The Impact of Aircraft Noise on Brisbane Residential Property Sectors: 1988-2019

2019 BRISBANE RESIDENTIAL PROPERTY INVESTMENT PERFORMANCE UPDATE

FULL SUBURB SUMMARY

QUT Business School

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1. Introduction

This update is the 2019 update of the study that commenced in 2013 prior to the opening of the second runway at Brisbane Airport. The report provides an analysis of the performance of a range of suburbs across Brisbane by analysing movements in median and average house prices and subsequent investment performance relative to location of flight paths and potential aircraft noise.

The initial report provided an extensive review of academic literature, popular media and social media around aircraft noise and its impact on residential property and a longitudinal analysis of the capital return performance and saleability of residential property in selected residential suburbs in Brisbane over the period 1988 to 2013.

Following this major report, an annual update on the investment performance of these identified Brisbane suburbs has been carried out for the period 2014 to 2019. These updates have covered the period of the construction of the second runway at Brisbane Airport and has now tracked both median and average house price investment performance for the period 1988 to 2019. This 32-year period covers the operation of Brisbane Airport from the first day of operations in 1988 to December 2019.

Again, this report and associated Tables show the investment performance of 53 geographically diverse suburbs across Brisbane based on all residential property sales over the period 1988-2019, with the analysis showing the 2019 capital returns as well as the long-term capital returns from 1988-2019. These 53 suburbs are subject to varying exposures to the flight paths for the existing runway at Brisbane Airport, as well as the future flight paths of the second runway at Brisbane Airport. It is noted that the second runway had not commenced operations over the period of this report.

As per the previous study annual updates, the suburbs selected have been grouped based on geographic location in Brisbane and are subject to varying exposure to aircraft noise from the existing and future runway operations at Brisbane Airport:

- Brisbane northern suburbs
- Brisbane southern suburbs
- Brisbane eastern suburbs
- Brisbane western suburbs
- Brisbane inner-city suburbs

Each of these broad categories of geographic location comprises 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. With the start of operations on the second runway, several of the suburbs that are currently defined as limited or no exposure will be subject to increased exposure to aircraft noise.

With the addition of the 2019 residential property sales transactions, the investment performance analysis now covers the years 1988 to 2019, a 32-year period. Over these thirty-two years, the Brisbane residential property sector has been subject to periods of housing booms and recessions; therefore, the results reflect an accurate overview of the investment performance of each of the suburbs in the study. The analysis over the period 2016 to 2019 has also covered the period of oversupply of residential units in Brisbane, particularly in the inner-city suburbs of Brisbane.

This summary report now covers a total of 53 Brisbane suburbs and over 45,000 sales transactions. These 53 suburbs represent:

» 33% of the Brisbane inner-city suburbs

» 26% of northern Brisbane suburbs

» 20% of southern Brisbane suburbs

» 52% of eastern Brisbane suburbs

» 24% of western Brisbane suburbs

Overall these 53 suburbs represent most of the Brisbane suburbs that are currently exposed to aircraft noise from the existing runway operations and a considerable number of suburbs that will be exposed to aircraft noise when the second runway commences operations.

These groupings allow the investment performance for Brisbane suburbs to be compared on both a geographic and socio-economic basis.

In addition to the investment performance analysis based on suburb exposure to aircraft noise, the update also compares the investment performance for individual suburbs located under the existing and future flight paths, suburbs that will be potentially subject to flight paths when the existing and second runway operations commence in tandem and suburbs that are currently not affected by aircraft noise and will remain so when the second runway opens.

In total 53 suburbs of Brisbane have now been analysed to determine their average annual capital returns and investment performance based on median and average house prices. An alphabetical listing of these suburbs and their investment performance is also included as appendices 1 and 2 of the report.

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:

» 2019 capital return (median house price)

» 2019 capital return (average house price)

» 1988-2019 capital return (median house price)

» 1988-2019 capital return (average house price)

» 2019 capital return (inner-city unit median price)

» Average annual volatility (median and average house and unit price)

» Risk/Return Ratio

2. Major Findings 2019

The most significant result from the 2019 data is the considerable variation in property investment performance compared with 2018. A number of the better performing suburbs in 2018 showed a reversal in returns in 2019, with the poorer performing suburbs in 2018 being the better performing suburbs in 2019. This was particularly the case in the higher value suburbs and a number of the Brisbane suburbs located closer to the Brisbane CBD.

