Notice of Meeting:

I hereby give notice that an ordinary Meeting of the Council will be held on:

Date:	**Thursday 26 September 2019**
Time:	**1.00pm**
Meeting Room:	**Council Chamber**
Venue:	**Municipal Building, Garden Place, Hamilton**

Richard Briggs
Chief Executive

Council
OPEN LATE AGENDA

Item 11 Response to report by Urban Economics and Item 12 Chair's report

Membership

Chairperson	Mayor A King
Deputy Chairperson	Deputy Mayor M Gallagher
Members	Cr M Bunting
	Cr J R Casson
	Cr S Henry
	Cr D Macpherson
	Cr G Mallett
	Cr A O'Leary
	Cr R Pascoe
	Cr P Southgate
	Cr G Taylor
	Cr L Tooman
	Cr R Hamilton
Quorum:	**A majority of members (including vacancies)**
Meeting Frequency:	**Monthly – or as required**

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Governance Lead

25 September 2019

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Council Report

Committee: Council **Date:** 26 September 2019

Author: Stafford Hodgson **Authoriser:** Richard Briggs

Position: Senior Strategic Policy Analyst **Position:** Chief Executive

Report Name: Response to report by Urban Economics

Report Status	*Open*

Purpose

1. To provide the Council a review of, and context around, a recently released report by Urban Economics into Hamilton's growth projections.

Staff Recommendation

2. That the Council receives the report.

Executive Summary

3. The Council welcomes review of its work and robust conversation about its thinking, programmes and structures. The review of this report was undertaken to assess whether there was any information or assessment that could be useful for the Council's growth modelling environment.

4. Media coverage of the report by Urban Economics (the report) included claims that Hamilton's growth planning is flawed, and the city is thus potentially exposed to significant risk.

5. The review has found that the assumptions that appear to underpin the report and its conclusions, are incorrect. Therefore, staff consider that elected members can have confidence in the growth modelling and revenue forecasting used to underpin the Council's 10-Year Plan.

6. The report is critical of the Council's independent consultants, Market Economics. Market Economics is widely recognised as one of New Zealand's leading independent consultancies specialising in market and economic analysis. The Council remains fully confident in Market Economics' work.

7. The housing affordability measure used in the report is incorrect. The report states Hamilton's affordability median multiple as 9.3. It is 6.8. The report's data would mean that Hamilton housing is less affordable than Auckland's. This is not the case.

8. The report uses out-of-date household number projections as one of its core assumptions in estimating revenue, leading to their revenue forecasting being incorrect.

9. Market Economics' analysis used an annual average rate of 2.0% price growth in the commercial feasibility model. This is below the historic rate of house price growth in Hamilton.

10. The assumptions underpinning the revenue analysis rely on out-of-date Statistics NZ data. Subsequently the report's projected revenue shortfall has no basis.

11. Irrespective of the validity of the report's underpinning assumptions, it has raised discussion on an important topic and has given the Council the chance to continue to engage in discussion on it.

12. Having considered the Significance and Engagement Policy, staff have assessed that the matters raised in this report have low significance.

Background

13. On 18 September 2019, the Waikato Times ran a front-page story in its print edition based on claims and statements in a report authored by Urban Economics.

14. The article opened with the statement: *Hamilton could be facing a triple crisis in the next 10 years around housing affordability, massive rates increases and high council debt.* The article was later carried online and on social media.

15. The Council was sent a copy of the report on 17 September 2019 and was asked to respond to the content. A response was provided prior to the requested deadline, noting the report had key errors. Examples and updated information were provided to the Waikato Times.

16. Due to the concerning and unsubstantiated nature of some of the claims made in the report, the likely concern to some Hamiltonians, and the timing so close to an election, the Council issued a clarification statement later in the day of publication and advised elected members and election candidates.

17. The Council continually monitors the assumptions and analysis that underpins its growth modelling and forecasting. The day prior to the article, the Council received such a report.

18. At its 17 September 2019 meeting, the Council received the report An Analysis of Council's Resilience to Higher or Lower growth, which evaluated the Council's resilience under higher or lower growth than anticipated in the 2018-28 10-YP.

19. Three growth scenarios (high, low, and boom/bust) were tested and evaluated against the current 10-Year Plan forecasts using growth and financial modelling.

20. None of the scenarios breached the Council's self-imposed 230% net debt to revenue ratio. The researched showed that the Council is resilient to significant changes in growth numbers and has the mechanisms in place to make changes to its plans in a timely way.

Discussion

21. The Council welcomes review of its work and robust conversation about its thinking, programmes and analysis. The Council regularly commissions peer reviews of its key work and welcomes further peer reviews.

22. Following a review of the Urban Economics report, staff have concerns about the validity of the underlying assumptions and data used.

23. The report contains many factual and data errors and conclusions based on incorrect assumptions. In reviewing the report, staff have addressed the most obvious and fundamental errors rather than making a line-by-line review of the report.

24. **Council Consultants and Partnerships**

25. The strategic planning by all councils in the Waikato region is aligned in the use of a consistent set of economic and population projections supplied by established institutions and consultancies with recognised expertise.

26. The population demographics department at the University of Waikato, also known as the National Institute for Demographic and Economic Analysis (NIDEA), has long provided bespoke population projections for all the councils in the Waikato region.

27. These projections, which Council has adopted as the 10-YP growth line, draw on Census results and other official demographic data supplied by Statistics NZ. The NIDEA population projections are consequently aligned with Statistics New Zealand demographic data.

28. The benefit of using the NIDEA population projections is that location of growth is more accurate as it is informed by a greater level of local information.

29. Economic projections for the region and each individual council are provided by Market Economics, an independent consultancy, that is widely recognised as one of New Zealand's leading independent consultancies specialising in market and economic analysis.

30. Other peer reviews undertaken on areas covered by the report include:

    - Growth & DC Models: Business and Economic Research Ltd (BERL)
    - 2018/28 10-Year Plan: Audit New Zealand
    - Revenue forecasting and collection in context of debt to revenue ratio limit: Pricewaterhouse Coopers (PwC).

31. Some of these reviews provided guidance for improvements, which have been actioned.

32. All provided assurance for the validity of the work completed.

33. All of these reports were reported to the Council.

34. **Median Multiple and Medium Household Income**

35. The median multiple is an internationally comparable index of housing affordability. It is used globally to compare affordability between cities. It is used as part of an analysis of housing affordability, but alone this measure does not comprehensively diagnose housing affordability issues.

36. The median multiple calculation is: the average house price divided by the average household income of a location.

37. The median multiple figures used in the report are incorrect. These are compared with the 'Annual Demographia International Housing Affordability Survey' figures in the table below.

38. Table 1: Median multiple comparison

Data provider	City	2009	2019	2029	2029
Urban Economics	Hamilton	6.8	9.3	9.8	12.1
Demographia	Hamilton	5.2	6.8	NA	NA
Demographia	Auckland	6.4	9.0	NA	NA

39. Source: 15th Annual Demographia International Housing Affordability Survey: 2019 and 5th Annual Demographia International Housing Affordability Survey: 2009.

