10.84	1.16
Morningside	-0.36	8.64	10.76	1.25
Murarie	15.06	8.25	11.37	1.38
Norman Park	6.59	8.64	10.12	1.17
Seven Hills	8.20	8.96	13.18	1.47
Tingalpa	11.11	7.05	10.99	1.56
Wynnum	4.77	7.89	11.18	1.42
Greater Brisbane	2.24	6.53	8.15	1.25

2020 has seen a similar pattern in Eastern suburb capital returns to the Northern and Southern suburbs of Brisbane. Based on median house prices Murarie recorded the highest capital return of 15.06%, with Bulimba recording a negative return in 2020 of -6.67%. Overall, there were 4 suburbs in this grouping that recorded a negative return in 2020 (Bulimba, Coorparoo, Hawthorne and Morningside). All the eastern suburbs that recorded a positive increase in median house prices in 2020 outperformed the Brisbane median house price capital return of 2.24%, with Belmont just above the Brisbane median house price return at 2.25%. The higher median house prices in 2020 for Bulimba, Cannon Hill, Murarie and Tingalpa have resulted in the long-term average annual capital return for these suburbs increasing

slightly compared to the 2019 results, with all other suburbs in the grouping having a long-term average annual capital return decline from 2019 levels. The volatility of capital returns for these suburbs are at similar levels to the other suburbs in the study with Hawthorne and Norman Park showing the best risk return ratios of 1.16 and 1.17 respectively. In 2020, seven of the suburbs in this grouping have capital returns greater than the 2019 results, with seven suburbs recording a lower return compared to 2019. A similar trend has occurred with this suburb grouping compared to the Northern and Southern suburbs, with significant positive and negative returns in 2019 being reversed in 2020 (Morningside 14.11% in 2019 and -0.36% in 2020; Murarie -2.36% in 2019 and 15.06% in 2020; Tingalpa -3.57 in 2019 and 11.11% in 2020).

Table 9: Eastern Brisbane Suburbs: Average Price: 1988-2020

Suburb	2020 Capital Return (%)	Average Annual Capital Return (%) 1988-2020	Average Annual Volatility (%)	Risk return Ratio
Balmoral	-2.81	9.19	12.04	1.31
Belmont	-11.53	6.77	13.22	1.95
Bulimba	-14.65	10.29	18.26	1.78
Camp Hill	8.30	8.76	12.09	1.38
Cannon Hill	10.65	8.95	13.14	1.47
Carindale	6.21	6.62	11.43	1.73
Coorparoo	-1.00	9.17	13.81	1.51
Hawthorne	-11.71	9.54	14.66	1.54
Morningside	0.22	8.73	10.91	1.25
Murarie	4.00	8.50	13.39	1.58
Norman Park	-0.82	9.14	13.77	1.51
Seven Hills	4.79	9.09	13.13	1.44
Tingalpa	4.13	7.45	14.13	1.90
Wynnum	4.19	7.76	11.32	1.46

Table 9 shows that when the analysis of the eastern suburbs is carried out on the basis of average house prices, more suburbs in this grouping recorded a negative capital return in 2020 based on average house prices compared to median house prices for the same suburbs. Based on average house prices Balmoral, Belmont, Bulimba, Coorparoo, Hawthorne and Norman Park recorded negative capital returns in 2020. For the higher value suburbs of Bulimba and Hawthorne the negative capital return based on average house prices was greater than the negative return based on median house prices. In contrast, table 9 shows that only Camp Hill and Carindale recorded a 2020 capital return based on average house prices greater than the 2020 return based on median house prices in those two suburbs.

A comparison of 2019 and 2020 average house prices for this suburb grouping, based on average house prices, shows that generally these suburbs have seen

a reduction in average house prices or an increase at a lower rate than the previous year. Nine suburbs recorded a lower capital return in 2020 compared to 2019, with the most significant differences being Balmoral 18.16% in 2019 and -2.81 in 2020 and Bulimba 14.35% in 2019 and -14.65% in 2020 and Coorparoo 20.61% in 2019 and -1.00% in 2020. Camp Hill, Cannon Hill, Carindale, Murarie and Wynnum recorded a higher capital return in 2020 greater than the 2019 result.