The negative 17.45% return for Kangaroo Point in 2018 has been reversed with a capital gain of 21.01% in 2019. The reverse situation occurred in Dutton Park, where median house prices in this suburb in 2018 recorded a capital gain of 19.33%, this has been followed by a negative return of -10.97% in 2019. Generally, those suburbs that recorded negative capital returns in 2018 have shown an improved investment performance with positive price growth in 2019 or in some cases a continued slight fall in median house prices but not at the same levels as 2018. The suburbs in this study that have experienced two years of median house price decline are:

» Camp Hill
» Cannon Hill
» Chapel Hill
» Mt Gravatt East
» Northgate

The suburbs that recorded positive price growth increases in 2018 but a reduction in median house prices in 2019 were:

» Ascot
» Clayfield
» Dutton Park
» East Brisbane
» Forest Lake
» Gordon Park
» Graceville
» Kenmore
» Moorooka
» Norman Park
» Nudgee Beach
» Tingalpa
» Toowong

The above suburbs that experienced median house price declines in 2019 or the 2-year period from 2018 to 2019 cover a range of geographic and socio-economic status, suggesting that these declines are suburb specific based and not location or socio-economic based. In a number of these suburbs the decline in median house prices in 2019 has been a correction after significant increases in median house prices in 2018 (Dutton Park +19.33% to -10.67%; Nudgee Beach +16.67% to –7.93%; Toowong +7.80% to –9.32%). The other 36 Brisbane suburbs in the study recorded increased median house prices from 2018 to 2019.

2019 saw some improvement in the performance of inner-city units in Brisbane. This would indicate that there is some improvement to the oversupply of inner-city units that has been present in the market in Brisbane in recent years. East Brisbane, Highgate Hill and Kangaroo Point all showed very positive capital growth with an increase in the median unit price of 8.82%, 4.70% and 4.05% respectively. This was a reversal of the negative returns that were seen in 2018. Woolloongabba continued to be counter to this trend with a negative return of -2.75% in 2019 despite an increase of 8.69% in 2018. The market performance for detached houses in these suburbs operates very differently, which would indicate that the performance of the unit market is more likely attributable to supply issues within the suburb and specific major projects that have been released to market.

These 2019 results continue to support the previous analysis for 1988-2018, that exposure to aircraft noise is not the only factor that influences buyer choice and subsequent impacts on the investment return for residential property in Brisbane. Even when analysing on an annual basis, suburbs subject to aircraft noise can still outperform suburbs with minimal or no aircraft noise affect due to overriding value factors such as services, proximity to CBD, good transport and recreation facilities.

The base data for the years 1988 to 2013 can be found in the full QUT/BAC report released in 2013, with the 2014, 2015, 2016, 2017 and 2018 data updates available in separate reports.

3. Individual Suburb Performance

Median and Average House Prices 1988-2019

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 2019, based on the change in median and average house prices from 2018 to 2019, as well as the long term investment performance of houses in these suburbs over the period 1988 to 2019. 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 1988-2019

Suburb	2019 Capital Return (%)	Average Annual Capital Return (%) 1988-2019	Average Annual Volatility (%)	Risk Return Ratio
East Brisbane	-3.42	8.82	14.00	1.59
Highgate Hill	17.78	9.12	12.86	1.41
Kangaroo Point	21.01	10.61	24.24	2.28
New Farm	5.26	11.08	14.49	1.31
Teneriffe	5.20	13.22	25.70	1.94
Woolloongabba	2.01	8.62	12.51	1.45
Greater Brisbane	8.08	6.82	8.24	1.24

2019 saw a significant change in median house prices for the inner-city suburbs of Brisbane. Table 1 shows that during 2019, only East Brisbane had a negative capital return of -3.42%. All other suburbs in this inner-city grouping showed positive capital returns in 2019 ranging from a low of 2.01% for Woolloongabba to a high of 21.01% for Kangaroo Point. This is actually the reverse of the 2018 capital returns; where East Brisbane was the only inner-city suburb recording a capital gain of 2.17%, with all other suburbs in this grouping having significant decreases in median house prices from 2017 to 2018. The negative return of -17.45% for Kangaroo Point and -28.07% for Teneriffe in 2018 have been offset in 2019 with these two suburbs recording a capital return of 21.01% and 5.20% respectively.

Again, the small number of house sales per annum in these inner-city suburbs, that are predominately unit based, can result in significant annual house price variations. However, the longer-term investment performance provides a more accurate measure of the average annual capital returns for houses in these suburbs. Although East Brisbane was the only suburb that had a negative return in 2019, the relatively low capital returns in New Farm, Teneriffe and Woolloongabba has seen their long-term average annual capital return decrease slightly from the 2018 results. Over 2019, the 32-year average annual capital return for Teneriffe declined from 13.49% in 2018 to 13.22% in 2019, as the positive capital growth of 5.20% was below the long-term average of 13.22% for this suburb.

In 2019, these average and median house price increases for the majority of the inner-city suburbs in the study are based on a greater number of higher priced houses being sold in these locations and not the lower value properties that dominated these markets in 2018. Apart from Highgate Hill and Kangaroo Point, for the third successive year the inner-city suburbs of East Brisbane, New Farm, Teneriffe and Woolloongabba have shown a capital return less than the median Brisbane house price return in 2019 of 8.08%.

Tables 1 and 2 also show that the longer-term investment performance of houses in these inner-city suburbs of Brisbane have been well above the Brisbane median house price return for the period 1988-2019 of 6.82%. Across all these suburbs the average annual capital return over the 32 years based on average house prices continues to be slightly higher than the returns based on median house prices (refer to Table 2).

