



The Housing We'd Choose

A Study of Housing Preferences, Choices
and Trade-Offs in Auckland

Prepared for Auckland Council



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- Rodney Yeoman (Market Economics)
- Simon Worthington (Research First)
- Alison Reid (Auckland Council)
- Dr Jesse Allpress (Auckland Council)

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Executive Summary

Auckland is at a turning point in how it thinks about and delivers housing solutions. Auckland's population is expected to continue growing, driven by natural increase (births minus deaths) as well as net in-migration from other parts of New Zealand and overseas. This continues to drive demand for an increasing number of dwellings. Further, a changing demographic composition, increasing diversity in household formation and requirements, and a desire to realise the efficiencies of a quality compact city will drive demand for a variety of appropriate housing solutions.

Encouraging supply-side initiatives to meet this demand is a priority for Auckland Council, and for central government. The Auckland Plan, a 30-year vision for Auckland, includes a priority to 'increase housing choice to meet diverse preferences and needs' (Auckland Council, 2012a). The Plan proposes an urban form for Auckland of a 'quality compact city' with up to 70% of growth occurring within the 2012 Metropolitan Urban Limit (MUL) over 30 years, but with flexibility for up to 40% outside the MUL. Since the release of the Auckland Plan, Auckland Council has prepared a Proposed Auckland Unitary Plan (PAUP), which sets how Auckland can meet its housing and economic needs while protecting and enhancing the things that Aucklanders value the most (Auckland Council, 2013). Auckland Council has also signed the 'Auckland Housing Accord' with central government that sets supply targets and (with supporting legislation) fast-tracks the delivery of new housing in Special Housing Areas (SHAs).

What did this research investigate?

The Housing We'd Choose study contributes a new and unique understanding of the demand side of the housing equation. It has collected the views of more than 1400 Aucklanders to understand what is important to them in choosing a place to live, and it has explored what types of housing they would choose to buy or to rent, if it were available, within their current income and financial constraints. It also compares what people say they would choose to both the existing housing stock and what is being built, in order to explore gaps in supply.

The main difference between *The Housing We'd Choose* and previous research into Aucklanders' housing preferences is that this research introduced 'real life' constraints on people's choices. We created a discrete choice experiment in order to explore people's choices and trade-offs. As the report discusses in more detail, respondents were asked to choose between a variety of housing types, sizes and locations across Auckland, within their own financial constraints. These constraints were established using household and financial information that they provided during the survey.

This study replicates previous research undertaken on household preferences and choices in Australia, by the Grattan Institute in 2011 (Kelly, Weidmann and Walsh, 2011a) and the Western Australian State Government for Perth and Peel in 2013 (Department of Housing and Department of Planning, 2013), with some modifications.

A quick overview of the method and sample

The study included two main phases: primary research (focus groups and two online surveys) as well as choice modelling of the results, using a conditional logit model.

Respondents were initially recruited by telephone, and invited to complete two surveys. Online surveying was utilised as it is not possible to display the visual or dynamic components of the choice experiment using other methods such as telephone or hard copy questionnaires.

Efforts were made during recruitment and sampling to ensure that the final sample represented a variety of household types across Auckland, as it was considered by the research team that household composition plays a key role in driving housing needs and requirements. Despite best efforts, smaller households and single-parent households were slightly under-represented in the final sample. With respect to individual characteristics of the respondents, it should be noted that Maori, Pacific and Asian people, and those in younger age groups (under 40 years) were also under-represented, when compared to the general population. Where appropriate, the results have been weighted to address this.

The first survey was completed by 1497 respondents, and of these, 1096 completed the second survey.

What is important to households?

In order to better understand the range of housing features that matter to Aucklanders, and their relative importance across household types, we asked respondents to rate how important 58 different features were to them, when thinking about choosing a place to live. These 58 features were grouped into five broad categories, namely: the local environment, convenience and access, proximity to facilities, the property, and the dwelling itself.

Most of the features concerned with the local environment were ‘very important’ or ‘of some importance’ to large proportions of respondents – more so than any other category. This related particularly to issues such as living in a safe neighbourhood, living in an unpolluted area and being away from industrial areas. A safe neighbourhood was a very important feature to almost all respondents (87%).

Features related to the property and the dwelling itself were the next most important overall, while features related to convenience and access (to work, to school, to the city centre etc.), and proximity to facilities (such as gyms, community centres and sports clubs) were of relatively less importance.

There were, of course, differences across age groups and household types in what was important to them. For example, households with children were more likely to rate the number of bedrooms, the number of bathrooms and the number of living spaces as being very important compared to other household types.

What did households choose?

A key difference between this research and previous studies that have investigated housing preferences was the inclusion of a discrete choice experiment in the second online survey. This

allowed us to introduce a form of price constraint. For the purpose of the choice experiment, 12 housing options were developed, and these were offered across eight broad geographic 'sectors' within the Auckland urban area. The sectors were developed according to land value and spatial location.

In order to make the choice experiment 'realistic', respondents were asked to identify the two sectors that they would most prefer to live in, and they were also asked to provide information about their current financial and living situation. This self-reported financial data was used to define their budget constraint. They were then offered 16 possible housing options that they could afford to buy, or in some cases to rent. These options were a range of dwelling types (attached, detached, and apartments either in 'walk up' buildings (up to four storeys), or in buildings that were five or more storeys), sizes (number of bedrooms) and, in some cases, in different sectors to the two that they had initially preferred. Respondents were asked to assume that the options available to them in the choice experiment were 'new and of medium standard quality'.

Although this research is not an exercise in measuring housing affordability, it is interesting to note that 23% of respondents could not afford any of the options provided in the survey, given the financial and household information they had provided.

Of those who could afford to buy or to rent, almost half (47%) chose a housing option that was within the location that they had initially preferred. The match between initial preference and final choice was strongest for Sector 2 (the Auckland Isthmus), Sector 3 (North Shore Coastal) and Sector 7 (East Auckland). More than a third (40%) made their final selection in a sector that had less expensive options, while a smaller proportion (12%) made their final selection in a more expensive sector.

Respondents chose a range of dwelling types. Just over half (52%) chose detached dwellings as their final choice, 25% chose an attached dwelling (a joined unit), 15% selected a low-rise apartment and 8% selected a high-rise apartment.

They also chose a range of dwelling sizes – as measured by the number of bedrooms. Almost two thirds (61%) selected medium-sized dwellings and 26% chose larger-sized dwellings.

What were the trade-offs?

The results from the choice experiment were analysed using a conditional logit model, in order to explore the 'interaction effects' between housing size, type and location.

Respondents placed significant importance on the size of a dwelling, as represented by the number of bedrooms. They were willing to trade-off dwelling type for increased dwelling size – in other words, they were more willing to accept an attached dwelling or an apartment as the size of these options increased. They were also more willing to accept a location other than their preferred location in order to have a dwelling of an acceptable size.

This means that people are more likely to consider more intensive forms of housing if they are of an acceptable size, and are prepared to trade-off dwelling type for more space (bedrooms), when choosing a place to live.

However, although the results indicate a willingness to make trade-offs to ensure a larger dwelling, people remain sensitive to price. This means that as price increases people are less willing to choose a larger dwelling.

Are we delivering the housing that Aucklanders would choose?

The results suggest that there is a mismatch between the current supply of dwelling typologies and the housing that Aucklanders would choose, if it were available. However, this mismatch appears to be decreasing with recent consents more aligned with the preferences expressed in this research. Housing is developed to meet the needs of households at the time it is built. These needs and preferences change over time but housing is long lived. This leads to the mismatch between current needs and preferences and the existing stock of dwellings.

While a key finding is that the majority of households will still prefer stand-alone detached housing, it appears that this demand is more than satisfied by the existing stock of housing. The gap exists in terms of a shortfall in the numbers of attached dwellings and apartments. Our research suggests that, outside of the Auckland central area, there is a significant under-supply of units and apartments, while the supply of apartments in the Auckland central area exceeds demand.

1 Introduction

Auckland Council's Research and Evaluation Unit (RIMU) has commissioned this study to investigate what is important to Auckland households when choosing a place to live and to explore the housing that Aucklanders would choose to live in, if it was available. The primary benefit of this research is that it provides an applied understanding of the demand side of the housing equation, in both an unconstrained and income constrained context.

1.1 Background

Auckland has grown rapidly since its inception 175 years ago. The residential pattern has mostly followed an expansion path outwards from the centre, based around the ports of the Waitematā harbour and following transport routes to the south. The vast majority of population growth has been accommodated by expanding the city outwards, rather than through intensification or building upwards (see Figure 1.1).

In the 1800s, most of the growth was located within what is now the central city area (yellow) and surrounding suburbs (light yellow¹). In the early 1900s, the city expanded to include the inner suburbs on the isthmus (light orange²), and continued to expand during the middle of the century to cover the remainder of the isthmus.³

Over the early half of the 1900s the city started to grow into the lower parts of the North Shore,⁴ south along Great South Road⁵ and north along Great North Road.⁶ During the latter half of the 1900s the city spread out across the North Shore,⁷ West Auckland and South Auckland. Recent growth has been focused around the edge of the urban area in greenfield locations.⁸

Over this time, much of the growth in Auckland's population has been accommodated in detached stand-alone housing. In recent years there has been an upsurge in the number of large scale apartment blocks built within the city centre (and in some of the centres around Auckland⁹), providing Aucklanders with more intensive forms of accommodation within a metropolitan environment.

¹ Such as St Marys Bay, Freemans Bay, Ponsonby and Grafton.

² Parnell, Newmarket, Mount Eden, Kingsland, Grey Lynn.

³ Point Chevalier, Westmere, Sandringham, Mount Albert, Three Kings, Epsom, Greenlane and Remuera. In the later parts of the 1900s Auckland expanded

⁴ Devonport and Northcote Point.

⁵ Otahuhu, Papatoetoe, Papakura.

⁶ Henderson and New Lynn.

⁷ After the Harbour Bridge was constructed in 1954.

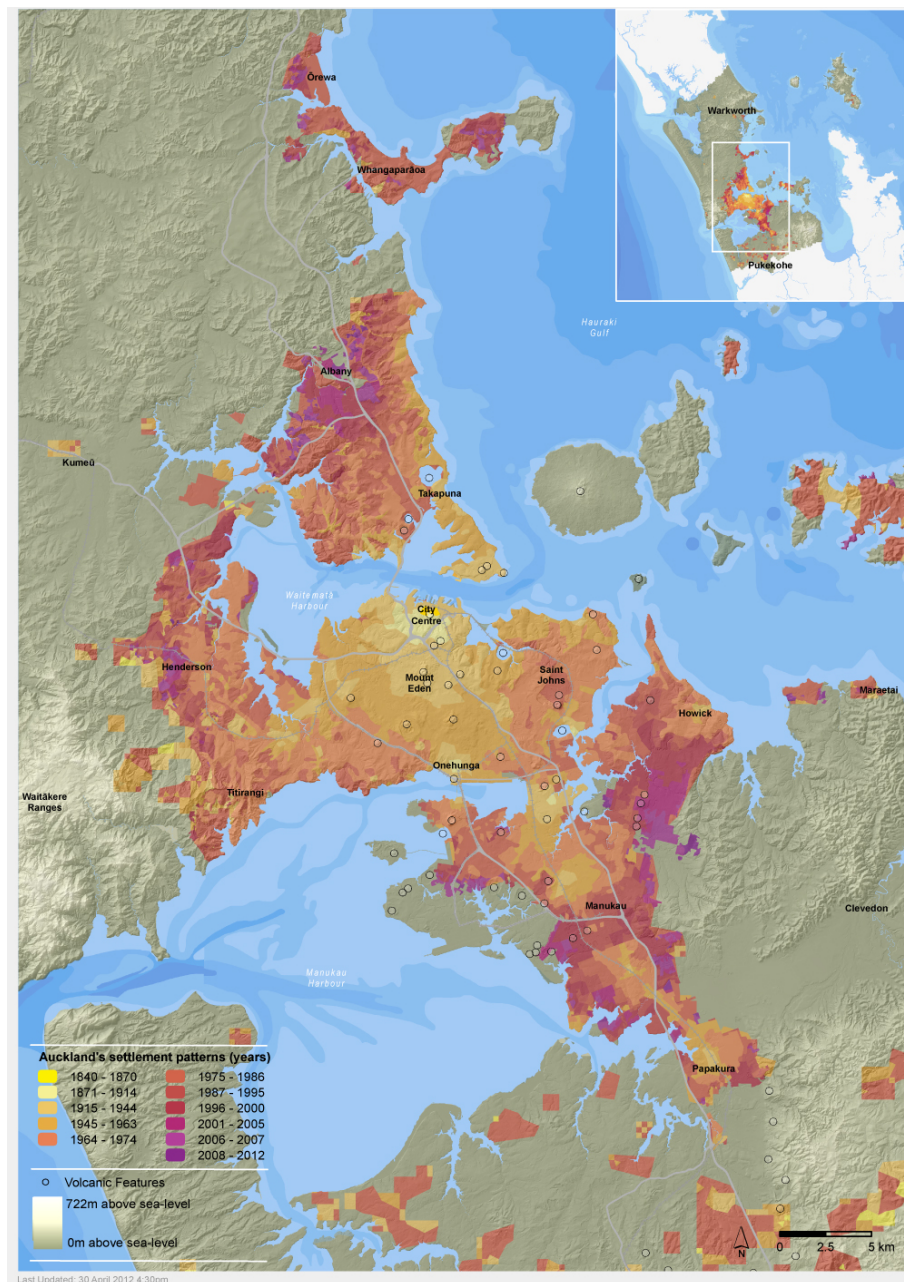
⁸ Such as Albany, Hobsonville, West Harbour, Henderson, Botany, Flat Bush, Randwick etc.

⁹ For example, Takapuna has several large-scale apartment blocks.

At the 2013 Census, there were around 400,000 dwellings in Auckland’s urban area, of which more than 76% were detached stand-alone dwellings. The remaining stock was made up of attached units/terraced housing (11%) and apartments in multi-storey buildings (14%). Census data also shows that the majority (86%) of dwellings within Auckland are in buildings that are three storeys or less, with relatively few in buildings four or more storeys (14%).

Auckland’s urban form most closely resembles that seen in cities in Australia and North America, and is supported by high rates of private car ownership and reliance on private transport.

Figure 1.1: Map of Auckland settlement pattern, 1840 to 2012



Source: Auckland Council (2013). *Proposed Auckland Unitary Plan*. Map 4.2.

Auckland's population is expected to continue increasing in size, driven by natural increase (births minus deaths) as well as net migration from overseas and other parts of New Zealand. Population growth, along with changes in housing formation rates, will drive ongoing demand for an increase in the number of dwellings. Further to this, increasing ethnic and cultural diversity and a changing age structure will drive demand for a broader variety of appropriate housing solutions.

The most recent population projections for Auckland, prepared by Statistics New Zealand, suggest that Auckland's population could reach 2.43 million by 2043 (high projections).¹⁰ This implies that the number of new dwellings required in Auckland by 2043 could exceed 300,000.¹¹ Responding to demand of this scale requires a range of responses. Auckland Council is encouraging a combination of both greenfield development on the outer edges of the urban areas, as well as facilitating medium and high density residential development in and around existing centres, and other points of attraction (ridgelines, along major transport corridors). This will allow the city to accommodate growing residential housing demand and reduce pressure on the urban edge to expand outwards.

1.2 Policy context

Auckland Council has a goal of encouraging growth and intensification of new dwellings within the existing metropolitan area, and to ensure the provision of a range of housing solutions. The Auckland Plan includes a priority to 'increase housing choice to meet diverse preferences and needs'.¹² This emphasis on future intensification within the urban area, and on encouraging a wider choice in new housing opportunities, is reflected in the Proposed Auckland Unitary Plan (PAUP).¹³

As a part of this goal, enabling and encouraging the market to meet demand in a resource efficient manner is a priority for Auckland Council, and for central government.