Again, although the majority of these suburbs are located under existing flight paths the returns based on both median and average house prices are still significantly higher when compared to the Brisbane median house price and similar socio-economic suburbs with no or limited exposure to aircraft noise. Volatility of house price change across the eastern suburbs has been consistent across all suburbs, with the high value suburbs showing higher levels of risk/return compared to lower value suburbs.

# 8. Individual Suburb Performance:

## Western Suburbs

The suburbs in the study located to the west of the Brisbane CBD comprise a range from lower middle socio-economic locations in the middle ring suburbs of Brisbane to higher value suburbs such as Ashgrove and Bardon, located in the inner-city areas.

In 2020 the range in capital returns, based on median house prices, varied from -1.801% for Sherwood to 19.54% for Ashgrove and 17.24% for Bardon.

Unlike the other geographic locations in the study, the western suburbs only recorded one negative capital return in 2020 (Sherwood -1.80%). All other suburbs recorded a positive capital return for 2020 ranging from 4.11% for The Gap to the highest return for Ashgrove. These positive returns were also all above the Brisbane median house price capital return for 2020 of 2.24%.

**Table 10: Western Brisbane Suburbs: Median Price: 1988-2020**

Suburb	2020 Capital Return (%)	Average Annual Capital Return (%) 1988-2020	Average Annual Volatility (%)	Risk return Ratio
Ashgrove	19.54	8.31	9.21	1.11
Bardon	17.26	8.44	10.40	1.23
Chapel Hill	8.15	7.08	11.80	1.67
Chelmer	5.83	9.47	16.42	1.73
Graceville	16.07	8.66	10.76	1.24
Jindalee	5.08	6.79	15.49	2.28
Kenmore	6.15	6.54	9.01	1.38
Sherwood	-1.80	8.62	9.42	1.17
The Gap	4.11	7.12	10.06	1.41
Toowong	11.11	7.85	11.92	1.52
Greater Brisbane	2.24	6.53	8.15	1.25

A number of these suburbs are also subject to increased aircraft noise following the opening of the NPR but still returned median house price capital growth greater than less affected suburbs, this is particularly the case with Ashgrove and Bardon. The high 2020 capital returns for Ashgrove, Bardon, Chapel Hill, Graceville, Sherwood and Toowong has resulted in these suburbs also increasing their long term average

annual capital return for the full period from 1988-2020. Table 10 also shows that the 2020 capital returns based on median house prices has not resulted in any significant changes on the 1988-2020 return volatility for these western Brisbane suburbs. On a risk/return basis Sherwood continues to be one of the better performing suburbs in the study at 1.12.

Over the full 33 -year period all the Western Suburbs in the study have recorded an average annual capital return greater than the Brisbane median house price average annual capital return for the same period. All the western suburbs have recorded a higher long term average annual capital return greater than the Brisbane median house price long term average annual capital return over the period 1988-2020.

When the investment performance is carried out based on average house prices, Table 11 shows that there have been some significant variations in capital returns based on average house prices compared to median house prices for some of these suburbs.

There are five suburbs recording higher capital returns for 2020 based on average house prices compared to median house prices (Chapel Hill, Chelmer, Jindalee, Sherwood and Toowong) with Sherwood showing the greatest difference between the 2020 capital returns based on median and average house prices (-1.80% median to 3.34% average house price).

The Western Brisbane suburb that recorded the most significant reduction in capital returns in 2020 based on median and average house prices was Bardon (17.26% median price and 6.79% average price). It is noted that Bardon is now impacted by aircraft noise as a result of the new runway.

**Table 11: Western Brisbane Suburbs: Average Price: 1988-2020**

Suburb	2020 Capital Return (%)	Average Annual Capital Return (%)1988-2020	Average Annual Volatility (%)	Risk return Ratio
Ashgrove	15.83	8.19	9.45	1.15
Bardon	6.79	8.40	10.02	1.19
Chapel Hill	10.94	7.14	11.09	1.55
Chelmer	9.80	8.44	13.65	1.62
Graceville	8.90	8.69	11.54	1.33
Jindalee	8.22	5.76	8.91	1.55
Kenmore	4.23	6.63	10.37	1.56
Sherwood	3.34	7.53	9.36	1.24
The Gap	2.91	7.27	10.68	1.47
Toowong	12.46	9.23	21.45	2.32

The Western Brisbane suburbs in the study were the only geographic location that did not record any negative capital returns in 2020 based on average house prices, with three suburbs recording capital gains greater than 10% (Ashgrove, Chapel Hill, and Toowong). In addition, three suburbs have shown a 2020 capital return in excess of 8% (Chelmer, Graceville and Jindalee). Based on long term investment performance, the average house price results confirm that the inner city and middle ring suburbs close to the Brisbane CBD have recorded higher long term average annual capital returns higher than the suburbs further from the Brisbane CBD such as Jindalee and Kenmore.