Despite the relatively higher levels of risk, the higher returns for these inner-city suburbs (with a greater proportion of housing stock compared to units) continues to offset the volatility to show similar risk return ratios compared to outer Brisbane suburbs with lower returns and less risk.

Table 2: Inner-City Houses: Average Price 1988-2019

Suburb	2019 Capital Return (%)	Average Annual Capital Return (%) 1988-2019	Average Annual Volatility (%)	Risk Return Ratio
East Brisbane	-1.60	9.87	17.76	1.80
Highgate Hill	1.69	8.63	16.69	1.93
Kangaroo Point	27.11	12.43	38.88	3.13
New Farm	4.59	11.32	14.60	1.29
Teneriffe	13.55	14.15	32.06	2.27
Woolloongabba	14.79	9.03	13.05	1.44

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.

The results for Nudgee Beach and Pinkenba in 2019 need to be viewed separately to the other suburbs in the northern grouping. These two suburbs showed median house price capital returns of -7.93% and 65.41% respectively in 2019. However, in both these suburbs there were only 2 residential property sales in 2019, so these results are not a reliable indication of the price movement in these two suburbs.

Based on the other 11 suburbs, Table 3 shows that the range in median house prices and subsequent capital returns has ranged from -9.25% for Clayfield to a high of 18.46% for Hamilton. These suburbs are both high socio-economic suburbs and adjoining.

Of these northern suburbs of Brisbane, those suburbs that were further from the CBD, such as Chermside West, Stafford and Virginia had higher capital growth in 2019 compared to a number of suburbs that are closer to the Brisbane CBD. In 2019 (excluding Pinkenba), only Albion and Hamilton recorded a higher annual capital return greater than the Brisbane median house capital return of 8.08%.

Table 3: Northern Brisbane Suburbs: Median Price 1988-2019

Suburb	2019 Capital Return (%)	Average Annual Capital Return (%) 1988-2019	Average Annual Volatility (%)	Risk Return Ratio
Albion	8.45	9.61	19.20	2.00
Ascot	-3.77	8.77	15.52	1.77
Chermside West	5.62	6.10	10.79	1.77
Clayfield	-9.25	7.93	11.10	1.40
Gordon Park	-1.06	8.63	10.30	1.19
Hamilton	18.46	10.63	21.25	2.00
Mitchelton	1.67	7.83	9.38	1.20
Northgate	-0.14	8.25	11.84	1.43
Nudgee Beach	-7.93	15.22	41.05	2.70
Pinkenba	65.41	11.38	27.50	2.42
Stafford	5.22	7.74	10.46	1.35
Virginia	4.14	7.93	11.10	1.40
Wooloowin	2.38	8.41	14.26	1.70
Greater Brisbane	8.08	6.82	8.24	1.21

When the 2019 capital return for the northern Brisbane suburbs is based on average house prices, there is a noticeable difference in the returns compared to the median house price analysis. Based on median house prices excluding Nudgee Beach, four suburbs had negative capital returns in 2019 (Ascot, Clayfield, Gordon Park and Northgate). However, based on average house prices, Clayfield, Gordon Park and Hamilton had negative capital growth in 2019. In the case of Clayfield the difference between the 2019 capital return based on median and average house prices indicates that there was more higher price movement in the upper end of the residential market, compared to Hamilton where the sales tended to be at the lower end of the market. Hamilton also showed the most significant variation from median to average house prices (18.46% median house price and -7.80% average house price). The suburbs with the least variation in median and average house prices in this grouping were the middle value suburbs of Chermside West, Mitchelton and Gordon Park, all suburbs with a relatively homogenous housing type, compared to the significantly varied housing types in the higher value suburbs such as Ascot, Clayfield and Hamilton.

The northern suburbs closer to the Brisbane CBD and considered to be higher socio-economic suburbs Albion, Ascot, Hamilton and Wooloowin still maintain long term average annual capital returns greater than the middle and outer ring suburbs of Brisbane (Albion 9.61%, Ascot 8.77%, Hamilton 10.63% and Wooloowin 8.41%).

Table 4: Northern Brisbane Suburbs: Average Price 1988-2019

Suburb	2019 Capital Return (%)	Average Annual Capital Return (%) 1988-2019	Average Annual Volatility (%)	Risk Return Ratio
Albion	3.59	9.20	17.33	1.88
Ascot	9.68	8.20	12.65	1.58
Chermside West	4.46	6.11	10.19	1.67
Clayfield	-0.79	7.76	12.63	1.63
Gordon Park	-1.60	8.57	9.33	1.09
Hamilton	-7.80	8.79	17.38	1.98
Mitchelton	1.89	8.17	10.80	1.32
Northgate	13.44	8.63	12.16	1.41
Nudgee Beach	-7.93	14.64	35.45	2.42
Pinkenba	45.37	15.90	46.08	2.90
Stafford	12.48	8.17	10.84	1.33
Virginia	11.62	8.06	10.75	1.33
Wooloowin	8.63	8.37	13.00	1.55