However, there is a common perception that households prefer detached stand-alone dwellings and that they would not choose to live in other more intensive forms of dwellings, such as units, terraced housing and apartments. Following the release of the PAUP in 2014, there was much public debate around the objective to intensify development within the existing metropolitan area. There was a broad concern that the intensification envisaged in the PAUP will provide dwelling types that do not match the demands or needs of the community.

There has, until now, been no significant research undertaken in the current Auckland context that explores the choices and trade-offs between housing type, size and location

¹⁰ Statistics New Zealand. (2015). *Sub-national population projections 2013(base)–2043*.

¹¹ Based on Market Economics calculation applying the 2013 Census average household size of 3.0 (Auckland Council (2014) *Auckland Dwellings and Households: Initial results from the 2013 Census*).

¹² Auckland Council. (2012a). *The Auckland Plan*. The Auckland Plan is a single comprehensive plan for Auckland with a central vision of Auckland becoming the world's most liveable city.

¹³ Auckland Council (2013) *Proposed Auckland Unitary Plan*. s2.3, objective 2 "Up to 70 per cent of total new dwellings by 2040 occurs within the metropolitan area 2010."

that households would make if constrained by budget. Previous research into housing preferences and choices has largely been in an unconstrained context (e.g. Preval, Chapman and Howden-Chapman, 2010; Saville-Smith and James, 2010; Haarhoff et al., 2012).

1.3 Purpose of the study

The central purpose of *The Housing We'd Choose* study was to collect new Auckland-specific evidence on the nature of housing demand in Auckland. There is a concern that the existing primary research available on housing preferences is not applicable for understanding Auckland housing choices and trade-offs, as these existing studies have focussed on the whole of New Zealand and/or have tended to ask abstract questions about what households like, rather than what they can afford.

The central aim of this research was to explore the choices and trade-offs that households make when selecting homes to buy and rent in Auckland. A key feature of the research is that it provides an understanding of how households prioritise different aspects of housing in the context of their specific budgetary constraints.

The study is not designed to predict future levels of housing supply and demand – rather, it compares what people say they would choose with both the existing housing stock and what is being built.

This study replicates and extends previous research undertaken on household preferences and choices in Australia. In 2011, the Grattan Institute released a report called '*The Housing We'd Choose*' that explored the choices and trade-offs between type of house, size and location that households would make if they could (Kelly, Weidmann and Walsh, 2011a). The study was based on households living in Sydney and Melbourne, and it included choice modelling of dwelling demand. That research was replicated in 2013 by the Western Australian State Government for Perth and Peel, with some modifications (Department of Housing and Department of Planning, 2013).

1.4 Report structure

Chapter 2 outlines the methods applied in this study, for both the primary research and the choice modelling.

Chapter 3 presents key results from the first survey. In particular, we discuss what is most important to people when choosing a place to live, and the extent to which this differs across Auckland's population groups.

Chapter 4 briefly outlines how the discrete choice experiment into housing choices in Auckland was constructed, and provides an overview of the results.

Chapter 5 provides results from the choice modelling, which explores the trade-offs that households would make when choosing a place to live.

Chapter 6 explores the match between the housing people say they would choose, as revealed by the primary research and the choice modelling, with Auckland's existing housing stock and trends in the supply of new housing.

Chapter 7 provides a short discussion of the implications of the findings in this report.

This report focuses on the results for Auckland. Comparisons with the Australian studies mentioned above are not offered in great detail in this report, in large part due to the considerable differences in housing and policy contexts between Sydney, Melbourne, Perth and Peel and Auckland.

2 Method

This chapter briefly outlines the data collection methods used in both components of this study. The content provided here is intended to provide the reader with a broad understanding of the techniques used. Further detail is provided in the appendices.

2.1 Overview

This study included two main phases, outlined briefly below.

- The first phase was to undertake **primary research** among Auckland households. The primary research phase included focus groups and two online surveys. These were developed by the project steering group and fieldwork was undertaken by Research First.
- The second phase was to undertake **choice modelling** of the results. This involved the development of a 'trade-off' model. It draws on the experimental choice data from the second survey to explore how real-world constraints affect housing choices, using a statistical modelling technique.¹⁴ This was undertaken by Market Economics Ltd.

The following sections provide an overview of what was involved in these two phases. We also present and discuss the eight geographic sectors that formed the basis for analysis of locational choices and trade-offs.

2.2 Primary research

The first phase of this study was to undertake primary research among Auckland households in order to explore their housing preferences, choices and trade-offs. This consisted of initial focus groups, followed by two online surveys. These stages are outlined in more detail below.

2.2.1 Focus groups

During the development of the online survey, focus groups were used to test materials and concepts, with a particular focus on developing the list of attributes that might be important to households when thinking about choosing a place to live (material used in the first online survey). In addition, focus group participants discussed their 'ideal' housing type and location, using maps of Auckland as a prompt, and their most recent choices around housing type and location.

¹⁴ A third phase undertaken by Grattan Institute in their 2011 study involved an assessment of the incentives and barriers to development of new and different housing stock. This was established by interviewing key agents in the provision of new housing supply: developers, builders, bankers, central and local government, as well as desk top analysis of housing trends. Auckland Council will be undertaking a similar exercise at a future date, using available literature and knowledge.

Six groups were held in April 2014 in the following parts of Auckland:

- Albany
- Henderson
- Newmarket
- Howick
- Ōtāhuhu
- Māngere.

Each group had between eight and 10 participants. They represented a mix of ages, ethnic groups and household types. The Howick group included predominantly Asian participants and the Māngere and Ōtāhuhu groups included predominantly Māori and Pasifika participants.

A focus group guide was developed by Research First in conjunction with Auckland Council, and the groups were facilitated by members of the Research First team. All groups were video-taped, with the written permission of the participants, for the express purpose of capturing what was said and reviewing content later.

2.2.2 Surveying

This part of the primary research utilised a mixed-method research design, as it involved initial telephone recruitment of the sample population, who (subject to meeting certain criteria¹⁵) were invited to complete two surveys online. Respondents were asked to agree from the outset to complete both surveys. In the initial telephone contact, the purpose of the research was outlined and people were offered an incentive to participate, in line with standard market research practise.¹⁶ If they agreed, they were then communicated with by email.

An online surveying method was used, for a variety of reasons. First, it is not possible to display the visual¹⁷ or the dynamic¹⁸ components of the survey using traditional methods (such as telephone or hard copy). In addition online data collection is cost-effective, as there is no interviewer presence and labour costs are minimised; and it allows respondents to complete the survey in their own time, which can maximise response rates. Both surveys were developed using the online interview suite NEBU.

An overview of the data collection process is shown on the next page (Figure 2.1).

The second online survey required respondents to undertake a discrete choice experiment in which they had to trade-off housing type, size and location within 'real world' financial constraints.

¹⁵ People aged under 18 years and those working in the market research industry were not eligible to participate. In addition, Research First attempted to fill broad household type and locational (sector) quotas.

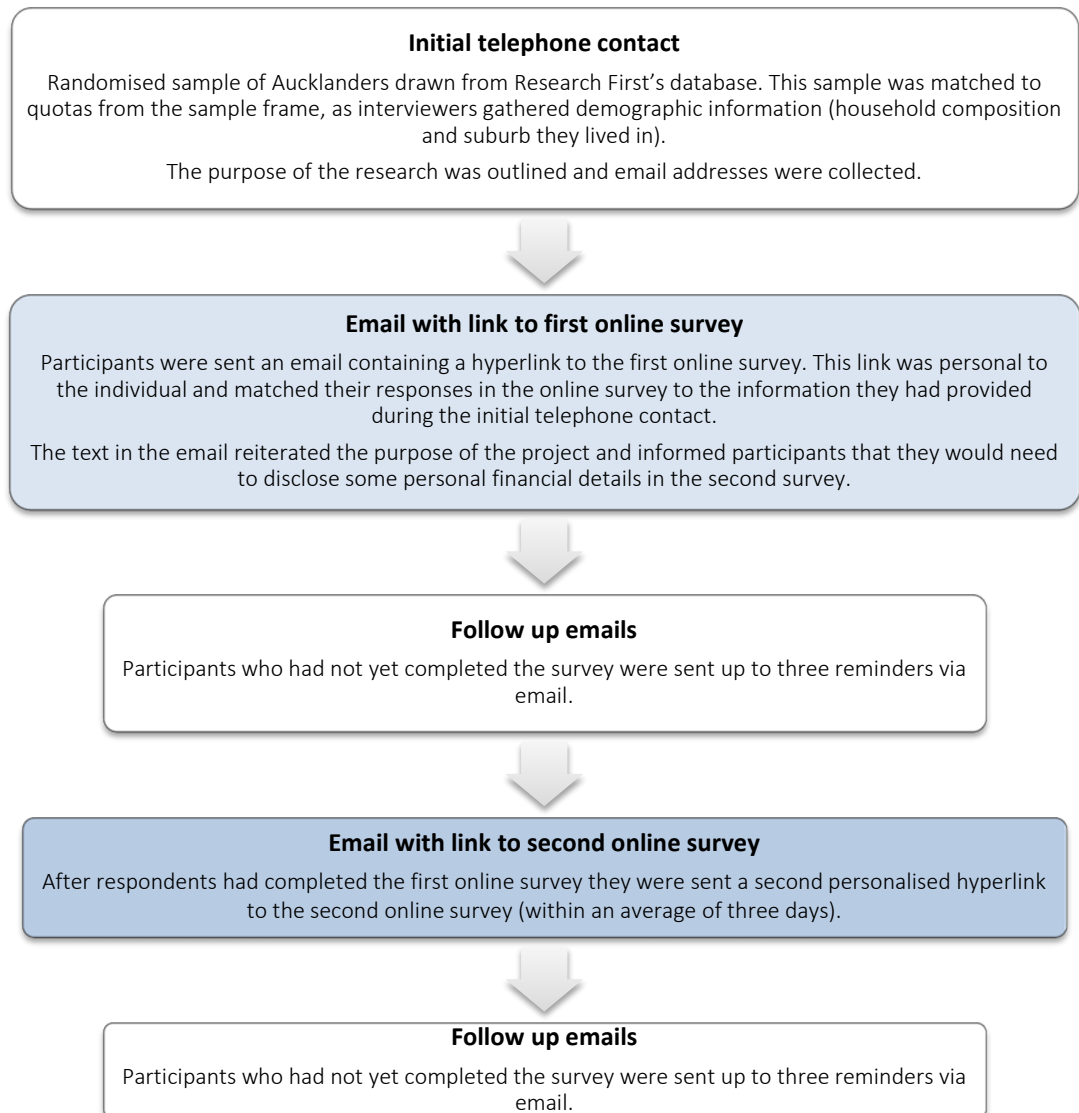
¹⁶ Everyone who took part in the online surveys was entered into a draw for one of three prizes: a 16GB Apple iPad mini; a \$500 donation to a charity of their choice; or a \$500 supermarket voucher.

¹⁷ Respondents were shown images of floor plans and housing exteriors in the second survey.

¹⁸ The amount that respondents could buy or rent housing options with was calculated in 'real time' using a mortgage calculator. This information also determined which housing options would be displayed.

The fieldwork took place between October and December 2014 and was administered by Research First.

Figure 2.1: Overview of data collection process



Completion rates

In order to calculate the response rate, Research First tracked the outcomes of every contact made with potential respondents. Research First's survey software, NEBU, automatically traced which respondents from the initial telephone contact progressed through the two online surveys. Any email or telephone refusal was also logged in the software.

The response rate has been calculated as a percentage of the total qualifying numbers called. As expected, there was some drop off between the phone contact and the two online surveys; the final response rate for the second survey was 13%.

Figure 2.2: Response rates

	Numbers	Total response rate (%)
Total valid calls answered	8355	
Not interested	5973	
Total interested/total initial contact completed	2382	29
Non-response to first web survey/refused	845	
Incomplete first web survey	100	
Total complete first web survey	1497	17
Non-response to second web survey/refused	223	
Incomplete second web survey	118	
Total complete second web survey	1096	13

Survey sample

The first survey was completed by 1497 respondents, and of these, 1096 completed the second survey. As further outlined in Chapter 4, there were several points at which respondents could be exited from the second survey however, and a total of 683 respondents completed the discrete choice experiment.

Efforts were made during recruitment and sampling to ensure that the final sample represented a variety of household types across Auckland, as it was considered by the research team that household composition plays a key role in driving housing needs and requirements. Despite best efforts, smaller households and single-parent households were slightly under-represented in the final sample. With respect to individual characteristics of the respondents, it should be noted that Māori, Pacific and Asian people, and those in younger age groups (under 40 years) were also under-represented, when compared to the general population. Where appropriate, the results have been weighted to address this.

For an overview of the survey sample characteristics please refer to Appendix A.

2.3 Sectors

For the purposes of sample selection and the discrete choice experiment, the Auckland metropolitan area was divided into eight 'sectors' according to land value and spatial location, with the goal of defining a limited number of markets.¹⁹ The sectors are as follows (also refer to map in Figure 2.3):

- **Sector 1:** 'Auckland Central', which covers the City centre, Grafton and Parnell.
- **Sector 2:** 'Auckland Isthmus', which covers the rest of the isthmus south to Mount Wellington, and west to Avondale and Blockhouse Bay.
- **Sector 3:** 'North Shore Coastal', the urban area east of the Northern Motorway up to Long Bay.

¹⁹ Quotable Value (2014) Auckland Land Values of Residential Properties 2014 – custom request.

- **Sector 4:** 'North Shore Harbour', the urban area west of the Northern Motorway up to Albany and Greenhithe.
- **Sector 5:** 'West Auckland Harbour', which covers Hobsonville, Whenuapai, Te Atatu Peninsula and West Harbour.
- **Sector 6:** 'West Auckland', including Henderson, Kelston, New Lynn and Titirangi.
- **Sector 7:** 'East Auckland', which includes Howick, the eastern bays, and the urban area south to Flat Bush and Totara Heights.
- **Sector 8:** 'South Auckland', which extends from Ōtāhuhu to Papakura.

For the purpose of this study, the rest of the Auckland region was coded as 'rural', including the Whangaparaoa Peninsula, the islands in the Hauraki Gulf and townships at Waiuku and Pukekohe.

Each sector covers many suburbs, which have some unifying characteristics and geography, but also have very different characteristics.

The selection of eight sectors was a compromise between providing sufficient detail and difference across parts of Auckland for the choice modelling, and being succinct enough to ensure the questionnaire was not onerous. The previous Australian studies used similar numbers of spatial sectors and also used land value as a tool to delineate boundaries between sectors.²⁰

In order to identify which sector respondents lived in, they were asked what suburb they lived in and were later allocated to a sector during the data analysis stage.

Participants for the primary research were recruited from the wider Auckland region, however, results presented in Chapters 3 and 4 are restricted to those who were living in the eight sectors.

²⁰ The Grattan study divided both Melbourne and Sydney into four sectors each, and the Perth and Peel study used nine sectors.

Figure 2.3: Sector map



2.4 Choice modelling

The data from the discrete choice experiment was used to establish the trade-offs that respondents had made between price, type, size and location when facing a constrained budget. This study followed the approach employed in the Grattan study and applied a conditional logit model to establish the marginal effects of different characteristics.²¹

The conditional logit model was proposed in 1974 by Daniel McFadden in his Nobel Prize winning work on modelling consumer choice. This approach focuses on the characteristics of alternatives, rather than attributes of the consumer. Instead of having one data point or decision per individual, there are as many data points as alternatives available to the individual. Broadly, a 'conditional' logit model is used when the values of the variables (i.e. characteristics) vary across the choices and the parameters are common across the choices.²²

In the discrete choice experiment, each respondent was presented with up to 16 housing options, each with different characteristics. The options varied in nature according to the following characteristics: location (sector), number of bedrooms, number of car parks, floor space, land area, dwelling type and purchase price or rental cost.