Compared to the Eastern suburbs there has been relatively lower levels of volatility across these western suburbs, with long term volatility ranging from a low of 8.91% for Jindalee to a high of 21.45% for Toowong (this figure is similar to the other inner city suburbs in the study and also reflects the lower proportion of housing stock in the suburb compared to apartments).

The risk return performance of these suburbs are in line with the other 43 suburbs in the analysis.

# 9. Individual Suburb Performance:

## Inner City Units

The trend of low capital returns across the inner-city apartment market was still present in 2020, with city apartments recording 2020 capital returns ranging from a low of -1.85% for Woolloongabba to a highest return of 7.08% for Teneriffe. The low return for Woolloongabba units in 2020 followed a negative capital return in 2019, with these two negative growth years further reducing the long-

term average annual return for apartments in this suburb to 7.65%. The Teneriffe apartment market is not likely to be as impacted by travel restrictions and the limitations on international students returning to study and commencing study in Australia, whereas this is a more significant driver in the Woolloongabba apartment market.

Table 12: Inner City Suburbs: Median Unit Price Analysis: 1988-2020

Suburb	2020 Capital Return (%)	Average Annual Capital Return (%)1988-2020	Average Annual Volatility (%)	Risk Return Ratio
East Brisbane	0.00	5.93	11.99	2.02
Highgate Hill	0.88	6.08	12.59	2.07
Kangaroo Pt	0.78	5.52	15.63	2.83
Teneriffe	7.08	6.64	8.90	1.34
Toowong	4.00	5.56	10.97	1.97
Woolloongabba	-1.85	7.65	28.26	3.70

The relatively high capital returns in 2019 for East Brisbane, Highgate Hill and Kangaroo Pt have been followed by minimal capital growth for these suburbs in 2020. The 2019 capital return for apartments in East Brisbane of 8.82% has been followed in 2020 with no increase in the median apartment price with a 0.00% increase in capital growth. The 2020 Capital returns for Highgate Hill and Kangaroo Pt of 0.88% and 0.78% respectively have also been less than the 2019 capital returns of 4.70% and 4.05% respectively for these two inner-city suburbs.

The low capital returns in 2020 for all these inner-city suburbs has seen all their long term average annual capital returns for the period 1988-2020 also decrease from the 2019 levels.

Price and return volatility is still impacting on the apartment markets in these inner-city apartments, with the high volatility in all suburbs apart from Teneriffe well above the volatility rates for the housing sectors in the middle and outer Brisbane suburbs in the study. These high volatilities and lower average annual capital returns are showing higher risk return ratios compared to most of the housing sectors in the study (refer to Table 12).

# 10. Comparison of 2013 Report and Data and the 2020 Update and Data

The original report based on data from 1988 to 2013 provided an investment performance analysis based on a range of suburbs and their exposure to aircraft noise complaints. These suburbs were classified as high noise complaints (HNC), moderate noise complaints (MNC) and no/minimal noise complaints (NNC) as recorded by AirServices Australia. There were 12 Brisbane suburbs under each of these three classifications in this comparative analysis (refer to the full 2013 study for the actual 36 suburbs). In addition, a range of suburbs were analysed in the 2013 report based on the following locations:

- » Under the Southern flightpaths
- » Under the Northern Flight paths
- » Under the proposed flight path for the Brisbane Airport NPR

The following Tables compare the investment performance of these suburb classification on the basis of median and average house prices for the following periods:

- » 1988 to 2013
- » 1988 to 2020

Table 13 shows the average annual capital returns for the HNC, MNC and NNC suburbs and the analysis shows that over the period 1988 to 2013 the average annual capital return for the HNC suburbs was 8.66% based on median house prices but the median house price growth in these HNC suburbs from 2014 to 2020 has seen the average annual capital return increase to 8.79%. Over the same periods the average annual capital return for the LNC suburbs also increased from 7.93% to 8.06%, the returns for the MNC suburbs decreased from 8.52% to 8.44% (based on median house prices). On the same comparative basis, the average annual capital return for the Brisbane median house price has decreased from 7.72% for the period 1988-2013, to 6.53% for the period 1988-2020. These results continue to show that the suburbs subject to high and moderate noise complaints in Brisbane are continuing to outperform the Brisbane median house price on an investment return basis.