Apart from Chermside West, all these northern suburbs of Brisbane have a 32-year average annual return based on median house prices greater than the Brisbane median house price average annual return. This is more a reflection of the socio-economic status of Chermside West rather than the geographic location. The high average annual returns for the higher value suburbs of Albion, Ascot, Hamilton and Wooloowin also show the higher volatility. Although Tables 3 and 4 show the volatility in Nudgee Beach and Pinkenba being the highest at 41.05% and 27.50% respectively, this is due to the limited number of sales that take place each year in these two suburbs, with some years of the study the sales being low value houses only and other years being high value houses only. The middle and lower socio-economic suburbs in this grouping such as Gordon Park, Mitchelton, Stafford and Virginia have recorded lower levels of volatility in median and average house prices over the period 1988 to 2019, also resulting in better risk return ratios compared to the higher value suburbs.

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 or adjacent to the existing Brisbane Airport runway and southern flight paths.

Again the 2019 results show a significant variation in the movement in median and average house prices in these suburbs based on both geographic and socio-economic status.

2019 has seen a similar pattern in the southern suburbs compared to the northern suburbs. The range in 2019 capital returns based on median house prices covers a high of 9.93% for Fairfield to a low of negative 10.97% for Dutton Park. This very significant fall in median house prices for Dutton Park from 2018 to 2019 follows a similar pattern to the other Brisbane suburbs in the study that showed a very high median house growth or decline in the period 2017 to 2018, but a reversal of these losses or gains in 2019. With Dutton Park the reduction in median house price in 2019 followed a significant increase in median house prices in 2018 of 19.33%.

Table 5: Southern Brisbane Suburbs: Median Price 1988-2019

Suburb	2019 Capital Return (%)	Average Annual Capital Return (%) 1988-2019	Average Annual Volatility (%)	Risk Return Ratio
Annerley	2.95	7.69	9.77	1.27
Dutton Park	-10.97	8.66	13.35	1.54
Fairfield	9.93	8.34	10.85	1.30
Forest Lake	-1.57	4.33	12.78	2.95
Holland Park West	4.47	7.62	9.99	1.31
Mansfield	3.73	6.93	9.28	1.34
Moorooka	-0.74	7.49	9.34	1.25
Mt Gravatt East	-1.08	7.45	9.1	1.23
Rocklea	3.05	7.72	13.86	1.80
Tarragindi	0.76	8.07	9.69	1.20
Greater Brisbane	8.08	6.82	8.24	1.21

In 2019, four southern suburbs in the study recorded a lower median house price compared to 2018. Of these four suburbs only Mt Gravatt East recorded a negative capital return in 2018. The suburbs that recorded an increase in the median house price in 2019 after declines in 2018 were Annerley (2.95% capital return), Holland Park West (4.47% capital return) and Rocklea (3.05% capital return). Table 5 shows that only Fairfield achieved a capital return in 2019 greater than the Brisbane median house price return.

When the 32-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 existing Brisbane Airport southern flight path, they have shown long term average annual capital returns ranging from 7.69% (Annerley) to 8.66% (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 ranging from 6.93% to 7.72% (refer to Table 5). All these suburbs have recorded higher average annual capital returns when compared to the average annual capital returns for the Brisbane median house price (1988-2019).

The variation in the volatility of the capital returns for these southern suburbs is 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 2019 was 9.10% for Mt Gravatt East to a high of 13.86% 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 1988-2019

Suburb	2019 Capital Return (%)	Average Annual Capital Return (%) 1988-2019	Average Annual Volatility (%)	Risk Return Ratio
Annerley	-2.32	7.94	12.10	1.52
Dutton Park	-8.15	9.63	22.00	2.28
Fairfield	23.12	8.41	14.20	1.69
Forest Lake	-0.64	4.41	12.21	2.77
Holland Park West	7.15	7.58	9.99	1.32
Mansfield	3.67	7.27	11.13	1.54
Moorooka	3.09	7.66	10.61	1.39
Mt Gravatt East	2.22	7.44	9.71	1.30
Rocklea	-0.24	8.56	18.14	2.12
Tarragindi	2.86	8.21	9.86	1.20

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 2019 based on median house prices, recorded a negative return in 2019 based on average house prices. These included Annerley (-2.32%) and Rocklea (-0.24%). Both Fairfield and Holland Park West recorded higher capital returns for 2019 based on average house prices compared to median house prices. Fairfield was the only suburb in this grouping that recorded a 2019 capital return greater than the Brisbane median house price return.

On a risk return basis, the better performing suburbs in this grouping are still Tarragindi, Mt Gravatt East, Moorooka and Annerley. Forest Lake has one of the lowest capital returns and a high level of volatility, resulting in a high risk/return ratio of 2.77, a decline from the 2018 results.

7. Individual Suburb Performance:
Eastern Suburbs

The eastern suburbs of Brisbane analysed comprise a range in socio-economic status from high value suburbs such as Bulimba, Hawthorne and Balmoral, through to some lower value suburbs including Murarrie and Tingalpa. The majority of these suburbs in this classification are subject to varying degrees of aircraft noise.