40. Note: There are two 2029 projected median multiples for Hamilton provided in the report based on different assumptions.

41. The report's incorrect median multiple for Hamilton would mean that housing in Hamilton is less affordable than it is in Auckland. This is incorrect. Housing is more affordable in Hamilton than Auckland.

42. The report states that their median multiple uses median household income as the denominator. However, it appears to use the average income of an individual. This is referenced as $62,900 for Hamilton.

43. Hamilton's median household income from the 2013 Census (over six years ago) was $64,100. Statistics NZ do not measure this for Hamilton between Censuses but do provide it at a regional level. In 2019, New Zealand and Waikato median household income is estimated to be $91,700 and $89,900 respectively. Demographia estimates Hamilton median household income at $81,400 in their 2019 survey (September 2018 data).

44. **Household Growth Projections**

45. The Statistics NZ subnational household projections for the 2018-28 period used in the report are incorrect. The figure of 9,100 households appears to be based on pre-2017 projections released by Statistics NZ. The latest Statistics NZ subnational household projections for the 2018-28 period (released in October 2017) show a projection of 10,500.

46. The October 2017 upward revision to the Statistics NZ subnational household projections reflect larger than anticipated actual household growth due to external migration.

47. It appears the report has calculated the household growth of 7,900 by taking the number of consents granted (9,770 between 2009 and 2018) and used an assumption that only 81% of the new dwellings were built. *Note: the report provided no references for data used for this calculation, so this is a staff assumption based on the numbers reported.*

48. There are several key data accuracy issues present here:

    a. The report uses different time frames to report key statistics (using 2009-2018 building consent data to report on 2006-2016 actual household growth).

    b. The building consent data in the report is not consistent with the information supplied from Statistics NZ.

    c. The core assumption only 81% of all dwellings consented in Hamilton were completed is incorrect.

49. The actual completion rates tracked in the Council's internal consenting system show on average a completion rate of 97.2%.

50. In summary, the report uses out-of-date household projections and incorrect calculations to underpin one of the main areas of concern raised.

51. **House price increases**

52. Changes in property values through time are a fundamental component of modelling feasibility of dwellings through time. Population and other demand growth drives increases in prices through time. Property value increases are a key economic process in growing urban economies, enabling redevelopment, further intensification and outward urban (greenfield) expansion to occur.

53. Market Economics' analysis used an annual average rate of 2.0% price growth in the commercial feasibility model. This includes the changes in prices that occur as demand moves into new areas (e.g. outward urban expansion) or types of development (e.g. redevelopment or intensification) and prices move from theoretical prices at which dwellings would unlikely be constructed, to the point of modelled commercial feasibility. Thus, the growth in modelled feasible dwelling prices (excluding the upward movement to the point of feasibility) would be lower.

54. It is not accurate to simply apply the stated growth rate to an existing median house price to calculate a future median house price. This simplistic approach would not account for the changes to the structure of dwelling stock by dwelling type and location, which have a major influence on the future median price. Put simply, a greater share of higher density dwellings through time (enabled by demand and price growth), may lower the median house price.

55. We also note that a rate of 2.0% is below the historic rate of house price growth in Hamilton. Based on detailed time series sales data, and our understanding of growing urban economies, we consider it is appropriate to use a positive price growth rate.

56. The report draws conclusions from a price change rather than the underlying factor which causes the price change. An underling factor contributing toward house price inflation over time is an increase in the number of households. This could be visualised on a demand and supply graph by an outward shift in the demand curve.

57. If the demand curve shifts out over time (meaning more people moving to Hamilton and wanting homes) both the quantity demanded and the price of houses in Hamilton will increase, all other things being equal.

58. This is one of the factors that has played out in Auckland (and in cities around the world) for many years – ongoing strong demand in spite of significant price increases and rising unaffordability.

59. The report comes to the opposite conclusion – that as prices rise over time the quantity demanded of houses in Hamilton will fall.

60. **Infill Development Capacity**

61. The report correctly notes that the Market Economics feasibility analysis projects that by 2046, 83,505 dwellings will become commercially feasible to develop in the infill area. This figure is only one scenario presented in the Market Economics analysis and represents a *theoretical* maximum that may be enabled by 2046.

62. The Council has not used this maximum figure in its growth and DC modelling. The Council's approach is significantly more conservative, using only a portion (just 11%, or 9,800 dwellings) of the total assessed commercially feasible infill capacity for the period to 2046.

63. The report is consequently critically flawed in its assumption that the maximum figure has been used to underpin the Council's DC modelling of capacity in the infill areas of the city.

64. **Revenue projections**

65. The pre-2017 projections released by Statistics NZ have been used as one of the core assumptions in the "Growth Implications for Revenue" of the report.

66. Statistics NZ have themselves identified these projections were too low and revised them upwards in October 2017 (see paragraph 45). Subsequently, the report's projected revenue shortfall has no basis.

67. **Further Council analysis**

68. As previously noted, the Council welcomes review of its work and robust conversation about its thinking, programmes and analysis.

69. Some areas of further investigation staff anticipate include:

    a. broad comparative house price and affordability analysis

    b. how housing affordability and typology affect growth assumptions including household projections

    c. testing existing analysis and assumptions with 2018 census data.

Financial Considerations

70. This report has no direct financial implications for the Council and is for information purposes only.

Legal and Policy Considerations

71. This report is for information purposes only and presents no intrinsic legal risk to Council.

Wellbeing Considerations

72. The purpose of Local Government changed on the 14 May 2019 to include promotion of the social, economic, environmental and cultural wellbeing of communities in the present and for the future ('the 4 wellbeings').

73. There are no known social, economic, environmental or cultural considerations associated with this matter.

Risks

74. This report presents no intrinsic risk for the Council and is for information purposes only.

Significance & Engagement Policy

Significance

75. Staff have considered the key considerations under the Significance and Engagement Policy and have assessed that the recommendation(s) in this report has/have a low level of significance.

Engagement

76. Given the low level of significance determined, the engagement level is low. No engagement is required.

Attachments

Attachment 1 - Urban Economics "Economic Evaluation of: Housing Construction Forecasts and Development Contribution Revenues for Hamilton City"

URBAN ECONOMICS

3.09.2019
AUTHORS Adam Thompson
Matthew Williamson
James Stewart
5|330.5.06

Economic Evaluation of: Housing Construction Forecasts and Development Contribution Revenues for Hamilton City

PREPARED FOR
Colin Jones

ABOUT US

OUR AREAS OF EXPERTISE

Economic Analysis

Our work aims to bridge the gap between land-use planning and urban economics. Our focus is on the interaction between land markets, land-use regulations, and urban development. We have developed a range of methodologies using a quantitative approach to analyse urban spatial structure and audit land-use regulations.

Property Research

We provide property and retail market research to assist with planning and marketing of new projects. This includes identification of new sites and market areas, assessments of market potential and positioning, and the evaluation of market-feasibility of specific projects.