**Table 13: Noise Complaint Suburbs: Median and Average House Price Returns**

	Median House Average Annual Return (%) 1988-2013	Median House Average Annual Return (%) 1988-2020	Average House Average Annual Return (%) 1988-2013	Average House Average Annual Return (%) 1988-2020
High Noise Complaints	8.66	8.79	8.77	8.29
Moderate Noise Complaints	8.52	8.44	7.80	8.38
No/Minimal Noise Complaints	7.93	8.06	7.90	7.74
Brisbane LGA	7.72	6.53		

However, when the comparisons are analysed on the basis of average house prices for these suburbs there is some variation in the movement of average annual capital returns compared to the median house price results. Based on average house prices Table 13 shows that there has been a reduction in average annual capital returns from 2013 to 2020 for the HNC suburbs (8.77% to 8.29%) and the NNC suburbs (7.90% to 7.74%), with the MNC suburbs showing an increased average annual capital return (7.80% to 8.38%).

Tables 14 to 16 show the comparative average annual capital returns for a range of Brisbane suburbs based on their location to the Brisbane Airport Flight paths. These investment performance comparisons based on location under existing and proposed flightpaths formed part of the 2013 report analysis and the results for the period 1988 to 2013 are compared to the average annual capital returns for the period 1988 to 2020.

**Table 14: Average Annual Capital Return Performance Comparison: Southern Flight Path: 1988-2013 and 1988-2020**

Location	Median House Average Annual Return (%) 1988-2013	Median House Average Annual Return (%) 1988-2020	Average House Average Annual Return (%) 1988-2013	Average House Average Annual Return (%) 1988-2020
Camp Hill	9.52	8.66	9.92	8.76
Coorparoo	9.09	8.55	10.12	9.17
Mt Gravatt East	7.93	7.44	7.90	7.35
Tarragindi	8.58	8.11	8.98	8.34
Average	8.78	8.14	9.23	8.41

From Table 14, it can be seen that the capital returns over the period 2014 to 2020 have been lower than the long term returns with all suburbs analysed under the Southern flightpaths returning a lower average annual

capital return for the period 1988-2020 compared to 1988-2013. This follows the general trend across Brisbane where the average annual capital returns also decreased over this period.

**Table 15: Average Annual Capital Return Performance Comparison: Northern Flight Path: 1988-2013 and 1988-2020**

Location	Median House Average Annual Return (%) 1988-2013	Median House Average Annual Return (%) 1988-2020	Average House Average Annual Return (%) 1988-2013	Average House Average Annual Return (%) 1988-2020
Albion	8.23	9.43	8.33	9.06
Ashgrove	9.20	8.31	9.05	8.19
Bardon	9.02	8.44	9.30	8.40
Bulimba	12.44	10.94	12.15	10.29
Chermside West	6.46	5.96	6.59	5.99
Gordon Park	9.34	8.42	9.35	8.59
Average	9.12	8.58	9.13	8.42

Table 15, which includes the suburbs under the Northern flight paths for the original Brisbane airport runway also shows that all suburbs, apart from Albion,

recorded a slightly lower average annual capital return based on the period 1988-2020, compared to the returns for the period 1988-2013.

Table 16: Average Annual Capital Return Performance Comparison: New Runway Flight Path: 1988-2013 and 1988-2020

Location	Median House Average Annual Return (%) 1988-2013	Median House Average Annual Return (%) 1988-2020	Average House Average Annual Return (%) 1988-2013	Average House Average Annual Return (%) 1988-2020
Annerley	8.23	7.74	8.62	7.96
Hamilton	12.83	10.42	11.00	8.84
New Farm	12.41	11.20	12.06	11.33
Stafford	8.45	8.62	8.74	7.92
Average	10.48	9.50	10.11	9.01

Again, in Table 16, it can also be seen that the suburbs that were not under a flight path prior to the opening of the NPR, but under flightpaths since the NPR commenced operations in 2020, have also recorded a reduction in the average annual capital returns for the two periods.

These results, including the first year of operations of the NPR and revised flight paths, continue to show that overall, the trends in residential property price movements and subsequent capital returns are consistent across Brisbane regardless of locations under flight paths and exposure to aircraft noise.