Tables 8 and 9 again show considerable variation in 2019 capital returns based on median house prices and again based more on location than socio-economic status. Eastern Brisbane suburbs that experienced high median house price growth in 2018 tended to have low or moderate increases in median house prices in 2019, with the reverse happening for the eastern suburbs in the study that had decreases in median house prices in 2018. Table 8 shows the significant difference in capital returns from 2018 to 2019 for six of the suburbs in this Brisbane grouping.

Table 7: Eastern Suburbs: Capital Return Comparison 2018 to 2019

Suburb	2018 Capital Return (%)	2019 Capital Return (%)
Balmoral	1.16	9.83
Coorparoo	-4.18	15.64
Hawthorne	-4.17	5.13
Morningside	-10.19	14.11
Norman Park	12.75	-5.60
Seven Hills	-10.62	10.91

Again, significant increases or decreases in some suburb prices in 2018 to 2019 have been reversed in 2019. This is also a trend that has occurred across the southern, northern and western suburbs in the study.

In 2019 the suburbs experiencing the highest increase in median house price were Coorparoo, Morningside and Seven Hills (15.64%, 14.11% and 10.91% respectively). These suburbs were the only suburbs in the eastern grouping recording a 2019 capital return greater than the Brisbane median house capital return of 8.08%.

Table 8: Eastern Brisbane Suburbs: Median Price 1988-2019

Suburb	2019 Capital Return (%)	Average Annual Capital Return (%) 1988-2019	Average Annual Volatility (%)	Risk Return Ratio
Balmoral	9.83	9.32	12.39	1.33
Belmont	3.35	6.83	10.30	1.53
Bulimba	2.86	11.50	19.37	1.68
Camp Hill	-0.23	8.72	13.08	1.50
Cannon Hill	-1.81	8.46	11.47	1.36
Carindale	0.00	6.42	11.12	1.76
Coorparoo	15.64	8.87	12.60	1.42
Hawthorne	5.13	9.80	10.78	1.05
Morningside	14.11	8.93	10.81	1.21
Murarrie	-2.36	8.11	11.53	1.42
Norman Park	-5.60	8.71	10.28	1.18
Seven Hills	10.91	8.98	13.40	1.49
Tingalpa	-3.57	6.92	11.15	1.61
Wynnum	0.00	7.99	11.35	1.42
Greater Brisbane	8.08	6.82	8.24	1.21

Table 8 shows that seven eastern suburbs recorded no increase in median house price or a reduction in median house prices in 2019. These negative median house prices have resulted in 2019 capital returns ranging from 0.00% for Carindale and Wynnum to -5.60% for Norman Park.

Table 8 also shows that over the full 32-year period of the study, the average annual capital return for all the eastern suburbs, apart from Carindale (6.42%) have been well above the Brisbane median house price return of 6.67%, with the best performing suburbs in this grouping being the higher value suburbs of Bulimba, Balmoral, Hawthorne and Seven Hills, with average annual capital returns based on median house prices being in excess of 8.9%.

The median house price volatility for the eastern suburbs for the 32-year period has ranged from 13.40% for Seven Hills to a low of 10.30% for Belmont. The higher value suburbs of Bulimba, Balmoral, Norman Park have also shown the higher levels of capital return volatility; however, these high returns have also resulted in very similar risk/return ratios compared to the middle value suburbs in this classification. The relatively high volatilities for the lower value suburbs of Belmont and Tingalpa, combined with low average annual capital returns of 7.36% and 7.55% has resulted in these two lower value suburbs having higher risk return ratios of 1.77 and 1.90 respectively.

Table 9: Eastern Brisbane Suburbs: Average Price 1988-2019

Suburb	2019 Capital Return (%)	Average Annual Capital Return (%) 1988-2019	Average Annual Volatility (%)	Risk Return Ratio
Balmoral	18.66	9.58	12.03	1.26
Belmont	11.99	7.36	13.00	1.77
Bulimba	14.35	11.07	18.01	1.63
Camp Hill	3.63	8.78	12.29	1.40
Cannon Hill	0.90	8.89	13.35	1.50
Carindale	-1.64	6.63	11.62	1.75
Coorparoo	20.61	9.50	13.91	1.46
Hawthorne	-0.66	10.23	14.37	1.41
Morningside	12.94	9.00	10.98	1.22
Murarrie	-1.03	8.64	13.58	1.57
Norman Park	1.39	9.46	13.87	1.47
Seven Hills	16.38	9.23	13.32	1.41
Tingalpa	5.21	7.55	14.35	1.90
Wynnum	-1.28	7.88	11.49	1.46

When the analysis of the eastern suburbs is carried out on the basis of average house prices, only Carindale, Hawthorne, Murarrie and Wynnum recorded negative capital returns in 2019. All the other suburbs in this grouping had a positive capital return based on average house prices. In 2018, 11 of the suburbs in Table 9 recorded negative capital growth, with Hawthorne being the only suburb in this grouping recording negative capital growth in 2018 and 2019. Based on average house prices these eastern suburbs of Brisbane have recorded long term average annual capital returns well above other suburbs located in the north, south and western locations of Brisbane.