Development Advisory

We provide development planning and costing advisory services to support small and large-scale developments.

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1. Executive Summary

- Statistics NZ estimates that Hamilton City will growth by 9,100 households over the next decade. Statistics NZ have historically achieved a high level of accuracy with their projections and are therefore considered reliable.
- Hamilton City Council (HCC) has adopted a higher growth projection of 11,950 households over the next decade. This is significantly above both the historical rates and the Statistics NZ projections. **It is also worth noting that the HCC growth projections have not accounted for the impact of the rising cost of housing that is expected in the City, which tends to slow growth.**
- As part of Hamilton City's obligations under the NPS-UDC, Hamilton City estimated the feasible capacity for growth in Hamilton City. **Key to Hamilton City having enough feasible capacity to support future growth expectations was an increase in the real house price from $585,000 - $715,000 over the next ten years**. This allows builders to supply housing on parcels and at a density that is not feasible at lower house price levels.
- Market Economics wrote the report underlying Hamilton City's commercially feasible capacity estimates. This report has been peer reviewed by Urban Economics in 2018. Market Economics followed best practice with the modelling techniques used. **However, inconsistencies in data source[1] use suggest the modelling is biased in favour of additional commercially feasible capacity.**
- The Market Economics report models growth in real house prices. There is no basis for the theoretical proposition that house prices will inevitably double in real terms every 30 years.
- An increase in house prices reduces the attractiveness of the city for existing and potential residents. As a result, a lower quantity of houses is demanded. How much the quantity of housing demanded decreases in response to an increase in price, is the economic concept known as *'price elasticity of demand'*.
- The real house price to income multiple has risen from 6.8 to 9.3 over the past ten years. Over the next ten years it is forecast to grow to 9.8. This is considered extremely unaffordable, and higher than the current multiple in Auckland. High housing unaffordability is the key driver of current relocation out of Auckland. **The increase in house prices underpinning Hamilton City Council's current growth forecasts will see Hamilton City become more unaffordable than Auckland is presently.**
- **Market Economics has projected a slower rate of real house price growth than growth over the most recent period would suggest.** As evidenced by the increase in the real

[1] Market Economics used the rating valuation database to derive the purchase price for raw development land, and recent sales prices for the price of new houses that result. This results in developers in their model being able to purchase land for 10 - 20% less than the market value of raw development land. No allowance was made for construction of a driveway, which adds between $10,000 - $30,000 in additional cost per house.

house price to income multiple from 6.8 to 9.3 over the past ten years, and the forecast increase in the real house price to income multiple to 9.8 over the next ten years. **If the past ten years is a reliable indicator the house price to income multiple is forecast to increase to 12.1**.

- Urban Economics commissioned a survey in 2018 on relocation intentions for Aucklanders. We found that the number one reason driving relocation out of Auckland is high house prices. The largest groups intending to leave are parents with young children. **If Hamilton's unaffordability continues to increase, parents with young children may choose to leave**.
- Accurately forecasting the growth trajectory of the city is important for estimating rates income and development contributions which are important components of the city budget. Forecasting rates and development contributions accurately enables prediction of the impact of housing costs on the wellbeing of city residents.
- People make trade offs in determining where to live. **If Hamilton City experiences an increase in prices more people will choose to locate in commuter towns accelerating urban sprawl.**
- After adjusting for price elasticity of demand, total development contributions range from $192 million to $288 million. **This results in an infrastructure revenue shortfall of between $25 and $121 million over the next ten years. This is equivalent to between 8 - 39% of all projected development contributions over the next ten years.**
- After adjusting for price elasticity of demand due to Hamilton's prices rising from $585 - $715k, the total increase in rates payments attributable to household growth ranges from $156 million to $233 million. This results in a revenue shortfall of between **$2 and $78 million over the next ten years**. **This is equivalent to between 0.1 - 3% of total rates revenue over the next ten years.**
- The total revenue shortfall estimated from the reduction in quantity demanded ranges from **$27 to $200 million over the next ten years. This is equivalent to 0.65% - 4.85% of total income over the next ten years.**
- **Hamilton City Council's 10 year plan indicates they expect to operate at their debt ceiling for the 2021 - 2024 period.**
- Overestimating revenue could result in Hamilton City Council passing their debt ceiling. **This could cause them to lose their AA- credit rating, resulting in higher interest payments for council, and higher rates for ratepayers.**

2. Household Growth Projections

Figure 1 outlines three household growth projections for Hamilton. The Actual Growth from 2006-2016 was 7,900 households. This was slightly below Statistics NZ's projections for this period of 9,100 households, which confirms Statistics NZ's forecasts were relatively accurate.

For the 2018-2028 period, Statistics NZ project an additional 9,100 households, slightly (15% or 1,200 households) above the previous decade. HCC project an additional 11,950 households in the documents provided to us under the Official Information Act, and 12,500 under the projections provided to them by the Waikato University National Institute of Demographic and Economic Analysis. The Waikato University series is displayed here for completeness and not analysed in the report. Both these figures are significantly (51 - 58% or 4,050 - 4,600 households) above the previous decade.

Given the historical reliability of the Statistics NZ projections, and the significant increase in household growth expected by HCC, the Statistics NZ projections are preferred.

Figure 1: Household Growth Projections

Household Growth	2006 - 2016	2018 - 2028
Actual Growth	7,900	
Statistics NZ Projections	9,100	9,100
HCC Projections		11,950
Waikato University NIDEA Projections		12,500

Source: Statistcs NZ, Hamilton City

Figure 2 shows the historic Building Consents for new dwellings issued for Hamilton City and the main surrounding cities. It should be noted that only a proportion (80-90%) of building consents result in a new dwelling (and by implication a new household) in the City. They do however provide a good basis for understanding the historical and relative trends between cities.

The main points to note in Figure 2 are:

- All cities have shown a peak in construction around 2004, and dip in construction post 2008 (Global Financial Crisis), and a subsequent increase in construction following 2008.
- Housing construction tends to follow economic cycles and therefore is likely to decrease in all cities over the next 5 years before increasing again. Although hard to predict, typically cycles last 7-10 years.
- Hamilton City had 9,770 dwelling consents, however only 7,900 (81%) of these resulted in new dwellings being built.

A key implication is that the recent increase in the rate of new construction is common to all cities, and this indicates that it is probable that all cities, including Hamilton, will experience a decrease in new dwelling consents over the next 5-10 years, from the current levels seen over the past 1-2 years.