The method is appropriate as many of the housing typologies presented in the study are not currently available in the different locations across Auckland. The existing range of housing types is limited and we cannot infer from this what households' actual preferences might be. By providing a choice experiment that includes a range of typologies, we can measure behaviour and preferences. While this data is experimental - the respondents' decisions are based on hypothetical choice sets - it provides insight into how households might make different choices if a greater range of housing typologies were available.

Refer to Chapter 5 for the summary results from the models. For details on the choice modelling used in this study refer to Appendix D.

²¹ See Appendix D for more details on the modelling undertaken in this study.

²² It is noted that many problems of interest to demographers, economists and other social scientists can be modelled by using the conditional logit approach. The results from the conditional logit model provide information about the relative value that respondents place on the various characteristics, as revealed by their behaviour - that is, the estimated coefficients.

3 What is Important to Households?

This chapter presents results from the first survey. In particular, we discuss what is most important to people when choosing a place to live, and the extent to which this differs across Auckland’s population groups. Summary results for Auckland are presented, and several differences across age groups and household types are outlined.

Key findings are presented first (section 3.1). Information is then provided about the purpose of the first online survey (section 3.2), households’ current situation and any intentions to move in the next two years (sections 3.3 and 3.4). We then present the overall results of how respondents rated 58 housing- and environment-related features (3.5), followed by details on the relative importance of individual features (sections 3.6 to 3.10). All results have been weighted, see Appendix A for details.

3.1 Key findings

- The primary goal of the first survey was to identify the relative importance of 58 housing-related features for Aucklanders, when unconstrained by income or wealth.
- At an aggregate level, features concerned with **the local environment** were the most important factors for respondents when thinking about choosing a place to live, followed by features related to the **property** and the **dwelling**. Features concerned with convenience and access (to work and school etc.) and proximity to facilities (such as gyms, community centres and sports clubs) were of relatively less importance overall.
- The most important individual feature overall was a **safe neighbourhood**, with 87% of respondents rating this ‘very important’.
- The next three most important characteristics were to do with the dwelling – that it had **natural light** (77%), that it was **easy to heat** (73%) and that it was **secure** (71%).
- There were differences in what was considered very important by different household types. This was particularly noticeable among households with children, especially those with three or more. Relatively high proportions of these households rated features concerned with safety; space for children to play e.g. has a large garden or yard;, being in a preferred school zone; and size-related aspects of the dwelling such as the number of bedrooms and bathrooms as ‘very important’ compared to other household types.
- Higher proportions of older respondents (e.g. those aged 65 years and over) rated **aged-person friendly design** as being very important.

3.2 Current housing situation

The majority of respondents stated that they currently lived in stand-alone dwellings (87%), while 10% lived in a unit or a detached dwelling and 3% lived in an apartment.

Home ownership was relatively high among the sample. Two thirds (67%) of respondents owned the dwelling they lived in, either with or without a mortgage, and a further 15% stated that a family trust owned the dwelling (it is not possible to ascertain from the results however, whether the person completing the survey was part of that family trust). About one in ten (10%) were renting from a private landlord.

3.3 Planning on moving in next two years

Before being asked to rate what was important to them in choosing a place to live, respondents were asked whether they were planning to move in the next two years, and if so, where to and why.

Half (50%) were not planning on moving, 24% said they were considering moving and the rest (26%) were unsure.

Of those respondents who stated they were considering moving in the next two years, two thirds (67%) said they were thinking of moving within Auckland, and 22% said they would move outside of Auckland, while the rest (11%) were unsure.

Reasons for considering a move were mixed. For example, while 9% stated that they wished to move to a smaller home, a further 9% said they wanted to move to a bigger home. One in five (19%) wished to move from renting to buying a home.

3.4 Rating of housing features

3.4.1 Method

The primary goal of the first online survey was to identify the relative importance of different housing-related features for Aucklanders when unconstrained by income or wealth. A total of 58 features were grouped into the following five categories:

- Convenience and access (14 features)
- Proximity to facilities (9 features)
- Local environment (9 features)
- Property features (13 features)
- Dwelling features (13 features)

While the five categories were always presented in this order in the online survey, the order in which the features appeared within each category was randomised.

Respondents were required to undertake a two-stage process:

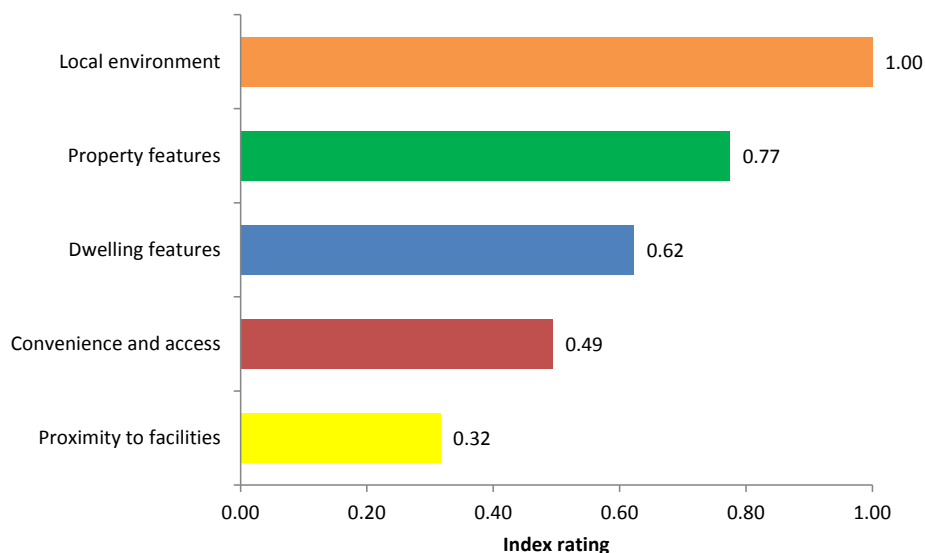
1. First they were asked to rate each feature as either ‘important’, ‘of some importance’ or ‘not at all important’.
2. They were then presented with all the items that they had chosen as being ‘very important’ and were asked to rank their top five.

The results presented in this section are for those respondents who lived within the eight sectors and do not include results for the respondents who lived in areas defined as ‘rural’. Results have been weighted for location (sector), household composition and tenure.

3.4.2 Overall results

Figure 3.1 shows that overall, features concerned with the **local environment** are the most important factors driving housing choices. Features related to the **property** and the **dwelling** itself were the next most important overall (using a weighted index).²³ Features concerned with convenience and access, and proximity to facilities were of relatively less importance overall, with index scores of 0.49 and 0.32.

Figure 3.1: Overall importance of features by category (weighted index)



It is also useful to understand the relative overall importance of the individual features. The following chart (Figure 3.2) uses the same weighting index used in Figure 3.1 above. It shows the relative importance of the top 15 individual features indexed to the most important feature – which was a safe neighbourhood. A total of 674 respondents ranked it in their five ‘most important’. This is in line with the findings in the Australian studies, and in the focus

²³ To understand which features were most important overall when thinking about choosing a place to live, we developed a **weighted index**. This is calculated by comparing the number of times each feature was selected as one of the top five most important (controlled for the number of features in each grouping). We have used a simple weighting scale of 1 to 5 to produce an overall score of importance, which was then converted to an index based to the largest scoring category.

group discussions, where perceptions of safety for respondents, and particularly for their children, were awarded paramount importance.

Using the weighted index, the next three most important characteristics overall were property-related features (the three green bars), namely **freehold title** (0.53), **stand-alone dwellings** (0.53) and **north facing** (0.36). These are the only three property-related features that appeared in the top 15.

The rest of the top 15 features relate mostly to dwelling features, although two convenience and access features appeared in the list – being near family and friends (0.29), and easy access to public transport (0.21). The rest were dwelling related, such as security, natural light and energy efficiency.

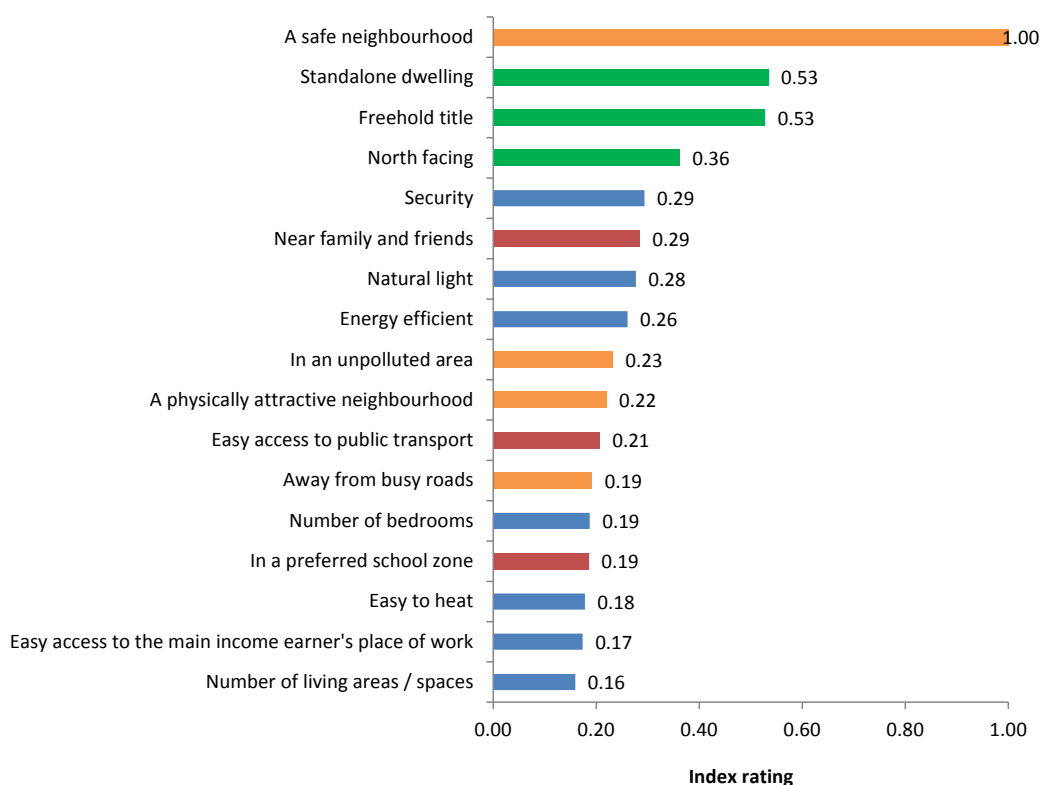
It is interesting to note that, in line with the overall results above, there are no features relating to proximity to facilities in the top 15.

These are, of course, overall results and it should be noted that the things considered important to individuals and households when thinking about choosing a place to live will vary over time and according to circumstance.

In addition, it is worth stressing that the rating of the importance of certain features in this survey was conducted in the absence of an income or asset constraint. Therefore the results do not represent the actual choices that households make. Nonetheless, they do provide useful information about what features households prefer when selecting a place to live.

The next five sub-sections outline and discuss the relative importance of individual features within each category. Overall results are presented and noticeable differences in responses across sub-samples (household type and age group of respondent) are highlighted.

Figure 3.2: Top 15 features (weighted index)



The next five sub-sections discuss the findings within each category in more detail. The categories are presented in their order of overall importance, as indicated in Figure 3.2, starting with local environment features. The charts show the proportions overall who rated each feature as being ‘very important’, rather than a weighted index as shown above.

3.5 Local environment features

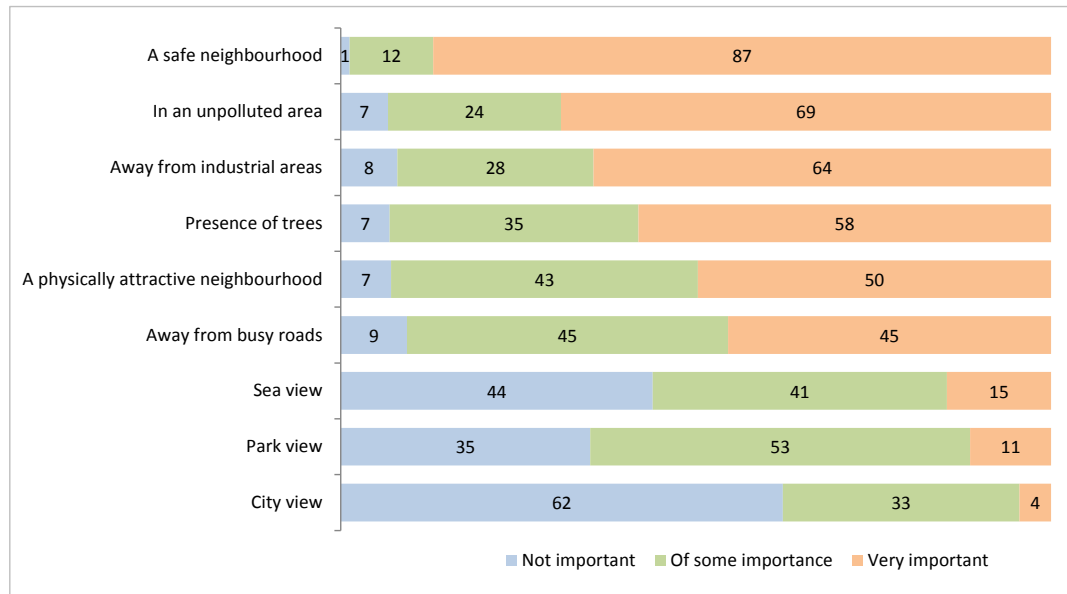
The ‘local environment’ category included nine features related to aspects of the neighbouring environment. Generally, most of these features were rated as being ‘very important’ or of ‘some importance’, with the exception of the importance of sea, park and city views. Refer to Figure 3.3.

The local environment category has some of the highest regarded features. A large majority of respondents (87%) consider that **a safe neighbourhood** is very important and a further 12% consider it to be of some importance. This was the highest rated feature overall across all categories, and safety came up often in the focus group discussions. It was particularly important to households with children, for example 95% of couples with 1 to 2 children and 97% of couples with 3 or more children rated this as being ‘very important’. In line with this, just under half also stated that being **away from busy roads** was very important (45%).

Living **in an unpolluted area** and being **away from industrial areas** were also rated relatively highly (over two thirds of respondents rated these features as very important – 69% and 64% respectively). The **presence of trees** and **a physically attractive neighbourhood** were very

important to over half of all respondents (58% and 50% respectively). Older respondents (those aged 65 years and over) were more likely than younger respondents to rate a physically attractive neighbourhood as being very important (59% compared with 33% of those aged 18 to 34 years).

Figure 3.3: Rating of features related to local environment (%)



3.6 Property features

Many of the features related to properties were rated as being very important to respondents when thinking about choosing a place to live, in particular that it was a **freehold title** (63% rated this as being very important). This was particularly important among couples without children (71%) and those in older age groups (65 years and over, at 74%). See Figure 3.4.

Considerations of outdoor space were rated relatively highly – just over half (56%) rated **balcony/courtyard/outdoor dining space** as being a very important consideration, and 41% rated **having a lawn** as being very important. However, only 25% overall stated that a **large garden or yard** was very important, and a much smaller proportion (13%) stated that **room for a boat/caravan/trailer** was very important – although this last item was rated relatively highly among couples with 1 or 2 children and multi-family households (21% and 22%).