Table 9 shows that seven suburbs have recorded average annual capital returns greater than 9.00%. These higher capital returns are also subject to higher capital return volatility ranging from 10.98% for Morningside and a high of 18.01% for Bulimba.

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 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

Again, 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 2019 the range in capital returns, based on median house prices, varied from -4.81% for Graceville to 21.83% for Chelmer. In 2019 only Chelmer (21.83%), Sherwood (8.28%) and The Gap (8.47%) recorded median house price capital returns greater than the Greater Brisbane average median house price capital return of 8.08%.

When these suburbs are analysed there is a very similar trend to the previous suburb analysis, with a number of suburbs recording capital growth and others with negative returns in 2019.

In 2018 five western Brisbane suburbs in the study recorded negative capital returns ranging from -12.45% to -0.17%. In 2019 only three of these suburbs recorded a negative capital return (Graceville -4.81%; Chapel Hill -0.74% and Kenmore -0.69%). Although Chapel Hill has been the only suburb in this grouping to record negative growth in both 2018 and 2019, the reduction in the median house price in 2018 was -12.45% compared to -0.74% in 2019.

As has been the case with suburbs in the northern, southern and eastern locations of Brisbane, suburbs that recorded very strong capital increases or reductions in 2018, tended to reverse these capital return trends in 2019 (Chelmer -1.50% in 2018 to 21.83% in 2019 and Graceville 12.79% in 2018 to -4.81% in 2019).

Table 10: Western Brisbane Suburbs: Median Price 1988-2019

Suburb	2019 Capital Return (%)	Average Annual Capital Return (%) 1988-2019	Average Annual Volatility (%)	Risk Return Ratio
Ashgrove	1.26	7.95	9.12	1.15
Bardon	1.64	8.15	10.44	1.28
Chapel Hill	-0.74	7.04	11.99	1.70
Chelmer	21.83	9.59	16.68	1.74
Graceville	-4.81	8.42	10.86	1.29
Jindalee	4.06	6.85	15.75	2.30
Kenmore	-0.69	6.55	9.16	1.40
Sherwood	8.28	8.37	9.39	1.12
The Gap	8.47	7.21	10.22	1.42
Toowong	1.69	7.72	12.10	1.57
Greater Brisbane	8.08	6.82	8.24	1.21

Over the full 32 -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. However, the generally lower capital returns in 2019 has resulted in slightly lower full study period capital returns for most suburbs in this grouping. The only exception in 2019 was Chelmer with the full study period average annual capital return increasing from 9.18% in 2018 to 9.58% in 2019.

When the investment performance is carried out based on average house prices, Table 10 shows that there have been some significant variations in capital returns based on average house prices. There are five suburbs recording higher capital returns for 2019 bases on average house prices compared to median house prices (Ashgrove, Bardon, Chapel Hill, Kenmore and Sherwood), with Bardon showing the greatest difference between the 2019 capital returns based on median and average house prices (1.64% median to 5.51% average house price).

The western Brisbane suburb that recorded the most significant reduction in capital returns in 2019 based on median and average house prices was Chelmer (21.83% median price and 12.18% average price)

Table 11: Western Brisbane Suburbs: Average Price 1988-2019

Suburb	2019 Capital Return (%)	Average Annual Capital Return (%) 1988-2019	Average Annual Volatility (%)	Risk Return Ratio
Ashgrove	1.98	7.94	9.50	1.20
Bardon	5.51	8.45	10.18	1.21
Chapel Hill	2.63	7.02	11.25	1.60
Chelmer	12.18	8.40	13.88	1.65
Graceville	-5.11	8.69	11.74	1.35
Jindalee	1.71	5.69	9.04	1.59
Kenmore	0.40	6.71	10.53	1.57
Sherwood	8.99	7.66	9.49	1.24
The Gap	5.47	7.41	10.83	1.46
Toowong	-9.32	9.13	21.80	2.39

Again, the generally lower capital returns in 2019, based on average house prices, has resulted in slightly lower full study period average annual capital returns for average house prices in most suburbs in this grouping. The only exceptions in 2019 was Chelmer, with the full study period average annual capital return based on average house prices increasing from 8.27% in 2018 to 8.40% in 2019.

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

9. Individual Suburb Performance:
Inner-City Units

The inner-city unit market in Brisbane has been in oversupply for the past 5 years, although the market performance in 2019 would indicate that there has been some recovery in many of these inner-city locations. Like 2018, the most notable outlier is Woolloongabba which showed an average capital return drop of -2.75% in 2019 after an increase in average capital return of 8.69% in 2018. Woolloongabba has experienced an increase in development of large high density multi-residential complexes as a result of proximity to strategic transport infrastructure. The annual variance in capital return is most likely attributable to the release of development projects which target specific sectors of the property market.