Figure 2: Dwelling Building Consents 200i - 20i8

Year	Hamilton	Auckland	Tauranga	Whangarei
200i	650	8,090	890	480
2002	800	i2,i50	i,260	520
2003	i,270	ii,300	i,420	670
2004	i,450	i3,390	i,670	730
2005	i,340	8,780	i,420	7i0
2006	i,270	8,240	i,250	7i0
2007	i,400	7,040	i,i40	690
2008	680	5,000	840	540
2009	680	4,040	490	480
20i0	720	4,i30	580	4i0
20ii	740	4,220	640	3i0
20i2	770	5,020	750	370
20i3	990	6,760	850	370
20i4	840	8,020	i,080	350
20i5	i,2i0	9,330	i,390	420
20i6	i,i80	i0,020	i,700	6i0
20i7	i,i40	i0,870	i,690	740
20i8	i,490	i2,860	i,340	600
10-year Total	**9,770**	**75,270**	**10,500**	**4,650**

Source: Statistics NZ

3. House Price Projections

As part of the Future Proof Partners obligations under the NPS-UDC, Market Economics (consulting to HCC) estimated the feasible capacity for growth in Hamilton City. One of the key elements of their model was real price growth in the median house price from $585,000 in 20i8 to $7i5,000 by 2028[2]. Real price growth is defined as the increase in price over and above the inflation rate. **In nominal terms the median house price is projected to rise from $585,000 in 2018 to $868,000 by 2028.** Nominal price growth includes the increase in inflation.

This is summarised as follows:

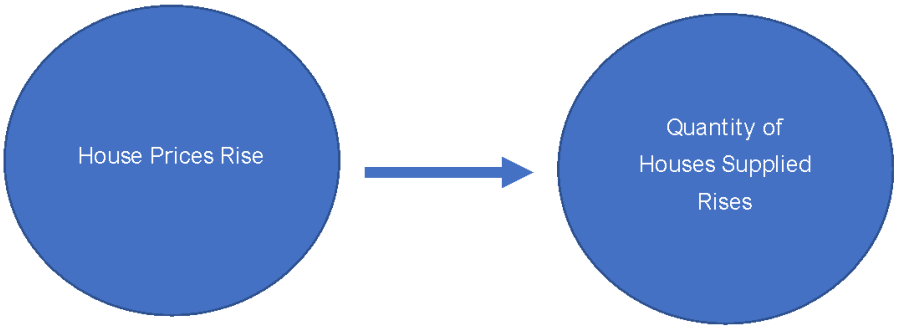
> *"Importantly, the model has a time component which enables it to estimate the commercial feasibility of capacity through time.* ***Population and other demand growth will affect prices through time,*** *which affects the feasibility of different developments through time.*
>
> ...
>
> *The annual average rate of* ***sales price growth has been set [within the CFC Model] at 2.0 per cent per annum*** *for all dwellings within the Waikato District and Hamilton City.*
>
> ...
>
> ***Growth in prices*** *(together with growth in costs) have been applied to allow redevelopment, further intensification and outward greenfield expansion to occur through time in the Model."*
>
> *(page 29-30 Technical Specifications Report, emphasis added)*
>
> *It allows for the core economic processes observed and studied to date to continue to have effect, in a*

[2] For the purposes of this report, we adopt the estimates of the supply side made by Market Economics..

manner generally consistent with the scale and timing of growth in an economy. Accordingly, ***there is no requirement to assume*** ***that economic processes evident to date [i.e. house price growth] will no longer occur, or that observed relationships within the economy which affect land markets directly and indirectly will no longer have those effects.***
(page 5, NPS-UDC Current Feasibility Provisions Discussion Paper, emphasis added)

This follows standard economic theory - as dwelling prices increase builders are incentivised to supply more dwellings, and previously unprofitable locations for additional dwellings are now profitable. This is outlined in Figure 3.

Figure 3: Supply Response to Price Increase[3]



4. Infill Development Capacity

Hamilton City Council projects growth of 11,950 additional households by 2028. In order to meet this target, 40% or 4,660 additional dwellings are forecast to be built within the existing urban area. This is known as infill development. The following figure indicates HCC's estimate of feasible capacity over time. Feasible capacity increases as the real price of housing rises in the model. A relevant consideration when analysing infill development capacity is the cost of upgrading existing infrastructure. The key points to note are:

- 6,819 dwellings are estimated to be feasible in existing urban areas at current prices.
- By 2021, 13,596 dwellings are feasible in existing urban areas. **This translates to a real house price of $621,000 and a nominal house price of $658,000.**
- By 2046, 83,505 dwellings are feasible to be built within existing urban areas. **This translates to a real house price of $998,000 and a nominal house price of $1,754,000.**
- **The main implication of this is that Hamilton requires a significant increase in real house prices in order to achieve sufficient commercially feasible infill capacity for growth.**
- Market Economics estimates do not consider the obstacles to growth that 'restrictive land

[3] All else being equal

covenants' create[4]. It is unknown how much this reduces feasible capacity; however, the Market Economics commercial capacity estimates are likely to overestimate the commercially feasible capacity in the existing urban area.

- Broadly speaking, upgrading existing infrastructure is 2 - 3 times more expensive than building new infrastructure.
- Greenfield infrastructure placement by contrast, typically involves open fields without existing roads or other infrastructure. This means greenfield infrastructure placement can occur more quickly, cheaply and at a larger scale.
- Hamilton City Council has budgeted $21.3m for water and $103.5m for wastewater in infill areas over the next 10 years in their development contributions policy 2018/19. It is assumed that these estimates are consistent with the requirements of the high level of growth projected in infill areas.
- **These costs are estimated to be $10m - $14m and $50m - $67m higher than if the same level of growth occurred in greenfield areas.**

Figure 4: Commercially Feasible Infill Capacity

Figure 37 - Infill (Incl. Redevelopment) Commercially Feasible Capacity in Hamilton City

Location	Plan Enabled Capacity Infill (incl. redevelopment)	Commercially Feasible Capacity Infill (incl. redevelopment) 2017	2021	2026	2046
1 (Te Rapa north)	-	-	-	-	-
2 (Te Rapa)	107	-	-	-	106
3 (Rotokauri)	28	-	-	-	-
4 (Nawton)	6,097	189	534	1,191	4,038
5 (Dinsdale)	6,617	193	550	1,285	4,795
6 (Temple View)	534	-	17	50	391
7 (Frankton)	777	64	119	191	496
8 (Melville)	7,332	39	468	1,264	5,475
9 (Peacocke)	904	87	121	150	199
10 (Silverdale)	4,794	206	460	1,322	3,831
11 (East/University)	4,152	370	607	1,114	2,595
12 (Ruakura)	-	-	-	-	-
13 (Fairview/Enderley)	6,023	137	416	902	4,510
14 (East/Claudelands)	4,809	350	446	782	4,063
15 (Chartwell)	5,850	333	1,073	1,796	4,587
16 (Rototuna)	12,463	1,233	3,027	4,216	9,695
17 (St Andrews)	5,712	118	585	1,647	4,695
18 (Beerescourt)	3,944	133	324	640	3,082
19 (Central City)	46,490	3,109	4,411	5,607	28,412
20 (Hamilton Lake)	3,244	331	485	832	2,579
TOTAL	**119,841**	**6,819**	**13,596**	**22,942**	**83,505**

Source: Market Economics

[4] The majority of Hamilton City's growth over the past half century has occurred through large masterplanned developments. Most of these developments place restrictive covenants on new sections limiting dwellings per section and size of dwellings.