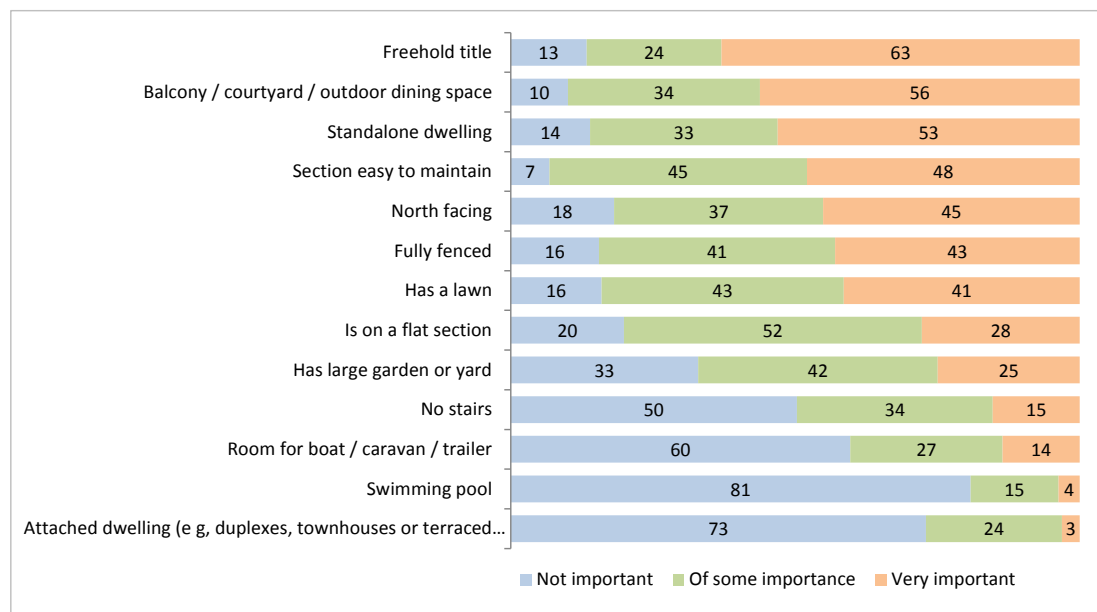
Just over half (53%) rated **stand-alone dwellings** as being very important to them when thinking about choosing a place to live, and a further 33% said it was of some importance. In comparison, a very small percentage stated that **attached dwellings** would be very important to them (3% said it was very important, and 24% said it was of some importance). Relatively high proportions of households with children rated stand-alone dwellings as very important, 82% of couples with three or more children, whereas only 31% of one-person households felt it was very important. In line with this, just over half (53%) of couples with

three or more children stated that having a **large garden or yard** would be very important to them when thinking about choosing a place to live.

In line with the emphasis on safety and security found elsewhere, 43% felt that a **fully fenced property** would be very important (also relatively high among households with children).

There were some key differences by age group, with relatively high proportions of older respondents rating the following features as being very important – freehold title, no stairs, north-facing, and that the section is easy to maintain. Conversely, relatively high proportions of younger respondents stated that a large garden or yard was very important.

Figure 3.4: Rating of features related to property (%)



3.7 Dwelling features

Perhaps not surprisingly, many of the features related to dwellings were rated as being very important to respondents when choosing a place to live (see Figure 3.5). In particular, **natural light** (77% rated as very important), **being easy to heat** (73%), and **security** (71%) were the top three in this category.

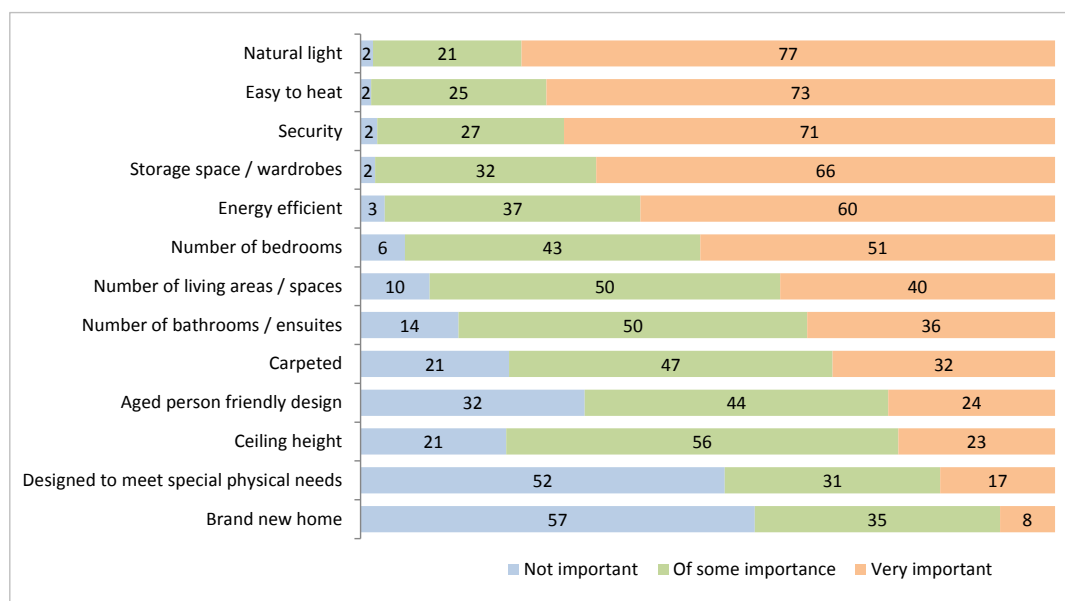
Storage space and wardrobes was rated highly, with two thirds of respondents (67%) rating this as very important, and almost all others stating it was of some importance. This was rated more highly than the **number of bedrooms** (51% rating it as very important) and **number of bathrooms** (36%).

Only 8% stated that a **brand new home** was very important, and 35% said it was of some importance.

Households with children, particularly couples with three or more children, were more likely to rate the number of bedrooms, the number of bathrooms, and the number of living spaces as being very important, compared to other household types.

Aged-person friendly design was very important to almost half (46%) of those aged 65 years and over (compared with 20% of those aged 50 to 64 years), as was **carpeted** and **easy to heat** (Figure 3.5).

Figure 3.5: Rating of features related to dwellings (%)



3.8 Convenience and access

The 14 features in this category related to ease of access to work, school, university, family and friends, restaurants and bars, as well as transport options (see Figure 3.6). Overall, these characteristics did not rate highly relative to the features in other categories.

The item rated as most important among these features was **easy access to shops** – well over a third (41%) rated this as being very important.

Easy access to the main income earner’s place of work was very important for 40%, while **easy access to the secondary income earner’s place of work** was very important for 17%.

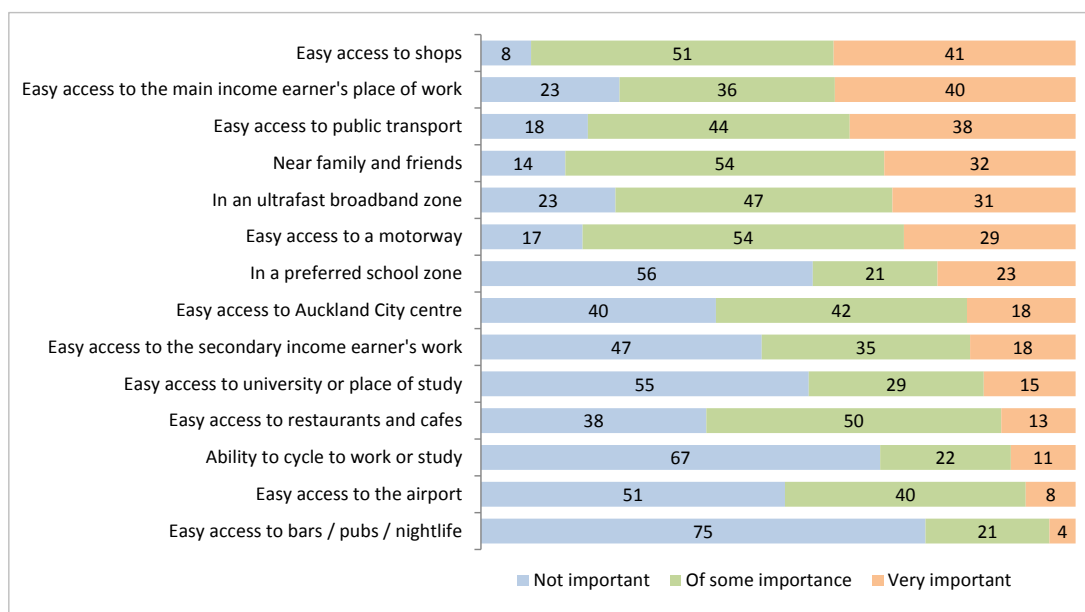
A larger proportion overall rated **easy access to public transport** as being very important (38%), compared to **easy access to a motorway** (29%). Only 11% rated **the ability to cycle to work or study** as being very important (Figure 3.6).

Overall, less than a quarter (23%) stated that **being in a preferred school zone** was very important. This will partly reflect the fact that not all respondents had children of school age living in their household. This feature was very important to half (46%) of couples with one or two children, and two thirds (63%) of couples with three or more children. Other items

that were very important to these households included easy access to main income earner’s place of work, ease of access to the secondary earner’s place of work, easy access to public transport and easy access to University or a place of study.

One of the key differences by age was that a relatively high proportion of older respondents rated **easy access to shops** (52%) and **easy access to public transport** (50%) as being very important, when compared with younger age groups (Figure 3.6).

Figure 3.6: Rating of features related to convenience and ease of access (%)



3.9 Proximity to facilities

The final grouping of characteristics relate to proximity to facilities (Figure 3.7). These include recreational activities, sports fields, gyms, golf courses, parks, sports clubs and beaches. This grouping also includes other community facilities, including libraries, community centres and places of worship.

Generally, the results indicate that proximity to these facilities was not of great importance to respondents when choosing a place to live, relative to the other four categories.

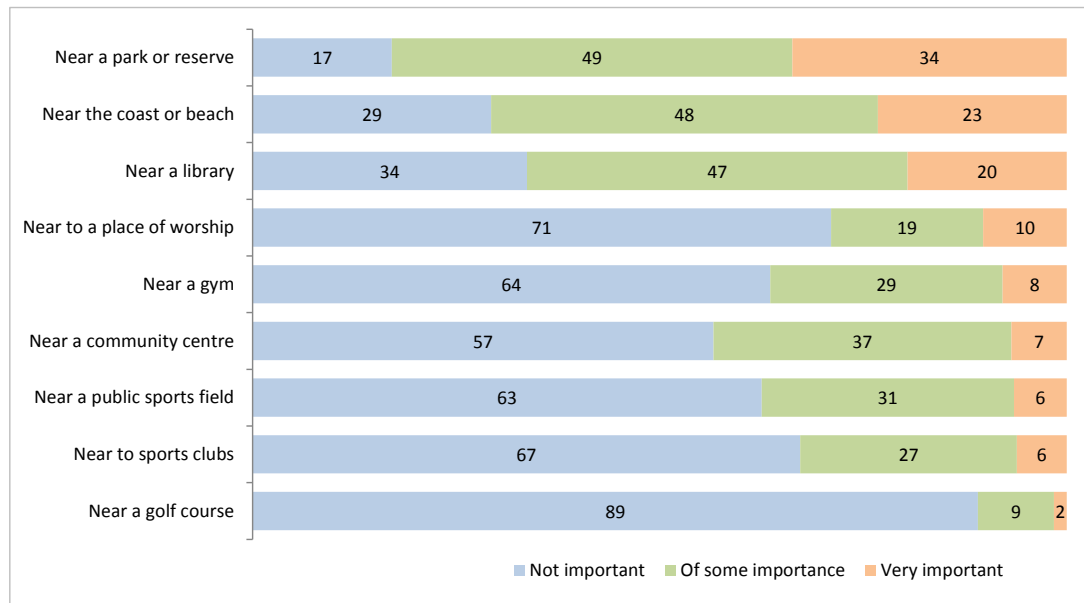
A third of respondents (34%) consider that being **near a park or reserve** is very important and almost half (49%) consider it to be of some importance. Results were similar for **being near the coast or a beach** (23% rated it as very important, and 48% as of some importance).

Being **near a library** was very important for one in five respondents (20%).

Households with children, particularly couples with three or more children, were more likely to rate being near a public sports field (22%) and near a place of worship (21%) as being very important, compared to other household types.

Relatively high proportions of younger respondents (those aged 18 to 34 years) stated that being near a community centre (19%) or near a gym (18%) was very important to them.

Figure 3.7: Rating of features related to proximity to facilities (%)



4 What Did Households Choose?

This chapter presents results from the second survey, and focuses on the results from the choice experiment. An important aspect of this experiment was that it included a budget constraint – respondents’ choices were limited to what they could afford, given the financial information they had provided. This is important because households cannot, and do not, make housing choices based purely on what they would ‘like’. They face limits in terms of what they can afford and they make trade-offs between location, size and type.

Key findings are presented (section 4.1), followed by a brief overview of how the choice experiment was constructed (section 4.2), including an overview of the housing types offered in the experiment (section 4.3), followed by the results (section 4.4) and a short discussion (4.5).

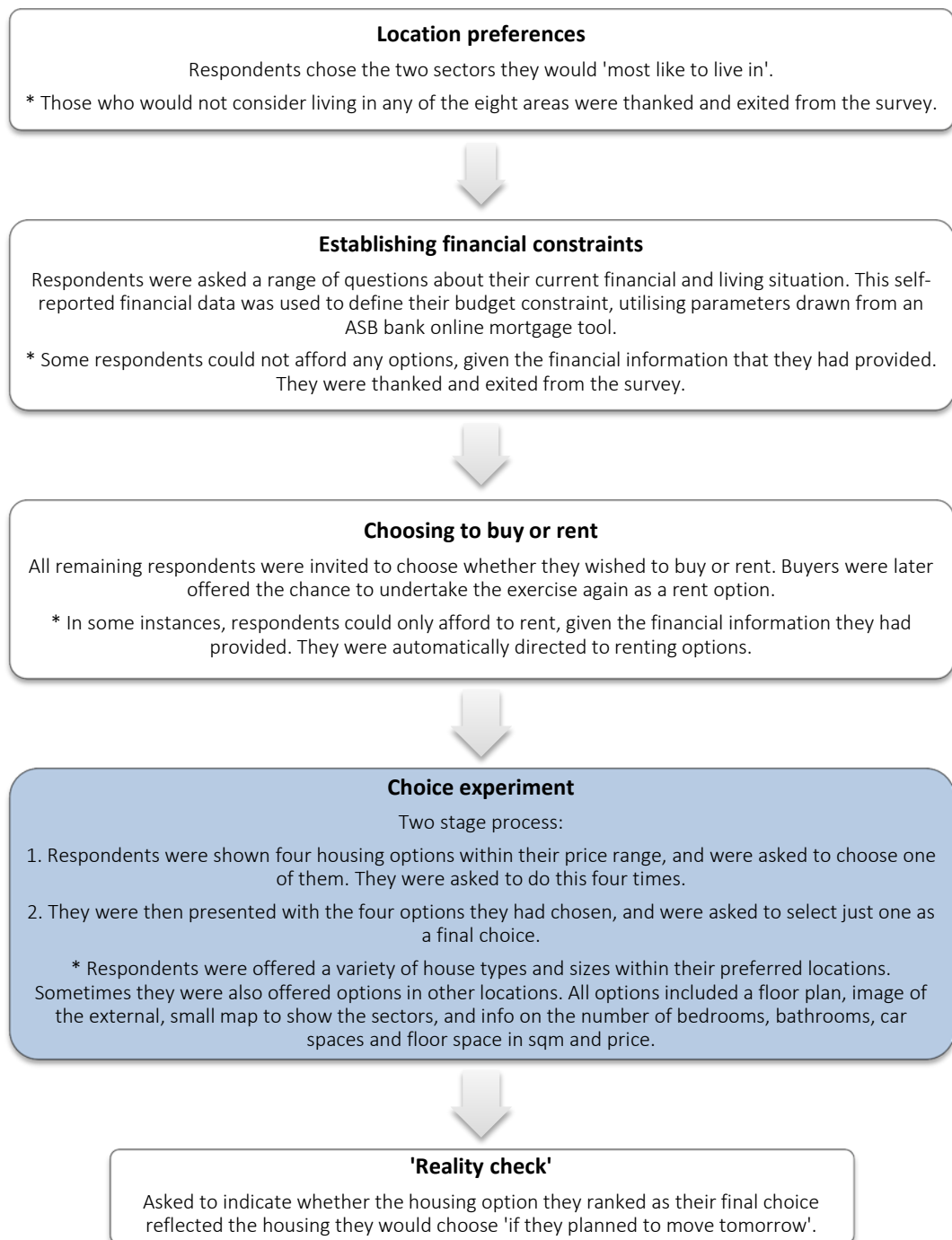
4.1 Key findings

- Almost half of the respondents (47%), when faced with a set of housing options that they could afford, chose a final housing option that was within the location that they had initially preferred. The match between initial preference and final choice is strongest for Sector 2 (Auckland Isthmus), Sector 3 (North Shore Coastal) and Sector 7 (East Auckland).
- There was a difference in final location choice according to whether people were buying or renting. Buyers selected final housing options across all eight sectors while 75% of renters made a final choice in three sectors: North Shore Coastal, South Auckland and Auckland Isthmus.
- The choice of housing types strongly favoured medium (61%) and large (26%) sized dwellings as defined by bedroom number, with renters showing more acceptance of medium sized dwellings.
- Detached dwellings were the final choice of just over half (52%) of all respondents. This preference was similar for both buyers (54%) and renters (50%). Interestingly, the choice experiment shows that there is also a strong preference for other typologies, with 25% of respondents picking an attached dwelling (joined unit), 15% selecting low rise apartments and 8% selecting high rise apartments.
- Just over half (51%) stated that their final housing option reflected the actual housing choice they would make, if they ‘planned to move tomorrow’, while almost one in five (19%) selected ‘don’t know’. A smaller but nonetheless significant proportion indicated that the final option did not meet their housing preferences (30%).
- In general, following the choice exercise, respondents reported that dwelling value and house type were of more importance in their decision-making process than was location or dwelling features.