Table 12: Inner-City Suburbs: Median Unit Price Analysis 1988-2019

Suburb	2019 Capital Return (%)	Average Annual Capital Return (%) 1988-2018	Average Annual Volatility (%)	Risk Return Ratio
East Brisbane	8.82	6.13	12.37	2.02
Highgate Hill	4.70	5.91	12.96	2.19
Kangaroo Point	4.05	5.99	13.83	2.31
Teneriffe	0.53	7.76	9.83	1.27
Toowong	0.00	5.43	11.21	1.91
Woolloongabba	-2.75	8.22	25.62	3.12

East Brisbane, Highgate Hill and Kangaroo Point have shown positive capital returns with East Brisbane outperforming the average growth over the study period with an increase in capital return of 8.82% in 2019. This shows a recovery from the previous 3 years which had seen the East Brisbane market decrease from 6.32% in 2017 to 5.88% in 2018, when looking at the average annual capital return over the duration of the study period.

Highgate Hill has shown some long-term growth; 5.76% in 2018 to 5.91% in 2019. The Teneriffe market performance was virtually unchanged with a capital return of 0.53% in 2019 and Toowong showed an unchanged market (refer to Table 12).

10. Summary

Again, the 2019 results have shown significant variations in median and average house price movements from 2018 to 2019. Suburbs that recorded very high capital returns in 2018 tended to reverse these trends in 2019. This has also applied to suburbs that recorded significant reductions in median and average house prices in 2018 recording very significant increases in house prices in 2019.

Unlike previous years, there has been a large number of suburbs in the study locations that did not record a median house price capital return in 2019 equal to or greater than the Brisbane median house price return of 8.08%. Only 25% of the suburbs in the study recorded a 2019 capital return greater than the Brisbane median house price capital return. Suburbs close to the Brisbane CBD and located to the east of Brisbane tended to outperform suburbs to the south, west and north of Brisbane.

Over the full 32-year study, the percentage of suburbs recording average annual capital returns greater than the Brisbane median house price average annual capital return is considerably higher at 92.5%. The suburbs that have recorded lower average annual capital returns less than the Brisbane average tend to be outer, lower socio-economic Brisbane suburbs such as Forest Lake, Chermside West, Kenmore and Tingalpa. Inner-city and higher value suburbs are still recording average annual capital returns well in excess of the Brisbane median house price average. These higher value Brisbane suburbs are still showing longer term investment performance well above the returns for the middle and inner ring suburbs of Brisbane.

In 2019, the better performing suburbs based on median and average house prices were Chelmer 21.83%; Hamilton 18.46%; Coorparoo 15.64%; Morningside 14.11%; Seven Hills 10.91% and Fairfield 9.93%. The poorer performing suburbs in 2019 were Dutton Park (-10.97%), Clayfield (-9.25%), Norman Park (-5.60%), and Graceville (-4.81%). Again, some of these low performing suburbs in 2019 recorded some of the most significant positive returns in 2018. This suggests that these particular 2019 results again reflect a market correction rather than a trend. The better and poorer performing suburbs in 2019 include a range of suburbs across socio-economic status and various levels of exposure to current and future flight paths.

Generally, the full 1988-2019 analysis shows the highest price growth over the full 32-year period has been in the suburbs located close to the Brisbane CBD, with investment returns lower as the distance from the CBD increases. Inner-city suburbs located under the current flight paths are still recording average annual capital returns between 8% and 10%, well above the Brisbane median house price average annual return of 6.82%. Location to the CBD continues to be a predominant driver of value for residential property in Brisbane.

Appendices

Appendix 1: Alphabetical Suburb Listing: Median House Price Capital Returns (%): 1988-2019