# 11. Summary

Over the past 5 years the annual updates have seen a trend developing where a very high capital returns for a suburb in one year are often followed by a low or negative capital return in the following year, with this significant median and average house price variation increasing the volatility of returns in these suburbs.

In 2020, 74% of the suburbs in the study achieved a capital return greater than the capital return based on the overall Brisbane median house price 2020 of 2.24%. This is a significant increase on the 2019 figure of 25%. Across the full period from 1988-2020, 94.3% of the suburbs in the study have recorded a long-term average annual capital return greater than the Brisbane median house prices return. The 2020 result is slightly higher than the figure in 2019 of 92.5%. The suburbs in the outer south and west of Brisbane are still recording capital returns less than the overall Brisbane median house price capital returns.

On a geographic basis, the study suburbs classified as Western Brisbane suburbs showed higher capital returns compared to the other geographic locations in Brisbane. These suburbs did not record any negative capital returns in 2020, despite a number of these suburbs experiencing more aircraft flights with the commencement of operations on the NPR.

In 2020, the better performing suburbs based on median house prices were Highgate Hill 26.65%; Virginia 24.17%; Ashgrove 19.54%; Clayfield 17.92%, Bardon 17.26%; Graceville 16.07% and Dutton Park 12.99%. The poorer performing suburbs in 2020 were Bulimba (-6.67%), Hawthorne (-4.47%), Ascot (-3.72%), and Sherwood (-1.80%). Overall, 2020 investment performance results for the 53 suburbs were improved over the 2019 results, with no suburbs in the Southern and Western groupings recording median house prices declines from 2019.

Inner city suburbs located on the current flightpaths are still recording average annual capital returns between 8 and 10%, well above the Brisbane median house price average annual return of 6.53%. There has been no specific trend in increasing or decreasing house prices in suburbs that have been experiencing less or more aircraft movements with the commencement of operations on the 2<sup>nd</sup> Brisbane Airport runway. In 2020, one of the most prominent value drivers was the proximity to the CBD and the recreational and services infrastructure that the suburb offered.

# Appendices



## Appendix 1: Alphabetical Suburb Listing: Median House Price Capital Returns (%): 1988-2020

Suburb	2020 Capital Return (%)	Average Annual Capital Return (%)1988-2020	Average Annual Volatility (%)	Risk return Ratio
Albion	3.84	9.43	18.91	2.01
Annerley	9.29	7.74	9.62	1.24
Ascot	-3.72	8.32	15.42	1.84
Ashgrove	19.54	8.31	9.21	1.11
Balmoral	6.95	9.25	12.20	1.32
Bardon	17.26	8.44	10.40	1.23
Belmont	2.25	6.88	10.17	1.52
Bulimba	-6.67	10.94	19.37	1.77
Camp Hill	6.89	8.66	12.87	1.49
Cannon Hill	11.67	8.56	11.30	1.32
Carindale	5.43	6.39	11.14	1.74
Chapel Hill	8.15	7.08	11.80	1.67
Chelmer	5.83	9.47	16.42	1.73
Chermside West	1.61	5.96	10.65	1.79
Clayfield	17.92	8.25	12.32	1.49
Coorparoo	-1.47	8.55	12.53	1.47
Dutton Park	12.99	8.79	13.15	1.50
East Brisbane	9.88	8.85	13.78	1.56
Fairfield	1.94	8.14	10.74	1.32
Forest Lake	1.14	4.23	12.57	2.98
Gordon Park	1.66	8.42	10.21	1.21
Graceville	16.07	8.66	10.76	1.24
Hamilton	3.90	10.42	20.94	2.01
Hawthorne	-4.47	9.35	10.84	1.16
Highgate Hill	13.43	9.26	12.68	1.37
Holland Park West	3.45	7.49	9.85	1.31
Jindalee	5.08	6.79	15.49	2.28
Kangaroo Pt	-2.27	10.21	23.96	2.35
Kenmore	6.15	6.54	9.01	1.38
Mansfield	4.32	6.85	9.14	1.33
Mitchelton	4.79	7.74	9.24	1.19
Moorooka	9.03	7.54	9.19	1.22
Morninside	-0.36	8.64	10.76	1.25
Mt Gravatt East	7.00	7.44	9.01	1.21
Murrarie	15.06	8.25	11.37	1.38
New Farm	5.26	11.20	14.27	1.27
Norman Park	6.59	8.64	10.12	1.17
Northgate	-3.60	7.92	11.84	1.49
Nudgee beach	20.76	15.39	40.39	2.62
Pinkenba	-19.77	10.41	27.61	2.65
Rocklea	5.17	7.64	13.64	1.79
Seven Hills	8.20	8.96	13.18	1.47
Sherwood	-1.80	8.62	9.42	1.17
Stafford	3.88	7.62	10.31	1.35
Tarragindi	9.33	8.11	9.54	1.18
Teneriffe	-3.95	12.69	25.46	2.01
The Gap	4.11	7.12	10.06	1.41
Tingalpa	11.11	7.05	10.99	1.56
Toowong	11.11	7.85	11.92	1.52
Virginia	24.17	8.43	11.29	1.34
Woolloongabba	14.74	8.81	12.35	1.40
Woolloowin	2.38	8.37	14.03	1.68
Wynnum	4.77	7.89	11.18	1.42
Greater Brisbane	2.24	6.53	8.15	1.25