5. Price Elasticity of Demand for Housing

As outlined in Section 3, as dwelling prices increase builders are incentivised to supply more dwellings, and previously unprofitable locations for additional dwellings are now profitable. However, markets cannot be understood in terms of supply alone. As prices rise, unless they have done so in response to an increase in demand, quantity demanded falls. The quantity that demand falls by in response to an increase in price is an economic concept called the 'price elasticity of demand'.

Applications of the price elasticity of demand can be seen in several current government health policies. Government taxes on cigarettes and alcohol are designed to reduce consumption through raising prices. A study of the effectiveness of tobacco excise taxes[5] was completed by EY for the ministry of health in 2018. They found the mean price elasticity of demand for the population of New Zealand was -0.5, a 100% increase in price reduces demand by 50%. A similar study into the effectiveness of alcohol taxes on reducing consumption was completed by the Ministry of Justice[6] finding elasticity coefficients between -0.44 to -0.54, a 100% increase in the price of alcohol reduces consumption by between 44 and 54%.

Academic literature on this concept as applied to housing has found coefficients between -0.36 and -0.87, a 100% increase in the price of housing results in 36 - 87% less housing demanded. A review of academic literature on this concept as applied to housing is provided below.

What is the price elasticity of housing demand?, Eric A. Hanushek and John M. Quigley (1980)

This paper estimated the response of renters in Phoenix and Pittsburgh who were randomly given rental payment subsidies between 20% and 60% and a control group who were given no subsidy. Data on housing choices was recorded at the start of the period and annually for the next two years. The estimated price elasticity of demand for the Pittsburgh group was -0.64 and -0.45 for the Phoenix group.

Housing Demand and Expenditures: How Rising Rent Levels affect Behavior and Costs-of-Living over Space and Time, David Albouy, Gabriel Ehrlich and Yingyi Liu (2014)

This paper analysed changes in incomes, non-housing costs and housing costs across multiple metropolitan centres in the United States from 1982 - 2012. Controlling for non-housing costs controls for how changes in non-housing costs relate to changes in housing costs. Controlling for incomes controls for how increases in incomes result in increases in the amount of housing demanded. A significant number of specifications were analysed resulting in price elasticity of demand coefficients between -0.38 and -0.87.

[5] Evaluation of the tobacco excise increases as a contributor to Smokefree 2025 - Final Report, EY (2018)

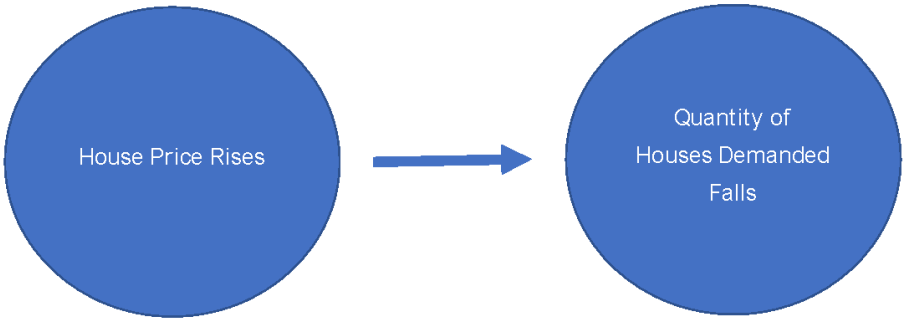
[6] The Effectiveness of Alcohol Pricing Policies, Ministry of Justice (2014)

Wage gradients, rent gradients, and the price elasticity of demand for housing: An empirical investigation, Randall W. Eberts, Timothy J. Gronbery

Data from Chicago on the slope of changes in wages and rents was analysed to determine the price elasticity of demand. As changes in wages change how much housing people demand, controlling for this affect allows the authors to analyse how much changes in rent change the amount of housing demanded. Their results found a price-elasticity of demand estimate of -0.4.

Concluding remarks: When house prices rise, all else being equal simultaneously quantity supplied rises and quantity demanded falls. It is likely that the price elasticity of demand coefficient is between -0.36 to -0.87 in New Zealand. This can be interpreted as a 100% increase in the price of housing results in 36 - 87% less housing being demanded. This suggests price elasticity of demand is inelastic.

Figure 5: Demand Response to Price Increase



As general context to the concept of price elasticity of demand for housing, Urban Economics commissioned a relocation survey last year in Auckland where the cost of housing was the number one reason for relocation. The results can be found in Appendix I. The main finding was that households consider leaving cities as the price of housing increases.

6. Changes in Housing Affordability

Housing affordability has decreased significantly in Hamilton over the past ten years as house price growth has increased at a faster rate than wages. As outlined elsewhere, housing affordability is a key driver of growth, with worsening housing affordability reducing demand for housing.

Housing affordability is measured using the multiple of the median house price to the median household income. This provides a good measure of housing affordability for the average household.

$$House\ Price\ to\ Income\ Multiple = \frac{Median\ House\ Price}{Median\ Household\ Income}$$

Internationally, House Price to Income Multiples are widely accepted as a measure of housing affordability. The World Bank views this multiple as:

> *"possibly the most important summary measure of housing market performance, indicating not only the degree to which housing is affordable by the population, but also the presence of market distortions".*

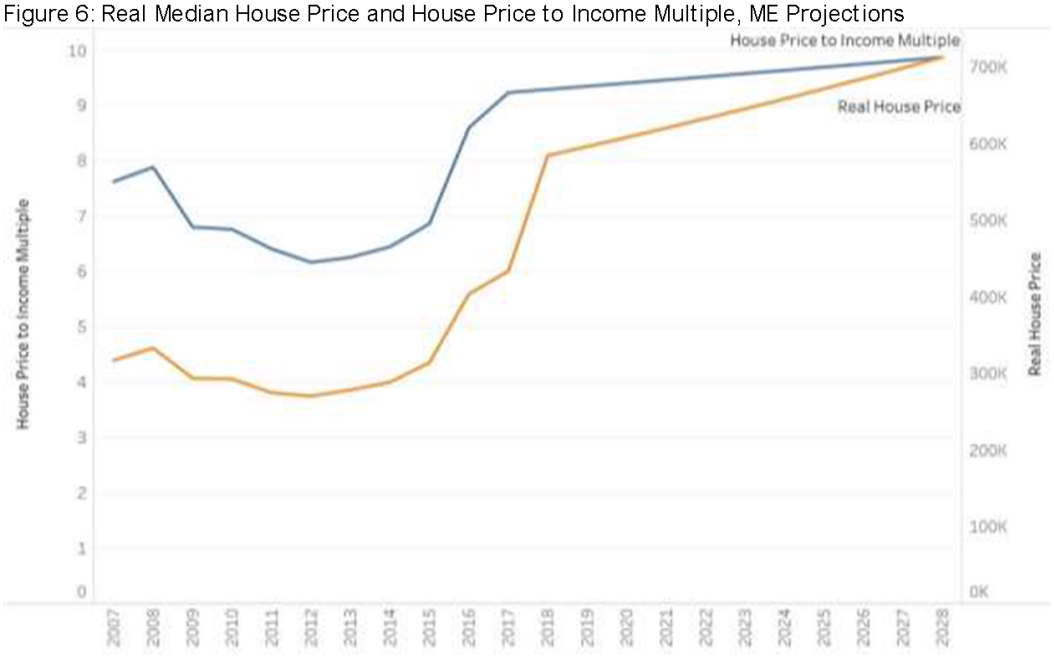
Analysis of this multiple primarily from evidence in the United States has resulted in international acceptance that a median multiple of 3 or less is a very good marker for housing affordability. New Zealand experienced median multiples of 2 - 3 from 1957 - 1980 by the late 1990s the median multiple had risen to 4. Currently New Zealand's median multiple sits at 6.5. Hamilton City's House Price to Income multiple historically and forecast is displayed in the following figures. The key points to note are:

- The house price to income multiple has risen from 6.8 to 9.3 over the past ten years. Over the next ten years it is forecast to grow to 9.8. This translates to **an increase in the median real house price from $585,000[7] currently to $715,000. This is considered extremely unaffordable, and higher than the current multiple in Auckland.**
- The house price to income multiple has risen from 6.8 to 9.3 over the past ten years. If house prices increase at the same rate during the next ten years it is forecast to grow to 12.1. This translates to **an increase in the median real house price from $585,000 currently to $830,000. This is considered extremely unaffordable and significantly higher than the current multiple in Auckland.**
- The current average household income in Hamilton is estimated at $62,900[8]. This means **a house considered affordable by international standards would sell for no more than $188,700.**
- The median real house price growth to $715,000 is expected to be accompanied by real wage growth to $72,960. Real wages growing slower than house prices is key to the assumption that commercially feasible capacity will increase over time.
- **High housing unaffordability is the key driver of current relocation out of Auckland. The increase in house prices underpinning Hamilton City Council's current growth forecasts will see Hamilton City become more unaffordable than Auckland is presently.** This is likely to result in less people choosing to live in Hamilton, and more existing residents considering relocation elsewhere
- The Ministry of Social Development (MSD) uses outgoings-to-income ratios to analyse affordability of housing. High housing costs relative to income are often associated with severe financial difficulty. **Spending more than 30% of disposable household income on housing is considered high.**

[7] QV.co.nz
[8] Statistics NZ, Infometrics

- The survey MSD's outgoings-to-income ratio is based on is only applicable at the national level due to sample size, however the rate of real house price growth modelled by Market Economics is higher than the historical rate of real wage growth in Hamilton City.
- If real house prices increase at this rate, **the proportion of households in Hamilton experiencing severe financial difficulty is likely to increase.**
- Current interest rates are at all time historic lows, allowing many households to service much larger home loans.
- Although it is difficult to predict interest rate movements over the next 5 - 10 year period, it is considered unlikely they will continue to stay at the current level.
- **Increases in interest rates increase the financial burden of housing on households with high levels of debt.**
- **Increases in interest rates generally result in a fall in asset prices.** This is because purchasing assets with debt becomes more costly, for a household purchasing a home this translates to a higher weekly or monthly mortgage payment.
- Increases in interest rates make the required real house price growth to meet Hamilton City's infill development goals outlined in Section 4 less attainable.

Figure 6: Real Median House Price and House Price to Income Multiple, ME Projections



Source: Infometrics

Figure 7: Real Median House Price and House Price to Income Multiple, Recent Trend Projections

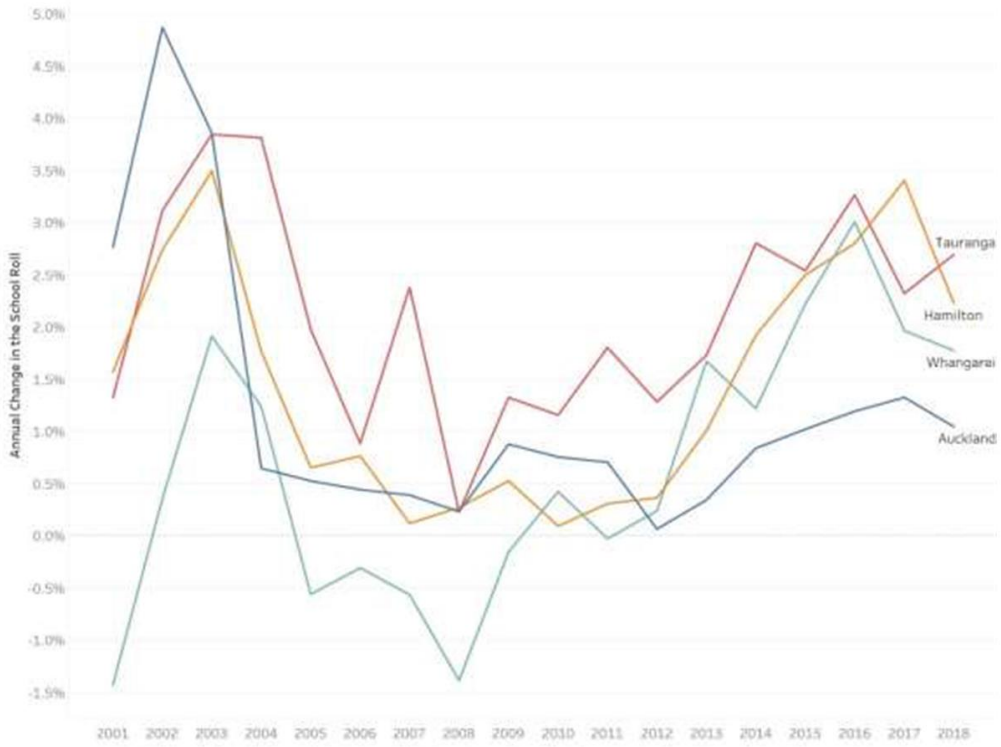
Source: Infometrics

7. School Roll Growth

Growth in the number of children enrolled in schools is a useful indicator for where young families are choosing to settle. Young families tend to be highly mobile and relatively sensitive to increases in housing affordability. More information on this can be found in Appendix I. The following figure graphs the annual percentage change in the total school roll for Auckland, Hamilton, Tauranga and Whangarei over the past 19 years. The key points to note are:

- During the past 6 years all cities have experienced a larger percentage growth in school rolls than Auckland. This indicates families are moving from Auckland due to high house prices
- As indicated by our survey found in Appendix I, the number one reason driving relocation out of Auckland is high house prices. The largest groups intending to leave are parents with young families.
- If Hamilton's unaffordability continues to increase, parents with young children are more likely to choose to leave.