4.2 The choice experiment method

In order to explore the trade-offs and choices that households make between size, location and housing type, within a budget constraint, we utilised a discrete choice experiment. The diagram below (Figure 4.1) briefly outlines how this choice experiment was constructed. For further details please refer to Appendix E.

Figure 4.1: Overview of the discrete choice experiment method



4.2.1 Housing types offered in the choice experiment

A total of 12 housing options were offered across all eight sectors – there were therefore a total of 96 possible options. The 12 housing options were categorised into four broad ‘types’, namely, detached (stand-alone) houses, attached (townhouses and semi-detached), apartments in buildings up to four storeys and apartments in buildings with five or more storeys. Each type was categorised into three sizes, proxied by the number of bedrooms, as shown in the table below (Figure 4.2).²⁴

Figure 4.2: Housing options used in this study

	Number of bedrooms		
	Small	Medium	Large
Detached	3	4	5
Attached (joined units)	2	3	4
Apartment (in building up to 4 storey)	1	2	3
Apartment (in building 5 storeys or more)	1	2	3

During the research design phase, a decision was made to base the costs to buy or rent all housing options on **new builds of medium quality standard**. This was done in order to ensure standardisation of all housing choices offered, and to avoid (as much as possible) respondents judging their choices on the standard of current dwellings in Auckland. Basing the housing options on new builds impacted on the affordability of the options offered and the descriptions of them. Respondents were asked to ‘assume that all the housing options presented were new and of medium standard quality’.

Aspects related to the ‘size’ of each of the 12 options were further refined in the development of floor plans, and in developing the costs to buy and rent. The floor plans presented in the discrete choice experiment identified floor area in square metres, and for all apartments, also offered deck area in square metres, and numbers of car parks. Refer to Appendix G for a full breakdown of all information provided on each of the 12 housing types in the experiment, including floor plans and photos of example exteriors.

The costs to buy or rent the 96 options were valued by Market Economics using land value data, construction and project cost data. For further details on how the costs to buy or rent were valued, please refer to Appendix F.

²⁴ This was in line with the lead taken by Grattan Institute in their 2011 study. They made a judgment that respondents would be able to gain more information about the housing options presented if number of bedrooms (rather than an area in m²) was used as a proxy for the internal area of a dwelling. Accordingly, whether an option was ‘small’, ‘medium’ or ‘large’ depended on the number of bedrooms. Similar to this study, respondents were also informed about the square meterage of each option during the choice experiment.

4.3 Results from the choice experiment

This section outlines the key results in terms of where respondents said they preferred to live and where they finally chose, what types of housing they chose, and their choices by housing price. The discussion that follows focuses on respondents' **final selections**.

Final options by location, type and size are considered separately below, while the trade-offs between them are discussed in Chapter 5. Respondents' final decisions will, of course, have included a wide range of trade-offs and other influencing factors.

Although this research is not an exercise in measuring housing affordability, it is interesting to note that 23% of respondents could not afford any of the options provided in the survey, given the financial and household information they had provided.

4.3.1 Where did people want to live?

Here we discuss the extent to which respondents' **initial preferences** for the parts of Auckland they wished to live in differed from their **final choices**. Once they had weighed up cost, housing size and location, did people choose housing options in the same location?

Initial preferences

Before the respondents undertook the choice experiment, they were asked to indicate which two sectors they would prefer to live in – they were asked to provide a 'first choice' and a 'second choice'. Their responses were used to refine the list of potential options presented to them in the choice exercise.

Just over half (59%) of respondents selected their current location as their 'first choice' preferred location (Figure 4.3). This correlation was strongest among those living in Sector 7 (East Auckland) (81% chose that sector as their first choice), followed by those living in Sector 3 (North Shore Coastal) (76%), and Sector 1 (Auckland Central) (70%).

Respondents in Sector 5 (West Auckland Harbour) were most likely to choose preferred locations outside of their current sector (69%), followed by Sector 8 (South Auckland) (59%).

Figure 4.3: Preferred location by current location (sector) (%)

	Same Sector	Other sector	Total
Sector 1 - Auckland Central	70	30	100
Sector 2 - Auckland Isthmus	59	41	100
Sector 3 - North Shore Coastal	76	24	100
Sector 4 - North Shore Harbour	57	43	100
Sector 5 - West Auckland Harbour	31	69	100
Sector 6 - West Auckland	53	47	100
Sector 7 - East Auckland	81	19	100
Sector 8 - South Auckland	41	59	100
Total	59	41	100

Final choices by sector

In terms of location, results were relatively evenly distributed. While one in five (22%) chose Sector 2 (Auckland Isthmus) as their final choice, a similar proportion (29%) selected options in Sectors 3 and 4 (North Shore Coastal and Harbour), 30% in Sectors 7 and 8 (East and South Auckland) and 18% selected options in Sectors 5 and 6 (West Auckland Harbour and West Auckland) (see Figure 4.4). A small proportion of respondents selected a final housing option in Sector 1 (Auckland Central) (2%).

There is a difference between the final location choice among respondents who selected to rent, compared to those who selected to buy, with higher proportions of renters selecting housing options outside of the Auckland isthmus. A majority of renters (82%) selected housing outside of Sectors 1 and 2 (Auckland Central and Auckland Isthmus), compared to 72% of buyers. Almost a third (31%) of renters' final choice was in Sector 3 (North Shore Coastal), while the final choice of buyers was more evenly distributed.

Figure 4.4: Final choice location, by buyers and renters (%)

	Buyers	Renters	Total
Sector 1 - Auckland Central	4	0	2
Sector 2 - Auckland Isthmus	25	18	22
Sector 3 - North Shore Coastal	13	31	20
Sector 4 - North Shore Harbour	11	6	9
Sector 5 - West Auckland Harbour	9	5	8
Sector 6 - West Auckland	12	6	10
Sector 7 - East Auckland	15	9	13
Sector 8 - South Auckland	11	25	17
Total	100	100	100

Comparison of preferred sector to final choice

An interesting aspect of the data is that it shows how respondents' final choice of sector compared to their initial preference. Investigating these results in more detail (though techniques such as the conditional logit model described below), provides insights into people's willingness to trade location relative to other factors.

Figure 4.5 shows the relationship between the sectors that respondents chose as their 'first choice' preferred sector, and the sector that they decided on when making their final choice. It shows that almost half (47%) of the respondents, as indicated by cells along the diagonal (blue numbers), chose to live within the sector that they had preferred the most.

Some respondents however (9%), selected their final choice in an area with a higher average price/cost than their initial preference, as shown by the cells above the diagonal (green numbers) (see Figure 4.5).²⁵ For example, 2% of respondents initially preferred Sector 3

²⁵ References made here to 'more' or 'less' expensive sectors relate to the **average** cost to buy or rent in each sector. Please refer to Appendix F to view the final costs to buy or rent all 12 options.

(North Shore Coastal), but in the choice experiment they decided to select the more expensive Sector 2 (Auckland Isthmus). This may represent respondents that presented a conservative stance when selecting their initial preferences. However, when the respondent was shown the potential price of housing options in the alternative sectors, they changed their preferences and selected a more expensive area. It may also reflect other aspects of the trade-offs open to them, for example, if price is a constraint, they may be trading larger more expensive North Shore housing for lower priced attached or apartment dwellings on the Isthmus – losing private space, gaining central Auckland proximity.

Conversely, the cells below the diagonal (the red numbers) represent the 40% of respondents who selected a final choice in an area with a lower average price/cost, compared with their initial preference. For example 5% of respondents initially preferred Sector 1 (Auckland Central), but in the choice experiment they decided to select an option in the less expensive Sector 2 (Auckland Isthmus). This could represent respondents that had an optimistic stance when selecting their initial preferences. However, when the respondent was shown the potential price of housing options in their preferred sector they changed their preference and selected a less expensive area.

Figure 4.5: Final choice location by initial preference location (%)

Final Choice	Initial preference (no constraints) Sectors								Total
	1	2	3	7	4	5	6	8	
Sector 1 - Auckland Central	2	0	0	0	0	0	0	0	2
Sector 2 - Auckland Isthmus	5	13	2	1	0	0	0	0	22
Sector 3 - North Shore Coastal	2	4	10	2	1	0	0	0	20
Sector 7 - East Auckland	0	3	0	8	0	0	0	1	13
Sector 4 - North Shore Harbour	1	2	2	0	3	1	0	0	9
Sector 5 - West Auckland Harbour	0	1	1	1	1	2	2	0	8
Sector 6 - West Auckland	1	4	0	0	0	0	4	0	10
Sector 8 - South Auckland	0	4	0	5	1	1	1	5	17
Total	11	31	16	17	7	4	8	7	100

Note: Sectors are deliberately not presented in numerical order. The figures in the table are rounded values to the nearest whole number therefore they do not necessarily add to 100 when presented in this manner.

Refer to Chapter 5 for further analysis of the trade-offs made between location, size and type.

4.3.2 What types of dwellings did they choose?

The choice experiment offered a range of different dwelling types and sizes across all eight sectors, as outlined in section 4.2.1 (refer also to Appendix G for details of the housing options provided).

Results presented here have been broken down by those who bought and those who rented. The interactions between type and size in people’s final decisions are explored in the next section.

Overall results by housing type

As mentioned earlier, respondents were offered a range of housing options that they could afford. Just over half (52%) of all respondents chose a detached dwelling as their final choice. This proportion was similar between buyers (54%) and renters (50%). Among those who did not select a detached dwelling, similar proportions chose an attached dwelling (25%) compared to an apartment (23%) (see Figure 4.6).

Respondents who chose renting seemed to have a stronger preference for attached (31%) while buyers had a stronger preference for apartments (25%). To see the types of housing that respondents chose within the eight sectors, please refer to section 6.3.

Figure 4.6: Final choices by housing typology, buyers and renters (%)

	Buy	Rent	Total
Detached	54	50	52
Attached	21	31	25
Apartment (building up to 4 storeys)	18	11	15
Apartment (in building 5 storeys or more)	7	8	8
Total	100	100	100

Overall results by housing size

The bulk of buyers (88%) chose a medium (59%) or large (29%) sized dwelling²⁶ as their final choice – only 12% chose small dwellings, whether this was an apartment or a stand-alone home. The general pattern was the same across those who chose renting options and those who chose purchasing options (Figure 4.7).

Figure 4.7: Final choice of dwelling size, by buyers and renters (%)

Final Choice	Buy	Rent	Total
Small	12	15	13
Medium	59	64	61
Large	29	21	26
Total	100	100	100

4.3.3 Choices by housing price

Respondents were offered purchase prices to buy or a weekly rental price, depending on whether they selected to buy or rent. The following graphs in Figure 4.8 show the distribution of final choice purchase price and rents. For further details on how the costs to buy and rent were determined, and the full range of costs per sector, please refer to Appendix F.

²⁶ Note again that the survey used numbers of bedrooms as a proxy for size.

The purchase price data indicates that there is a grouping of selections at three price points, \$500,000, \$700,000 and \$900,000 (three peaks in the orange line). The data also indicates a sharp drop off in selections after the \$1 million mark, with less than 12% of final choices having a value beyond this point.

The rental data shows two peaks, with the largest at around \$500 per week and a smaller peak at \$600 per week (two peaks in the green line). The majority of rentals selected had a rent of less than \$700 per week (87%).

Figure 4.8: Final choice dwelling purchase price and weekly rent



4.3.4 Reality check

After respondents completed the choice experiment they were asked whether (if they ‘planned to move tomorrow’) the housing option they ranked as their final choice reflected the housing that they would choose, given their current financial situation.

As Figure 4.9 shows, just over half (51%) stated that their final housing option did reflect the actual housing choice they would make while almost one in five (19%) selected ‘don’t know’. A smaller but nonetheless significant proportion indicated that the option did not meet their housing preferences (31%).

Although the question was broad in nature, and did not ask solely about housing type, there appears to be a correlation between the final housing types chosen and responses to this question.

In particular, a relatively large proportion (64%) of respondents who had chosen apartments in buildings of five storeys or more confirmed that the outcome of the survey reflected a choice they would make, compared to 36% among those who had chosen an apartment in a building up to four storeys.

Figure 4.9: Does final choice reflect housing choice respondents would make? (%)

Final Choice	Yes	No	Don't know	Total
Detached	54	29	17	100
Attached	50	29	22	100
Apartment (building up to 4 storeys)	36	44	21	100
Apartment (building 5 storeys or more)	64	18	18	100
Total	51	31	19	100

Respondents who answered 'no' were given the opportunity to provide feedback as to why the final choice did not meet their needs. There was a wide range of responses as the question was open-ended. The responses were aggregated into broad themes, including the following:

- Desire for a different house type (56%)
- Desired a larger section (19%)
- Financial constraints (7%)
- Want to move out of Auckland (6%)
- Different location in Auckland (5%)
- Life stage, retiring, building etc. so no need to move (3%)
- Not interested in moving now (2%).

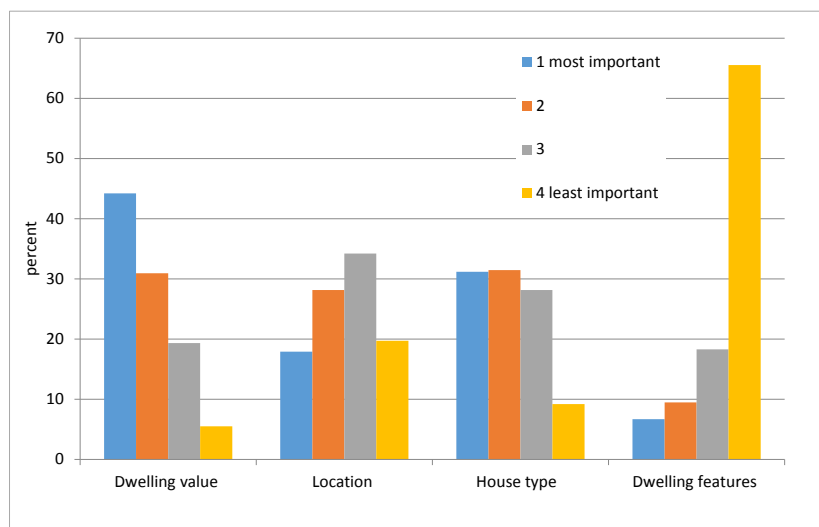
4.3.5 Decision factors

The final part of the second survey examined how respondents had made their decision. Immediately after they had made their final choice, respondents' were asked to rank four overall 'decision factors', in order of importance.