## Appendix 2: Alphabetical Suburb Listing: Average House Price Capital Returns (%): 1988-2020

Suburb	2020 Capital Return (%)	Average Annual Capital Return (%) 1988-2020	Average Annual Volatility (%)	Risk return Ratio
Albion	4.67	9.06	17.06	1.88
Annerley	8.70	7.96	11.91	1.50
Ascot	8.39	8.21	12.45	1.52
Ashgrove	15.83	8.19	9.45	1.15
Balmoral	-2.81	9.19	12.04	1.31
Bardon	6.79	8.40	10.02	1.19
Belmont	-11.53	6.77	13.22	1.95
Bulimba	-14.65	10.29	18.26	1.78
Camp Hill	8.30	8.76	12.09	1.38
Cannon Hill	10.65	8.95	13.14	1.47
Carindale	6.21	6.62	11.43	1.73
Chapel Hill	10.94	7.14	11.09	1.55
Chelmer	9.80	8.44	13.65	1.62
Chermside West	2.37	5.99	10.04	1.68
Clayfield	11.40	7.87	12.45	1.58
Coorparoo	-1.00	9.17	13.81	1.51
Dutton Park	17.95	9.89	21.69	2.19
East Brisbane	-0.67	9.54	17.57	1.84
Fairfield	-3.60	8.04	14.13	1.76
Forest Lake	0.64	4.29	12.02	2.80
Gordon Park	9.18	8.59	9.18	1.07
Graceville	8.90	8.69	11.54	1.33
Hamilton	10.32	8.84	17.10	1.93
Hawthorne	-11.71	9.54	14.66	1.54
Highgate Hill	26.65	9.16	16.69	1.82
Holland Park West	0.37	7.36	9.91	1.35
Jindalee	8.22	5.76	8.91	1.55
Kangaroo Pt	-10.39	11.72	38.46	3.28
Kenmore	4.23	6.63	10.37	1.56
Mansfield	3.25	7.10	10.97	1.55
Mitchelton	4.99	8.07	10.64	1.32
Moorooka	8.55	7.68	10.44	1.36
Morningside	0.22	8.73	10.91	1.25
Mt Gravatt East	4.34	7.35	9.57	1.30
Murrarie	4.00	8.50	13.39	1.58
New Farm	11.64	11.33	14.36	1.27
Norman Park	-0.82	9.14	13.77	1.51
Northgate	-3.06	8.27	12.14	1.47
Nudgee beach	46.61	15.64	35.33	2.26
Pinkenba	-19.77	14.78	45.77	3.10
Rocklea	6.55	8.50	17.85	2.60
Seven Hills	4.79	9.09	13.13	1.44
Sherwood	3.34	7.53	9.36	1.24
Stafford	-0.14	7.92	10.76	1.36
Tarragindi	12.30	8.34	9.72	1.17
Teneriffe	-1.77	13.65	31.66	2.32
The Gap	2.91	7.27	10.68	1.47
Tingalpa	4.13	7.45	14.13	1.90
Toowong	12.46	9.23	21.45	2.32
Virginia	18.53	8.39	10.37	1.28
Woolloongabba	6.44	8.95	12.84	1.43
Wooloowin	5.82	8.29	12.80	1.54
Wynnum	4.19	7.76	11.32	1.46