Figure 8: Percentage Change in Total School Roll Over Time



Source: Statistics NZ

8. Competing Housing Supply

Where people choose to locate is a series of trade-offs between different variables. Proximity to good jobs, schools, friends, family and amenities are all desirable. People also generally prefer to have a larger section size and house. All of these variables are also weighed up in terms of price. A classic example can be seen with the appeal of suburban fringe properties and commuter towns. **People are willing to commute a bit further if they are able to purchase a larger section for the same or lower price.** Hamilton City is surrounded by small towns in the adjacent Waikato and Waipa Districts which have experienced a construction boom in recent years. The key points to note are:

- **If HCC increases development contributions at a faster rate than the Waipa and Waikato districts the relative attractiveness of commuter towns increases.**
- Standard economic theory suggests that more people would then choose to commute into Hamilton for work rather than locate in Hamilton itself, as the benefits of locating further out have increased, while the downsides haven't changed[9].

[9] If a lot of people do this, we would expect larger traffic flow issues as a result as well as the price of

- All of the towns in the **Waikato District** within a commutable distance[10] to Hamilton City have lower development contributions than the lowest current development contribution in Hamilton City. **Development contributions are currently an average of 53% cheaper than the cheapest development contribution in Hamilton City.**
- All of the towns in the **Waipa District** within a commutable distance to Hamilton City have lower development contributions than the lowest current development contribution in Hamilton City. **Development contributions are currently an average of 61% cheaper than the cheapest development contribution in Hamilton City.**
- **An increase in prices in Hamilton City will increase the attractiveness of commuter town options and accelerate urban sprawl.**[11]

9. Price Elasticity of Demand Implications for Growth

The implications of price elasticity of demand is that forecast dwelling demand will decrease as house prices rise.

The price elasticity of demand estimates obtained in the previous section are applied to the forecast growth estimates outlined in Figure 1. This is used to estimate the reduction in demand for dwellings in Hamilton City over the next ten years displayed in Figure 5.

The main points to note are:

- If the HCC growth projections are used, the forecast increase in dwelling prices will reduce housing demand from 11,950 to 9,600-11,000, a decrease of 8-20%.
- If the Statistics NZ growth projections are used, the forecast increase in dwelling prices will reduce housing demand from 9,100 to 7,300-8,400, a decrease of 8-20%.
- **The main implication is that if HCC expects higher house prices to support infill development, it should also expect fewer new dwellings to be built.**

commuter town dwellings to be bid up. The commuter town option then becomes less attractive over time until the market in general is indifferent between the two options. However, this **only** happens as a result of the **increased attractiveness** of the town, and the **increase in population growth** that results.

[10] Commutable distance is defined as a journey by car with an estimated travel time of 45 minutes or less to arrive in Hamilton CBD by 8.30am on a Monday morning.

[11] All else being equal.

Figure 9: House Price Increase Impact on Dwelling Demand

Growth Projection	Base Dwelling Demand Estimate	Price Elasticity of Demand	
		Maximum (-0.87)	Minimum (-0.36)
Hamilton City	11,950	9,600	11,000
Statistics NZ	9,100	7,300	8,400

Source: Urban Economics, Hamilton City, Statistics NZ

10. Growth Implications for Revenue

If dwelling demand is lower than forecast, then revenue from both development contributions and the expected increase in additional ratepayers will be lower than predicted. The Hamilton City Council 10 year plan notes that the financial strategy they have adopted is:

> *'riskier than the proposed strategy... presented in the 10-Year Plan Consultation Document. We are more exposed to volatility of revenue from growth and price increases.'*

The lower revenue estimates that result from reduced demand are displayed in Figures 6 and 7.

The key points are:

- Current expected development contributions over the next ten years are $313 million. After adjusting for price elasticity, total development contributions range from $192 million to $288 million. **This results in a revenue shortfall of between $25 and $121 million over the next ten years**.
- Rates payments are currently expected to increase by a total of $776 million over the next ten years.
- After subtracting the proportion of rates payments attributable to the increase in rates per household for existing households, the expected increase in rates payments is $235 million.
- After adjusting for price elasticity, the total increase in rates payments ranges from $156 million to $233 million. This results in a revenue shortfall of between **$2 and $78 million over the next ten years**.
- The total revenue shortfall estimated from the reduction in quantity demanded ranges from **$27 to $200 million over the next ten years**.
- Hamilton City Council's 10 Year Plan increases the debt-to-revenue ratio adopted by the council to 230% providing access to an additional $180m of funding in 2019 (and more in later years as the population grows). Staying below this 230% limit supports Hamilton City Council's AA- Credit Rating.
- Table 1 (pg. 67) in the financial strategy section of the 10 year plan, indicates that Hamilton City Council expects to be operating at their maximum debt-to-revenue ratio for the 2021 -

2024 period. If revenue collected from growth is less than expected, this 230% debt-to-revenue ratio could be breached causing Hamilton City Council to **lose its strong credit rating. This would result in higher interest payments for HCC, and rates for ratepayers.**

Figure 10: Development Contributions Under Various Growth Scenarios

Growth Projection	Total Development Contributions ($m)		
	Base Demand	PE Adjusted Maximum (-0.87)	PE Adjusted Minimum (-0.36)
Hamilton City Council	313	252	288
Statistics NZ	238	192	219

Source: Urban Economics, Hamilton City, Statistics NZ

Figure 11: Rates Under Various Growth Scenarios

Growth Projection	Rates Payment Increase Attributable to Population Growth ($m)		
	Base Demand	PE Adjusted Maximum (-0.87)	PE Adjusted Minimum (-0.36)
Hamilton City Council	235	204	233
Statistics NZ	193	156	178

Source: Urban Economics, Hamilton City, Statistics NZ

11. Conclusion

Household growth projections are likely to be less than forecast by Hamilton City Council. This is especially the case when the effects of house price increases are allowed to affect the demand for housing.

Hamilton City is unable to meet its growth targets with a focus on infill development without an increase in the real house price. Providing infrastructure for infill development is more expensive than for greenfield development. The estimates of feasible capacity in infill areas also do not consider the effect of existing restrictive land covenants suggesting estimates are biased upwards.

Price elasticity of demand for housing is inelastic. When the price of housing rises, the quantity demanded of housing falls by a less than proportionate rate. The main takeaway here is that the quantity demanded of housing falls in response to an increase in price. If Hamilton City Council relies on increases in real house prices to increase feasible capacity, it should also expect less houses to be sold.

Hamilton city currently has unaffordable housing with a house price-to-income ratio of 9.3. Ratios above 3 are widely considered unaffordable internationally. The real house price growth underlying the feasible capacity modelling relied upon by Hamilton City Council will see the house price-to-income ratio rise to 9.8. This is considered extremely unaffordable and is a

higher ratio than currently experienced in Auckland.

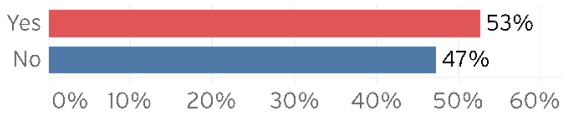
Young families are the largest group leaving Auckland due to house prices. This is reflected in sluggish school roll growth in Auckland, and fast growth in the surrounding cities. If Hamilton's housing unaffordability worsens it too could experience young families relocating elsewhere.