The chart below (Figure 4.10) shows the distribution of importance ratings within each of the four factors. Results are somewhat mixed at the overall level.

As the blue columns (representing the most important factors) indicate, **dwelling value** (described as 'perceived value for money') was rated as the most important factor by almost half (44%) of those who had completed the discrete choice experiment, followed by **house type** ('if it is a specific type, e.g. detached, semi-detached or an apartment') at 31%. **Dwelling features** (described in the survey as 'size of lot, number of parking spaces, presence of garden, number of bedrooms and living areas') was rated as being of least importance (only 7% of respondents said it was their most important factor, and 66% rated this as their least important).

Figure 4.10 Rating of relative importance of decision factors



4.4 Discussion

This choice experiment has highlighted a strong locational preference in Auckland. In their final choice, just over 60% of respondents either selected to stay in their existing location, or they selected a more expensive (on average) area. This finding is not unexpected as it highlights that households currently (and have historically), make well-considered choices about home location. Choosing a place to live is a complex process and is not undertaken lightly. Households must weigh up a wide range of factors and, in the main, are comfortable with the locational outcomes of those decisions. Where they have indicated that they would prefer to move they tended to aspire to more expensive locations. Given that higher value locations generally cluster around areas of higher amenity, or status, households will seek to maximise the benefits for their families by seeking to co-locate with high amenity areas.

While the largest group chose detached housing as their final choice (52%), the research shows that there is also a willingness to live in other housing types such as attached housing and apartments (48%). This is especially the case where it means they are able to secure a place in the location of their choice.

Approximately half of respondents indicated that their final housing option reflected the actual housing choice they would make if they were to move tomorrow. While this indicates a relatively high degree of acceptance of current Auckland housing conditions (or a high degree of flexibility when faced with challenging housing conditions), the results also indicates a degree of uncertainty (19% of people don't know). The experiment was based around the currently high Auckland housing prices. This means that respondents were more constrained in their choices than potentially elsewhere in New Zealand (given the high house price to income ratios in Auckland).

5 Results from the Choice Modelling

This chapter provides summary results from the choice modelling. The conditional logit statistical technique allows us to test the 'interaction effects' - that is, the trade-offs that people make between housing size, type and location when they are constrained by both prices and ability to pay. The analysis reported on here is limited to buyer data only as the number of rent based model was based on very small numbers.

Key findings are presented (section 5.1) followed by a background to choice modelling (section 5.2). Section 5.3 outlines the results from the choice modelling in more detail and Section 5.4 models the possible effects of house prices on housing choices.

5.1 Key findings

- Trade-offs between size and dwelling type: People were more likely to choose attached dwellings and apartments over stand-alone dwellings when dwelling sizes were larger (as determined by the number of bedrooms).
- Trade-offs between size and preferred location: People were willing to trade-off their preferred location in order to live in a larger dwelling, with respondents being more likely to choose a dwelling in a non-preferred location when the dwelling was larger.
- Trade-offs between size and price: As price increases, people became relatively less likely to select a larger dwelling, indicating that there is willingness to trade-off dwelling size for lower price. The trade-off between price and attached dwellings shows a similar effect (albeit at a lower level of confidence). People were less likely to select an attached dwelling as the price increased.
- Viewed collectively, the above findings show that survey respondents placed significant importance on size, being willing to trade-off preferred dwelling type and location in order to have a dwelling of an acceptable size/bedroom numbers. Although willing to make trade-offs to ensure a larger dwelling, people remain sensitive to price.
- There was no indication that respondents made any meaningful trade-offs between the following characteristics (i.e., the interactions were not significant in the model):
 - Dwelling type and sector
 - Apartment dwelling type and price
 - Preferred location and price.

5.2 Background to choice modelling

The choice experiment data was used to establish **conditional logit regression models** for buyers.²⁷ These statistical models tell us about the influence of location, size (using number of bedrooms as a proxy) and housing type on the probability that respondents would select any particular option.

For example, the models provide an understanding of how the location of a dwelling changes the probability of the dwelling being picked by respondents. The models reveal the probability of a dwelling in a not preferred location, being picked holding all other aspects of the house constant. This is useful as these models can be used to either predict the probability of a household picking an option or location, or they can be used to understand the relative importance of each aspect of housing.

The **conditional logit statistical technique** included both primary effects and interaction effects:

- **Primary effects:** these are the individual effects of key characteristics of the housing options. The primary effects show the relative importance of individual aspects of house options, assuming that other aspects remain constant. For example, the models provide estimates of the relationship between bedroom numbers and the probability of housing options being selected by respondents. This allows us to understand how the size of a house affects a household's purchase decisions.
- **Interaction effects:** these show the combined impact of multiple aspects being present within an individual housing choice, for example, numbers of bedrooms in an attached house (typology). In this example the model provides an estimate of the likelihood that an attached house will be chosen as the numbers of bedrooms increases. However, note that in a model that includes interaction effects it is not possible to talk about the primary effects as being the only impact of holding all other variables constant, because the inclusion of interaction effects alters the individual primary effects. For example, in a normal regression equation, the coefficients represent the effect on the outcome of each variable. In a conditional logit model, this is not the case. The effect on the outcome of each variable is the primary effect plus a portion of each interaction effect that contains that particular variable.

²⁷ For more information refer to the separate Market Economics Technical Working Document.

5.3 Results

In order to understand the importance of different aspects of housing, both the primary effects and interaction effects must be considered.²⁸ The complexity of the model means that there is no simple way to display these relationships because the overall effects are a function (combination) of different aspects of the housing.

The conditional logit model tested the interaction between the following characteristics:

- Size - number of bedrooms (used to categorise dwellings into 'small', 'medium' and 'large')
- Type - dwelling type (stand-alone vs attached vs apartment)
- Sector - preferred location (in a preferred sector vs not in a preferred sector)
- Price – cost to buy.

All findings from the modelling are expressed in terms of the odds or likelihood that a person will choose that option, compared with a detached house in their location or preferred sector.

In this iteration of the model, locations within Auckland have been combined into the respondents' preferred sector and 'everywhere else'. This provides insight into peoples' propensity to shift around Auckland but removes the location specific nature of that shifting.

Primary effects

The primary effects in this model are mostly significant. The exception is bedrooms, which is a proxy for dwelling size. By itself the number of bedrooms in a dwelling is not a strong determinant of peoples' likelihood to select a dwelling other than a detached house in their preferred location.

While the primary effects are mostly significant, the inclusion of the interaction effects means that the interpretation of the coefficients in isolation can be misleading. However, it is still interesting to note that the relationships are significant, which means that they have important effects on housing choices. For example, attached dwellings (0.033) and apartments (0.003) have a much lower chance of being chosen than a detached dwelling. The odds ratio for 'Zone Other' (0.274) indicates that respondents were very reluctant to shift outside their preferred location (only 27.4% as likely) when viewed in isolation.

²⁸ For example, in a simple case where there are two variables (x_1 and x_2) and one interaction effect ($x_1 * x_2$) we have the following model $y = \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_1 * x_2$. An important feature of this model is that the effect of any given variable is now dependent on the other variable. To establish the effect of x_2 we need to rearrange the equation, $y = \beta_1 x_1 + (\beta_2 + \beta_3 x_1) x_2$. The effect of x_2 includes the primary effect β_2 and the interaction effect $\beta_3 x_1$. In the choice model used in this study the effect of an aspect of housing is equal to the primary effect for that aspect plus the range of interactive effects (there is 4 in this case) for that aspect.

Interaction effects

Most of the significant interaction effects relate to the number of bedrooms in the dwelling and typology. An odds ratio of 2.078 for the *Bedroom*Attached* interaction effect means that as the number of bedrooms increases by 1, people are slightly more than twice as likely to choose it. This compares with an odds ratio of 4.358 for the *Bedroom*Apartment* effect. While this is more than twice as high, the primary odds of selecting an apartment is 0.003 – which is extremely low, so while adding a bedroom increases the odds by more than four times it is off a very low base.

Two interpretations of this interaction are possible. The first is that people are more likely to consider apartments and attached dwellings when they are of an acceptable size (and have enough bedrooms) for their needs. The second interpretation is that people are willing to trade-off their preferred dwelling type (stand-alone) in order to live in a larger dwelling.

As the number of bedrooms increases regardless of dwelling type, people are more likely to choose to move outside their preferred sector. The *Bedroom*Sector Other* effect has an odds ratio of just over 1 (1.195). This means that, in general, people prefer larger dwellings.

Note also that the type of dwelling when combined with Sector ‘Other’ is not a significant effect. This means that the propensity of a person to choose to move outside of their preferred location is not significantly affected by the typology of the dwelling (once other effects are held constant).

The last effect that has a degree of significance are the interactions of ‘Bedroom’ and ‘Price’ and ‘Attached’ and ‘Price’. Both of these have odds ratios of less than 1.0 (0.913 and 0.895 respectively). This means that as price increases, the likelihood of a person selecting a larger dwelling, or selecting an attached dwelling, decreases.

5.4 Effect of price increases

The model can be used to explore how purchasing decisions could change as a result of changes in price. This section presents three scenarios that evaluate a set of hypothetical uniform increases in price across all locations and house typologies in Auckland.

These scenarios could be used to understand how households may react to the continuing house price increases that have been experienced in Auckland.²⁹ This provides an understanding of how households may trade-off house types for a given price increase.³⁰

Figure 5.1 below shows that a 10% increase in prices (blue bars) will have very little effect on the housing types chosen by respondents, with less than 1% of households that selected detached and attached changing as a result of the increased price.³¹ However, under the largest price rise scenario (+30%) the modelling shows that around 2% more households

²⁹ Since the development of the house costings in this survey prices in Auckland have increased by over 10%.

³⁰ These scenarios are not dynamic, they are static point estimates of the effect a price change would have.

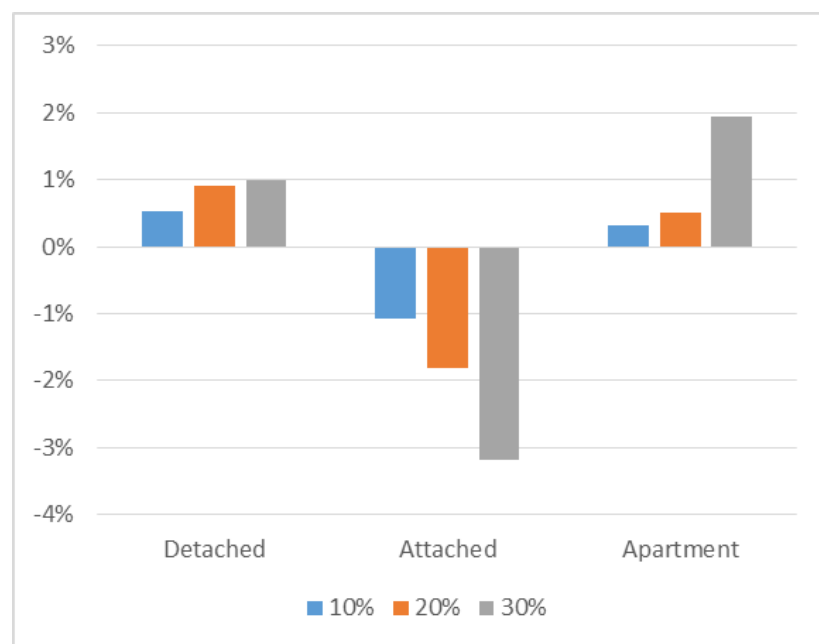
³¹ While the numbers of households picking apartments increases by 1%.

would select apartments and slightly more than 3% of households would switch away from attached dwellings.

The model also shows almost 1% of households would move towards a detached dwelling, following a 30% price rise (overall). This is an unexpected result and would require further investigation. It may be that as price increases overall, people are moving away from four and five bedroom dwellings towards two and three bedroom dwellings. Given that is the smallest category of detached dwellings this effect may dominate other effects. More work would be required to investigate and confirm this finding.

The general finding is that households' selection of dwelling types is not very elastic with respect to price.³²

Figure 5.1: Change to the share of households choosing a particular housing type



³² There is a range of other potential extensions or uses of the model that Auckland Council may wish to undertake in the future. These include population forecasts - other researchers have used similar models to inform population and household forecasts. Choice models have been used to understand household decisions in terms of dwelling types and locations. They can be used to build up a scenario of the future based on stated preferences. This differs from existing population and household forecasts that mainly rely on revealed preferences from past/current housing choices (for example see Statistics New Zealand projections). It is considered that the model from this study could be used to extend the understanding of the potential future growth in population, in terms of location and dwelling types within Auckland. Other extensions could help inform policy analysis while the data gathered could be used to build other statistical models that explore the preferences of subgroups within the population.

6 Match between Stock and Choice

This chapter compares the existing dwelling stock in Auckland (using 2013 Census data) and dwellings that are coming on-line (using Statistics New Zealand's building consent data) (section 6.2), with the housing that people said they would choose, if it were available (section 6.3). These measures are compared to establish any mismatch between housing stock and housing choices (section 6.4). In doing so, this highlights any latent demand that the market is (potentially) failing to supply.

6.1 Key findings

- Auckland's existing housing stock is dominated by stand-alone dwellings. At the 2013 Census, three quarters (76%) of occupied private dwellings in the eight sectors were separate houses.
- Recent dwelling consent data shows that the market is producing more 'higher density' dwelling types than currently exist in Auckland. Between 2013 and 2015, 11,785 consents were granted for new dwellings in the eight sectors. While just over half (57%) were for stand-alone dwellings, a quarter (25%) were for units and 18% for apartments.
- There is a mismatch between the current supply of dwelling typologies and the housing that was chosen by the respondents in the survey.
- The results suggest that there is an over-supply of stand-alone/detached dwellings overall, particularly in Sector 2 (Auckland Isthmus), an over-supply of apartments in Sector 1 (Auckland Central), and an under-supply of units and apartments in almost all of the eight sectors.

There will be multiple causes for of this mismatch. The potential causes of this market failure are not explored in this study.

6.2 The housing we currently have

6.2.1 Current stock

Auckland's housing stock is dominated by stand-alone dwellings. At the 2013 Census, three quarters (76%) of occupied private dwellings across the eight sectors were separate houses. Private dwellings that were joined to other dwellings (e.g. units and apartments) made up 24% of all occupied private dwellings - almost the same percentage as in 2006 (24%).

Figure 6.1: Mix of current stock of housing across Auckland, 2013 (%)

AC	Stand-alone	Units	Apartments	Total
Sector 1 - Auckland Central	1	2	3	5
Sector 2 - Auckland Isthmus	22	9	1	31
Sector 3 - North Shore Coastal	8	2	0	10
Sector 4 - North Shore Harbour	8	2	0	10
Sector 5 - West Auckland Harbour	3	0	0	3
Sector 6 - West Auckland	10	2	0	12
Sector 7 - East Auckland	9	2	0	11
Sector 8 - South Auckland	15	3	0	18
Total	76	20	4	100

Source: Statistics New Zealand 2013 Census of Population and Dwellings, Occupied Dwelling Type data.

Notes: 'Stand-alone' is a count of dwelling types coded as 1111, 1112 and 1113. 'Units' are those dwelling types coded as 1212 and 1213. Apartments are those dwelling types coded as 1214. Totals may not add due to rounding.

Auckland's dwelling typology is even more homogenous at smaller spatial areas within Auckland. For example, 60% of dwellings within Sector 1 (Auckland Central) were apartments, while the dwellings in most other sectors were mainly stand-alone housing (refer to Figure 6.2).