Suburb	2019 Capital Return (%)	Average Annual Capital Return (%) 1988-2019	Average Annual Volatility (%)	Risk Return Ratio
Albion	8.45	9.61	19.20	2.00
Annerley	2.95	7.69	9.77	1.27
Ascot	-3.77	8.77	15.52	1.77
Ashgrove	1.26	7.95	9.12	1.15
Balmoral	9.83	9.32	12.39	1.33
Bardon	1.64	8.15	10.44	1.28
Belmont	3.35	6.83	10.30	1.53
Bulimba	2.86	11.50	19.37	1.68
Camp Hill	-0.23	8.72	13.08	1.50
Cannon Hill	-1.81	8.46	11.47	1.36
Carindale	0.00	6.42	11.12	1.76
Chapel Hill	-0.74	7.04	11.99	1.70
Chelmer	21.83	9.59	16.88	1.83
Chermside West	5.62	6.10	10.79	1.74
Clayfield	-9.25	8.51	12.19	1.43
Coorparoo	15.64	8.87	12.60	1.42
Dutton Park	-10.97	8.66	13.35	1.54
East Brisbane	-3.42	8.82	14.00	1.59
Fairfield	9.93	8.34	10.85	1.30
Forest Lake	-1.57	4.33	12.78	2.95
Gordon Park	-1.06	8.63	10.30	1.19
Graceville	-4.81	8.42	10.86	1.29
Hamilton	18.46	10.63	21.25	2.00
Hawthorne	5.13	9.80	10.78	1.05
Highgate Hill	17.78	9.12	12.86	1.41
Holland Park West	4.47	7.62	9.99	1.31
Jindalee	4.06	6.85	15.75	2.30
Kangaroo Point	21.01	10.61	24.24	2.28
Kenmore	-0.69	6.55	9.21	1.36
Mansfield	3.37	6.93	9.16	1.40
Mitchelton	1.67	7.83	9.38	1.20
Moorooka	-0.74	7.49	9.34	1.25
Morningside	14.11	8.93	10.81	1.21
Mt Gravatt East	-1.08	7.45	9.10	1.23
Murrarie	-2.36	8.11	11.53	1.42
New Farm	5.26	11.08	14.49	1.31
Norman Park	-5.60	8.71	10.28	1.18
Northgate	-0.14	8.25	11.84	1.43
Nudgee Beach	-7.93	15.22	41.05	2.70
Pinkenba	65.41	11.38	27.50	2.42
Rocklea	3.05	7.72	13.86	1.80
Seven Hills	10.91	8.98	13.40	1.49
Sherwood	8.28	8.37	9.39	1.12
Stafford	5.22	7.74	10.46	1.35
Tarragindi	0.76	8.07	9.69	1.20
Teneriffe	5.20	13.22	25.70	1.94
The Gap	8.47	7.25	10.22	1.41
Tingalpa	-3.57	6.92	11.15	1.61
Toowong	1.69	7.72	12.10	1.57
Virginia	4.14	7.93	11.10	1.40
Woolloongabba	2.01	8.84	12.66	1.43
Wooloowin	2.38	8.41	14.26	1.70
Wynnum	0.00	7.99	11.55	1.42
Greater Brisbane	8.08	6.82	8.24	1.21

Appendix 2: Alphabetical Suburb Listing: Average House Price Capital Returns (%): 1988-2019

Suburb	2019 Capital Return (%)	Average Annual Capital Return (%) 1988-2019	Average Annual Volatility (%)	Risk Return Ratio
Albion	3.59	9.20	17.33	1.88
Annerley	-2.32	7.94	12.10	1.52
Ascot	9.68	8.20	12.65	1.58
Ashgrove	1.98	7.94	9.50	1.20
Balmoral	18.66	9.58	12.03	1.26
Bardon	5.51	8.45	10.18	1.21
Belmont	11.99	7.36	13.00	1.77
Bulimba	14.35	11.07	18.01	1.63
Camp Hill	3.63	8.78	12.29	1.40
Cannon Hill	0.90	8.89	13.35	1.50
Carindale	-1.64	6.63	11.62	1.75
Chapel Hill	2.63	7.02	11.25	1.60
Chelmer	12.18	8.40	13.88	1.65
Chermside West	4.46	6.11	10.19	1.67
Clayfield	0.40	8.04	12.75	1.59
Coorparoo	20.61	9.50	13.91	1.46
Dutton Park	20.17	10.22	22.12	2.16
East Brisbane	-8.15	9.63	22.00	2.28
Fairfield	23.12	8.41	14.20	1.69
Forest Lake	-0.64	4.41	12.21	2.77
Gordon Park	-1.60	8.57	9.33	1.09
Graceville	-5.11	8.69	11.74	1.35
Hamilton	-7.80	8.79	17.38	1.98
Hawthorne	-0.66	10.23	14.37	1.41
Highgate Hill	1.69	8.63	16.69	1.93
Holland Park West	7.15	7.58	9.99	1.32
Jindalee	1.71	5.69	9.04	1.59
Kangaroo Point	27.11	12.43	38.88	3.13
Kenmore	0.40	6.71	10.53	1.57
Mansfield	3.67	7.27	11.13	1.54
Mitchelton	1.89	8.17	10.80	1.32
Moorooka	3.09	7.66	10.61	1.39
Morningside	12.94	9.00	10.98	1.22
Mt Gravatt East	2.22	7.44	9.71	1.30
Murrarie	-1.03	8.64	13.58	1.57
New Farm	4.59	11.32	14.60	1.29
Norman Park	1.39	9.46	13.87	1.47
Northgate	13.44	8.63	12.16	1.41
Nudgee Beach	-7.93	14.64	35.45	2.42
Pinkenba	45.37	15.90	46.08	2.90
Rocklea	-0.24	8.56	18.14	2.12
Seven Hills	16.38	9.23	13.32	1.41
Sherwood	8.99	7.66	9.49	1.24
Stafford	12.48	8.17	10.84	1.33
Tarragindi	2.86	8.21	9.86	1.20
Teneriffe	13.55	14.15	32.06	2.27
The Gap	5.47	7.41	10.83	1.46
Tingalpa	5.21	7.55	14.35	1.90
Toowong	-9.32	9.13	21.80	2.39
Virginia	11.62	8.06	10.75	1.33
Woolloongabba	14.79	9.03	13.05	1.44
Wooloowin	8.63	8.37	13.00	1.55
Wynnum	-1.28	7.88	11.49	1.46