The effects of ignoring the price elasticity of demand mean expected growth and therefore revenue from rates and development contributions is overstated. As Hamilton City plans to operate at its debt ceiling from 2021 - 2024 under current modelling, this suggests that it could surpass its debt ceiling. **As a result, it risks losing it AA- credit rating. This results in higher interest payments for council, and higher rates for ratepayers.**

12. Appendix 1: Urban Economics Household Relocation Survey

Urban Economics has commissioned a survey[12] to identify the relocation intentions of Aucklanders. Respondents were asked if they had considered leaving Auckland in the past 2 years. Overall, 53% of people indicated they are considering leaving Auckland.

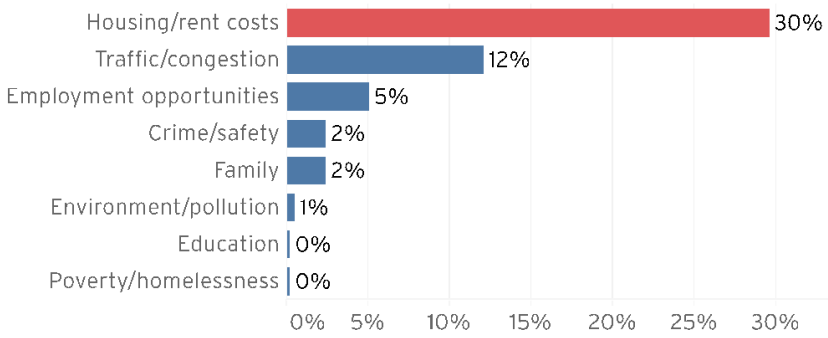
Figure 8: Have You Considered Leaving Auckland in the Past Two Years?



Source: Research Now, Urban Economics

Respondents were then asked about the main reason why they are considering leaving Auckland. Of all Aucklanders, 30% are considering leaving due to high housing/rent costs. The two other main reasons for considering leaving are traffic/congestion (12%) and employment opportunities (5%).

Figure 9: What is the Main Reason for Considering Leaving Auckland

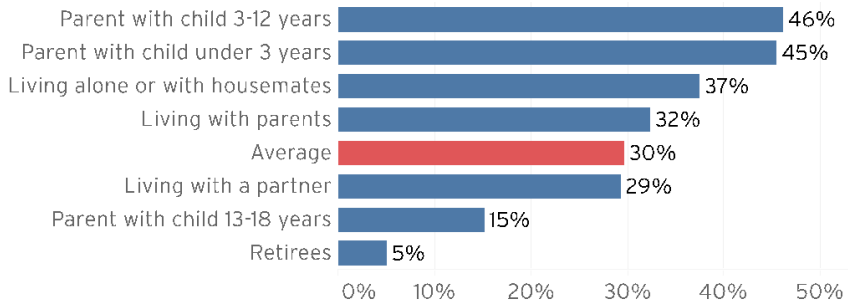


Source: Research Now, Urban Economics

Figure 10 provides a closer look at the types of households considering leaving Auckland as a result of high housing/rent costs. It is most striking that nearly half of all young families are considering leaving as a result of high housing/rent costs. This trend may already be evident in destination cities such as Whangarei, Hamilton and Tauranga, which have seen school roll growth of 7,500 over the past five years. By comparison, the Auckland school roll grew by only 9,000 which is notable given that Auckland has had around three times as much population growth as these three other cities combined.

Figure 10: Household Types Considering Leaving Auckland Due to House Prices

[12] Survey undertaken by Research Now Ltd in July 2018 (419 respondents).



Source: Research Now, Urban Economics

It should not be surprising that nearly half of all young families want to leave Auckland due to high house prices. When earning potential and average house prices are weighed up, young families leaving Auckland are likely to be better off. For example, in cities such as Whangarei, Hamilton and Tauranga, households are able to pay off the average priced house in only 15 years, considerably less than Auckland which would take in the order of 25 years.

Other high-priced cities such as Vancouver, Toronto and San Francisco have undertaken similar surveys, and have shown that 40-50% of residents are considering leaving due to high housing/rent costs. It is also notable that in such cities there has been an overall decline in the domestic population and that population growth has only been occurring due to strong international immigration.

This presents a challenge for residential developers in Auckland, as the potential exodus of young families means that a key buyer market for new greenfield housing is being lost to other cities. The biggest driver of relocation intentions is high housing and rent costs. There is no evidence to suggest that Hamilton's population would react differently if it also had high housing and rent costs.

Item 12

Council Report

Committee: Council **Date:** 26 September 2019

Author: Amy Viggers **Authoriser:** Becca Brooke

Position: Committee Advisor **Position:** Governance Team Leader

Report Name: Chair's Report

Report Status	*Open*

Recommendation

That the Council receives the report.

Attachments

Attachment 1 - Chair's Report

Attachment 2 - Mayoral Robes

Item 12

Chair's Report

Mayoral Robes
I have arranged for the Mayoral Robes, both the original fur collar robe and the female robe with Maori design, to be held and displayed at Waikato Museum. The arrangement will allow these pieces to be returned to the Mayoral office at the request of the Mayor of the day should they wish to be used. The Mayoral robes are a part of Hamilton's history and should be preserved locally.

Attached is the agreement signed with the Museum

Attachment 1

Hamilton to Auckland Train
Verbal update

Recommendation
That Council receives the report.

Andrew King
Mayor-Hamilton Kirikiriroa

The City of Hamilton Mayoral Robe and Chai

It is an established English tradition that a Mayor wears the Insignia on ceremonial and civic occasions. The Mayor will wear the chain at each occasion when he/she is representing the city, and will usually wear the robe and chain together only on significant events such as Anzac Day commemorations and citizenship ceremonies. The chain is worn at formal meetings of the Hamilton City Council.

Mayoral Robe: There is no standard colour for mayoral robes, but these days they are usually scarlet. Trimmed with ermine fur, a symbol of dignity and wealth in the Middle Ages, the scarlet cloth with silk lining has a broad black velvet band which runs down the front on each side of the centre opening and extends round the wide sleeves. These black bands are known as "guards".

The robe belonging to the Hamilton City Council was commissioned by Mayor J.R. Fow between 1933 and 1935 and was made by a local tailor. The fur and lining of the Hamilton Mayoral robe were refurbished in the 1980s.

Mayoral Chain: The Mayoral chain, which is solid gold, has one link for every Mayor who has held office, initially in the Borough of Hamilton, and then, since 13 December, 1945, in the City of Hamilton. The large medallion in the centre bears the crest of the Borough of Hamilton, as it was when the chain was first worn. The first link was engraved for Mayor I.R.Vialou in 1878. The original chain had 25 links; seven more were added in 1999.

When a Mayor is elected to office his/her name and the year are engraved by hand on a new link. At the same time, the year is engraved on the link of the outgoing Mayor.

It is not correct protocol for the Mayor to wear either robe or chain at ceremonies outside the home city boundaries. The only exceptions are the few occasions when he/she is specifically invited to do so by the host Mayor.