Figure 6.2: Mix of current stock of housing within each sector, 2013 (%)

	Stand-alone	Units	Apartments	Total
Sector 1 - Auckland Central	12	29	60	100
Sector 2 - Auckland Isthmus	70	28	2	100
Sector 3 - North Shore Coastal	78	20	2	100
Sector 4 - North Shore Harbour	84	16	0	100
Sector 5 - West Auckland Harbour	93	7	0	100
Sector 6 - West Auckland	85	13	1	100
Sector 7 - East Auckland	85	15	0	100
Sector 8 - South Auckland	84	15	0	100
Total	76	20	4	100

Source: Statistics New Zealand 2013 Census of Population and Dwellings, Occupied Dwelling Type data.

Notes: 'Stand-alone' is a count of dwelling types coded as 1111, 1112 and 1113. 'Units' are those dwelling types coded as 1212 and 1213. Apartments are those dwelling types coded as 1214. Totals may not add due to rounding.

6.2.2 New stock

The recent residential building consent data from Statistics New Zealand shows that the market is producing more 'higher density' dwelling types than currently exist in Auckland. Between 2013 and 2015, 11,785 consents were granted for new dwellings in the eight sectors. Figure 6.3 shows the distribution of consents across the eight sectors, and show that the highest proportions were in Sector 2 (Auckland Isthmus) and Sector 8 (South Auckland). Just over half (57%) of the residential consents during this time were for stand-alone dwellings, a quarter (25%) were for units and 18% were for apartments.

Consents for the construction of stand-alone dwellings were concentrated in Sector 2 (Auckland Isthmus) (14% of total consents) and Sector 8 (South Auckland) (also 14%).

Construction of new apartments is concentrated in Sector 1 (Auckland Central) (8% of total consents), and Sector 2 (Auckland Isthmus) (5%).

Figure 6.3: Mix of building consents issued, by type, 2013 to 2015 (%)

	Stand-alone	Units	Apartments	Total
Sector 1 - Auckland Central	0	0	8	9
Sector 2 - Auckland Isthmus	14	7	5	26
Sector 3 - North Shore Coastal	6	2	1	10
Sector 4 - North Shore Harbour	4	5	1	10
Sector 5 - West Auckland Harbour	3	2	1	6
Sector 6 - West Auckland	7	2	1	10
Sector 7 - East Auckland	8	4	0	12
Sector 8 - South Auckland	14	3	2	19
Total	57	25	18	100

Source: Statistics New Zealand Consent data supplied by Auckland Council and Market Economics. Units include retirement units.

6.3 The housing people would choose

As outlined earlier, when faced with financial constraints, a little under half of the respondents (48%) told us they would choose something other than detached housing (refer to Figure 4.6).

This result becomes more interesting when choice by housing type across the eight sectors is explored. As Figure 6.4 (below) shows, a small but noteworthy proportion (16%) of respondents selected apartment typologies in areas outside Sectors 1 and 2. A similar proportion (18%) would prefer units in these areas. Demand for apartments in the Auckland central area was fairly low at just over 1%.

Figure 6.4: Final choices from discrete choice experiment (%)

	Stand-alone	Units	Apartments #	Total
Sector 1 - Auckland Central	0	1	1	2
Sector 2 - Auckland Isthmus	11	6	5	22
Sector 3 - North Shore Coastal	10	7	3	20
Sector 4 - North Shore Harbour	4	1	3	8
Sector 5 - West Auckland Harbour	5	1	2	8
Sector 6 - West Auckland	6	2	2	10
Sector 7 - East Auckland	7	3	3	13
Sector 8 - South Auckland	9	4	3	16
Total	52	25	23	100

Note: # For the purpose of comparisons with census data, the count of apartments shown here is an aggregate of apartments in a building up to 4 storeys and apartments in a building 5 storeys or more.

6.4 Matching of current stock to the housing people would choose

Comparing Figures 6.2, 6.3 and 6.4, it can be seen that there is a mismatch between the current supply of dwelling typologies and the housing that was chosen by the respondents in the survey.

The table below (Figure 6.5) shows the difference between the chosen mix and the current mix, with positive figures showing over-supply and negative (-) showing under-supply or latent demand. This figure provides an insight as to how the urban form could change if new housing matched the choices made by the respondents.

It tells us that there is a market for a broader range of housing types than is currently available.

Specifically, the findings suggest that there is an existing mismatch in areas outside of Sector 1 (Auckland Central) in terms of apartments (-20%) and attached dwellings (-6%). It appears that the supply of apartments in Sector 1 exceeds current demand, and that there is an over-supply of detached housing in Sectors 2, 4, 6, 7 and 8. It could also be read that there is an under-supply of units and apartments in almost all of the eight sectors.

Figure 6.5: Match between current stock of housing and what people chose (%)

Housing mismatch – current stock (2013)	Stand-alone	Units	Apartments	Total
Sector 1 - Auckland Central	0	1	2	3
Sector 2 - Auckland Isthmus	11	3	-5	9
Sector 3 - North Shore Coastal	-2	-5	-2	-10
Sector 4 - North Shore Harbour	4	-0	-3	1
Sector 5 - West Auckland Harbour	-2	-1	-2	-5
Sector 6 - West Auckland	4	0	-2	2
Sector 7 - East Auckland	2	-1	-3	-2
Sector 8 - South Auckland	6	-1	-3	1
Total	23	-5	-18	0

However, it is unrealistic to expect that the existing stock of houses would match current choices, as much of this stock was built over the last 175 years and reflects the needs of previous communities.

It is perhaps more instructive to understand how the housing coming on-line (e.g. recently consented) compares to the housing people said they would choose (see Figure 6.6). For the most part, it appears that the types of housing that have been consented since 2013, and the locations they are being built, are generally more similar to the housing that people indicated they would choose than existing stock. This is not a surprising result, as developers undertake significant research into the needs and wants of prospective purchasers before engaging in development.

A key difference is that the number of consents for apartments in the Auckland central area is much higher than chosen by respondents (this suggests an over-supply of 7%). The under-supply of apartments in areas outside of the Auckland isthmus is around 11%. In terms of attached dwellings, the number of consents broadly matches the choices made by respondents, with only Sector 3 (North Shore Coastal) showing a substantial under-supply of all housing types (-7% in total).

The comparison also indicates that there is an over-supply of stand-alone dwellings in the eight sectors, relative to respondents' choices in this study (13% in total). The majority of the mismatch is located in Sector 8 (South Auckland) - 16% of all new consents granted between 2103 and 2015 were for stand-alone dwellings in this area, while only 9% of respondents chose stand-alone dwellings (a 6% mismatch) in our research.

Figure 6.6: Match between consented housing and what people chose (%)

Recent consents (2013 to 2015)	Stand-alone	Units	Apartments	Total
Sector 1 - Auckland Central	0	-1	7	6
Sector 2 - Auckland Isthmus	3	1	0	4
Sector 3 - North Shore Coastal	-4	-5	-2	-11
Sector 4 - North Shore Harbour	0	3	-3	1
Sector 5 - West Auckland Harbour	-2	1	-1	-1
Sector 6 - West Auckland	1	0	-1	0
Sector 7 - East Auckland	1	1	-3	-1
Sector 8 - South Auckland	4	-1	-2	2
Total	4	0	-4	0

We can also estimate the total scale of any mismatch between choice and new supply using recent dwelling consent figures. On average, over the last three years, there was a latent demand (unmet) for apartments (240) and units (20). However, the citywide averages disguise stronger locational mismatches. By location,

- Auckland Central: has an over-supply of 400 apartments
- Other suburbs: an under-supply of 640 apartments.

Over this period there was an over-supply of stand-alone dwellings (260 per annum)

- Auckland isthmus: of 190 stand-alone dwellings per annum.
- Other suburbs: of 70 stand-alone dwellings per annum.

6.5 Discussion

In summary, we find that there is a divergence between the stated preferences as recorded in the choice experiment from this study and the revealed preferences as shown by the existing housing stock in Auckland. However, there is a smaller difference between the recently consented dwellings and the stated preferences recorded in the choice experiment.

This difference could be caused by many forces, which are not investigated in this study. However, it is worth noting that much of the housing stock in Auckland was built many decades ago and as such reflects the preferences and requirements of those times. This stock is a legacy of the past and it is not surprising that it does not match the preferences of the existing community. A danger arises when new stock is built to match the old stock as that is “what sells” without thinking clearly about what households prefer.

It is a key finding of this research that while the majority of households will still demand stand-alone detached housing, this demand is more than satisfied by the existing stock of housing. The real gap in the market is higher density attached dwellings and apartments within the high amenity established suburbs.

It is important to note that following the initial public consultation on the Unitary Plan, it was identified that there was strong support for the overall approach of a centre hierarchy defining Auckland’s built form. As part of this, high rise developments (nine storeys or more) are permitted across the major centres.

It has been recognised that the old paradigm of maintaining homogenous housing typologies within certain areas (i.e. high density in the city centre and low density elsewhere) does not match household preferences – and this is reinforced by the findings of this study. The survey results show that there is a greater demand for a more mixed approach, which would allow different typologies to be developed across the Auckland landscape. Recent developments, along with the Unitary Plan approach, provide an indication that the market may be shifting towards these preferences.³³

This study does not attempt to assess in detail the causes of this (potential) market failure. However, factors may include: changes in housing preferences over time, planning rules discouraging development in established areas, financing rules and availability that favour detached developments, a lack of evidence that households demand these more intensive types of dwelling, local opposition to intensification, fragmented property ownership, building compliance rules and/or the leaky building ‘chilling’ effect.

A separate study of developers could reveal important information about the conditions that might be causing them to favour certain types of development.

³³ For example, see Albany Rose Garden 500+ apartments, Lynn Mall Merchant Quarter 120 apartments, M-Central 114 apartments in Manukau

7 Discussion and Conclusion

Overview

This research has gathered a wealth of information about what matters to Aucklanders when choosing a place to live, and provides an insight into the housing choices that people would make, if a wider range of housing options was available. Further to this, it has explored the trade-offs between location, size and housing type that people are prepared to make when choosing a place to live. This study adds a unique perspective to the existing body of housing research through the inclusion of realistic constraints to people's choices, in terms of price and income.

Perceptions of safety are vital

The findings provide current insight into the range of location and property attributes that are important to households when selecting a place to live. Overall, features concerned with the local environment emerged as the most important factors driving housing choices. This related particularly to issues such as living in a safe neighbourhood, living in an unpolluted area and being away from industrial areas.

Perceptions of safety appear to drive a lot of decisions around housing, especially where to live. A safe neighbourhood was the highest rated single item across all of the features presented to survey respondents. This was reflected in the focus group discussions too – apart from considerations of ability to pay, perceptions of safety emerged as a top-of-mind concern when thinking about housing, particularly among those with children. A feeling of safety was often equated with fenced properties and an ability to see their children at all times. It is clear that an ongoing challenge in the future provision of housing in Auckland will be to deliver efficient design solutions that provide a mix of housing types and encourage a sense of safety and community.

There is latent demand for a range of housing types

A key finding from this research is that Aucklanders desire a greater volume and choice of accommodation options. A significant proportion of respondents chose more intensive forms of housing, and they were prepared to trade-off location and dwelling type ahead of dwelling size, as the price increased.

This is manifest as a greater appetite for walk-up apartments than high-rise apartments – especially in non-traditional apartment locations (i.e. across the city rather than in the central areas). However, there was a gap for some respondents between the final outcomes of the constrained choice experiment and their real decision (if they had to make it, now), with a number stating in their open-ended comments that they were not likely to select apartments as an option, for a variety of reasons. For many, this was related to the desire to live in a place with more bedrooms, and some specifically mentioned that they would have preferred a stand-alone house.

Much of Auckland's future housing stock already exists

Housing lasts a long time and much of Auckland's future housing stock has already been built. There are a range of reasons why the existing stock of housing in Auckland does not meet current housing preferences, but the key issue is whether the housing stock coming on line now will improve the match between demand and supply. This research has found a closer alignment between the types of housing that have been recently consented and current housing preferences. While the match is not exact, the situation appears to be improving.

Next steps

The information provided in this study will contribute to shifting the housing discussion beyond the current tendency to measure market demand by the current circulation of stock. Respondents have indicated that they would choose range of dwellings in parts of Auckland, and that they would trade-off housing types and sizes to stay in their desired location. Comments made, however, indicate that there is still a lot of work to do to supply quality and enticing housing. Compared to the cities under investigation in Australian studies, Auckland's history is predominantly one of developing stand-alone dwellings. We have a way to go to provide a range of accommodation options for households that match current and likely-to-change future requirements.

The next logical step in this study, therefore, is to outline barriers and constraints to the provision of a range of housing types across Auckland. This will provide insight into the housing development process as it plays out across Auckland, the role of legislation, housing cycles, investment and people flows and the manner in which they currently interact to deliver housing to Aucklanders, old and new.

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APPENDICES

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Appendix A – Survey sample

The survey sample was derived from Research First’s database of land line and mobile phone numbers.

Distribution of the final survey sample by household type, household income, respondent age and ethnicity are discussed below. The characteristics of the final survey sample are compared to the results from the 2013 Census, for Auckland households and individuals living in the eight sectors. All results were weighted to correct for under- or over-representation.

Household type

Efforts were made during recruitment and sampling to ensure that the final sample represented a variety of household types across Auckland, as it was considered by the research team that household composition plays a key role in driving housing needs and requirements.

Market Economics used 2013 Census data to design a representative sample of household types within each sector (Figure A.1), and Research First applied all efforts to ensure that the final sample reflected this spread (see Figure A.2 for final sample). This was achieved by the inclusion of questions in the initial telephone contact to ascertain the individual’s household composition and the part of Auckland they lived in.

Figure A.1: Distribution of household type by sector, 2013 Census (%)

	One-person hhold	Couple without children	Couple with children (1 or 2 children)	Couple with 3 or more children	One parent with children	Multi-family household	Other multi-person household	Total
Sector 1 -Auckland Central	2	2	1	0	0	0	1	5
Sector 2 -Auckland Isthmus	7	7	8	2	3	2	2	31
Sector 3 - North Shore Coastal	2	3	3	1	1	0	0	10
Sector 7 - East Auckland	2	2	3	1	1	0	1	10
Sector 4 - North Shore Harbour	0	1	1	0	0	0	0	3
Sector 5 - West Auckland Harbour	2	3	3	1	2	1	1	12
Sector 6 - West Auckland	1	3	4	1	1	1	0	11
Sector 8 - South Auckland	3	3	4	2	3	2	1	18
Total	19	23	27	7	12	6	6	100

Note: The figures in the table are rounded values to the nearest whole number.

The final sample is broadly representative, however, there were several differences:

- Slight under-representation of households in Sector 1 (5% in the population and 2% in the survey sample).
- Under-representation of smaller households, with 13% of households in the sample being one-person and 6% one-parent with children (compared with 19% and 12% respectively at the census).

Figure A.2: Distribution of household type by sector, survey sample (un-weighted) (%)

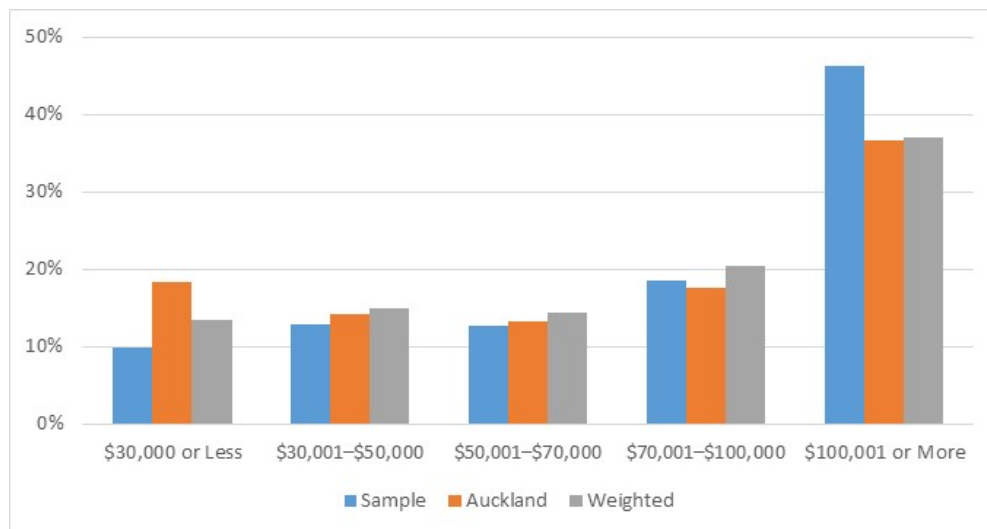
	One-person hhold	Couple without children	Couple with children (1 or 2 child/re n)	Couple with 3 or more children	One parent with child/re n	Multi-family househ old	Other multi-person househ old	Total
Sector 1 -Auckland Central	0	1	0	0	0	0	0	2
Sector 2 -Auckland Isthmus	5	8	8	3	2	3	1	29
Sector 3 - North Shore Coastal	1	3	2	1	0	1	0	8
Sector 7 - East Auckland	1	3	3	1	0	1	0	8
Sector 4 - North Shore Harbour	1	2	3	1	1	1	0	8
Sector 5 - West Auckland Harbour	1	2	2	1	1	2	0	9
Sector 6 - West Auckland	2	5	7	2	1	1	0	19
Sector 8 - South Auckland	2	4	4	2	1	2	1	17
Total	13	28	29	10	6	10	4	100

Note: The figures in the table are rounded values to the nearest whole number.

Household income

Respondents in the final survey sample have a similar distribution of household income to the overall population (see Figure A.3). Broadly, the distribution in the sample (blue bar) for the middle income groups is similar to the population (orange bar). There is a slight under-representation in the lower income groups, however. The weighting that is applied in this study corrects some of this issue and is represented in the diagram below as the grey bar.

Figure A.3: Household income distribution, survey sample vs population

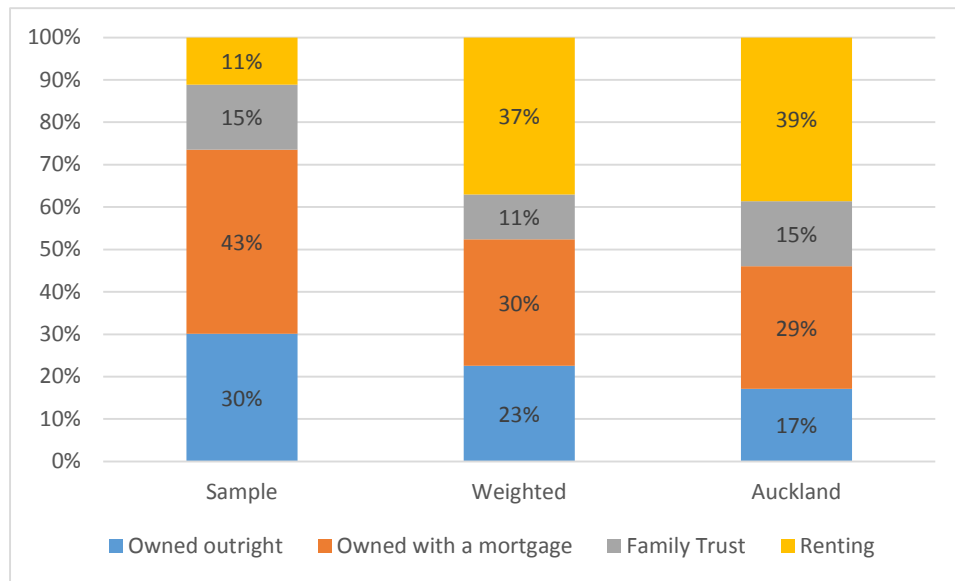


Tenure

The survey sample also included a larger proportion of respondents who own the dwelling they lived in either outright (30%) or with a mortgage (43%) than in the general population. This means that the sample has captured fewer households in rental properties than exists in

the rest of the population (see Auckland column). The weighting corrects for most of this issue (see weighted bar).

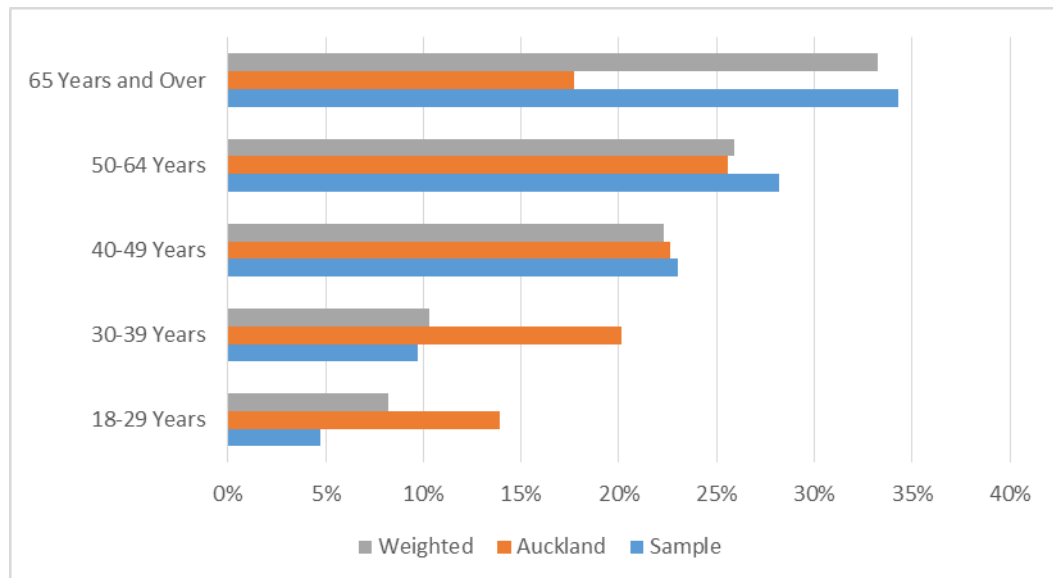
Figure A.4: Dwelling tenure, survey sample compared to population



Age

There was an over-representation of people in older age groups in the final survey sample compared to the general population, and a corresponding under-representation of people in younger age groups. See Figure A.5.

Figure A.5: Age distribution, survey sample compared with population



Ethnicity

There was an over-representation of European respondents in the final survey sample, compared to the overall population. This has meant that the survey sample includes smaller proportions of Māori, Pacific Peoples and Asian than is present in the wider Auckland population.

The weighting that is applied in this study corrects some of this issue and is represented in the diagram as the grey line.

Figure A.6: Ethnic distribution, survey sample compared with population



Weighting method

In this study we have used standard population weights, based on the number of households within each sector that are of the seven different household types (see Figure A.1) and two household tenure types, renting and owning.

Generally, in sample surveys observations are selected through a random process, but different observations may have different probabilities of selection. In this study, the weights are equal to the inverse of the probability of being sampled. A weight of W_i for the i th observation means that the i th observation represents W_i elements in the population from which the sample was drawn. It should be stressed that weighting adjustment is only effective if the auxiliary variables used are correlated with important survey variables and/or with response behaviour.

It is considered that a respondent's decision about dwelling choices is correlated to their current household type, tenure and location. While income is an important issue, it has been excluded because of the relatively close fit of the sample to the population. It is also considered that given the size of the sample, it would not be prudent to add a further dimension to the weighting.

Finally, ethnicity of the respondent has been excluded as it is very difficult to accurately associate the respondent's demographics to a household. These characteristics can change within a household according to the individual surveyed. For example, the respondent may be of one ethnicity (i.e. European) while others in the household may be of another ethnicity (i.e. Chinese). In terms of ethnicity of the population, there is no sensible method for calculating weights for households.

This issue also applies to age distribution. However, the census does collect information about the reference person. The reference person is the individual who completed the dwelling form on census night. Any relationship(s) information collected on the census dwelling form refers to the relationship an individual has to the reference person. We consider that it is not possible to directly ascertain how the sample respondents compare to the reference person from the households in the general population. For this reason a weighting based on the age structure of the reference person may be spurious.

Appendix B - First survey questionnaire

‘The Housing We’d Choose’ Survey 2014

First Online Survey

Introduction page

Thanks for taking the time to complete this survey. As our interviewer explained on the phone, we are really interested in the types of choices that Aucklanders make and the preferences they have when choosing a home. In this survey we are going to ask you about your current situation and the things that are important to you when choosing a home.

SECTION 1: About your Current Situation

The first part of the questionnaire asks about your current housing situation, such as the type of dwelling you live in, how long you have lived there, and your future housing requirements.

1. What type of dwelling do you currently live in?

- A stand-alone dwelling
- A unit or attached dwelling (e.g. duplexes, townhouses or terraced housing)
- An apartment or unit in a building up to 4 storeys
- An apartment or unit in a building 5 storeys or more
- Other dwelling (e.g. caravan, cabin, houseboat) (Open ended)

2. Who owns the dwelling that you currently live in?

- I own this dwelling with a mortgage
- I own this dwelling without a mortgage
- I jointly own this dwelling with other people with a mortgage
- I jointly own this dwelling with other people without a mortgage
- A family trust owns this dwelling
- Parents / other family members or a partner owns this dwelling
- A private landlord who is not related to me owns this dwelling
- A local authority or council owns this dwelling
- Housing New Zealand owns this dwelling
- Other state landlord (such as DoC, Ministry of Education) (Open ended)
- Don't know

3. How long have you lived in your current dwelling?

- Less than one year
- 1 year to just under 2 years
- 2 years to just under 5 years
- 5 years to just under 10 years
- 10 years or more

4. Do you plan on moving in the next two years?

- Yes
- No
- Unsure

5(a). Where are you thinking of moving to?

- Within Auckland
- Outside of Auckland
- Unsure

5(b). What part of Auckland are you considering moving to?

Please type the first 3 letters of the suburb and select "show list". From the list you can select the suburb. If your chosen suburb does not appear, please type it in the space provided at 'Other'

Search text

Submit

Other

Don't know

6. What would be the main factor that would motivate you to move?

- To change to a better location, (e.g. closer to work or study, family or amenities)
- To get into a particular school zone or catchment
- To have a bigger home
- To have a smaller home
- To move from renting to buying a home
- To live in a more affordable home
- If there was a change in my personal circumstances (e.g. who I would live with)
- Other (please specify)

SECTION 2: About your Preferred Housing Features

The next part of the survey examines how important various features are to you when you think about choosing a place to live. This includes features related to general location, proximity to local facilities, the local environment, the property and the dwelling itself.

Please provide an answer for each individual item and be as honest as you can in your responses.

Even if you are not intending to move in the near future, you can still complete this section. Please consider how important each of them would be to you, in your current circumstance, if you were to think about choosing a place to live.

If any of the features are not applicable to your current situation, please select "Not important".

9. Please rate the importance of the following general location features. Please provide an answer for each individual item below.

	Not important	Of some importance	Very important
Easy access to bars / pubs / nightlife	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Easy access to the main income earner's place of work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Easy access to restaurants and cafes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Easy access to shops	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Near family and friends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Easy access to a motorway	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Easy access to Auckland City centre	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In a preferred school zone	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Easy access to university or place of study	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Easy access to public transport	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Easy access to the secondary income earner's work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to cycle to work or study	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In an ultrafast broadband zone	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Easy access to the airport	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10. Please rate the importance of the proximity to the following facilities. Please provide an answer for each individual item below.

	Not important	Of some importance	Very important
Near a park or reserve	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Near the coast or beach	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Near a public sports field	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Near a golf course	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Near to sports clubs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Near a community centre	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Near to a place of worship	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Near a library	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Near a gym	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. Please rate the importance of the following aspects of the local environment. Please provide an answer for each individual item below.

	Not important	Of some importance	Very important
City view	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A safe neighbourhood	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In an unpolluted area	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Park view	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sea view	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A physically attractive neighbourhood	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Away from busy roads	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Presence of trees	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Away from industrial areas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12. Please rate the importance of the following property features. Please provide an answer for each individual item below.

	Not important	Of some importance	Very important
Is on a flat section	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Balcony / courtyard / outdoor dining space	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Attached dwelling (e.g. duplexes, townhouses or terraced housing)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fully fenced	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has a lawn	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Room for boat / caravan / trailer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Swimming pool	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Freehold title	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Has large garden or yard	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
No stairs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stand-alone dwelling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
North facing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Section easy to maintain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13. Please rate the importance of the following dwelling features. Please provide an answer for each individual item below.

	Not important	Of some importance	Very important
Ceiling height	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Easy to heat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Security	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Designed to meet special physical needs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Number of bathrooms / ensuites	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Carpeted	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Energy efficient	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Storage space / wardrobes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Number of bedrooms	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Natural light	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Aged person friendly design	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Number of living areas / spaces	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brand new home	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. The table below includes all the items you have rated as being very important. Can you now please rank your top 5 preferences, in order of importance? Give your most important preference a 1, the next most important a 2, through to your fifth most important preference a 5. Please drag your preferences into the Top 5 ranking box. You can reposition these within the ranking box.

Once you have made your selection order, please scroll down to the 'next' button.

Section 3: About you

Lastly a few questions about you. This is so we can compare the results for different groups of people who live in Auckland.

15. Which gender do you identify with?

- Male
- Female
- Other (please specify)

16. In which of the following age group do you belong?

- 18 - 24
- 25 - 29
- 30 - 34
- 35 - 39
- 40 - 44
- 45 - 49

- 50 - 54
- 55 - 59
- 60 - 64
- 65 - 69
- 70 - 74
- 75+

17. Were you born in New Zealand?

- Yes
- No

18. How many years in total have you lived in Auckland?

- Less than one year
- 1 year to just under 2 years
- 2 years to just under 5 years
- 5 years to just under 10 years
- 10 years or more

19. Which ethnic group or groups do you identify with? You may choose more than one.

- NZ European/ Pakeha
- Maori
- Pacific Islander
- Asian
- Middle Eastern/ Latin American/ African
- Other (please specify)
- Prefer not to say

20. Do you have any final comments about anything in this survey? (*Open ended*)

Final Screen

Many thanks for taking the time to participate in this important piece of research. Within the next week or two we will be back in touch with another email link to the second part of the survey, which asks you to provide feedback on a range of housing options and designs. We would really value your feedback on these options so please keep checking your email inbox. In the meantime if you would like to discuss any aspects of this research, you can contact the Research First Director Simon Worthington on freephone (0508) 473 732.

Appendix C - Second survey questionnaire

'The Housing We'd Choose' Survey 2014

Second Online Survey

Introduction page

Thank you for coming back to answer the second part of "The Housing We'd Choose" survey. Last time we looked at your household makeup and housing preferences. This time we are going to ask you questions about the types of housing you would choose to live in. Please remember that the answers you provide will remain confidential. The data will not be shared outside of the project team.

SECTION 1: About your Current Situation

Firstly, we need to know which suburbs you live and work in.

Please select from the drop down list below. If the part of Auckland in which you currently live/work is not listed, choose 'other' and type it in.

If you are not currently employed or you work in more than one part of Auckland, please choose the relevant option at the top of the list.

1. Which suburb are you currently living in?

2. And which suburb are you currently working in?

Other options provided:

- I don't work in one area
- I work outside of Auckland
- I don't work

3a. In the map below, urban Auckland has been divided into eight areas, and is surrounded by a general 'rural' area. Please look at this map carefully and indicate whether you would consider living in at least one of the eight areas.



- Yes
- No #
- Maybe

If answered no, thanked and exited from the survey.

3b. Please look at the map below. Given your financial situation and your knowledge of house prices and rents in Auckland, please select the two areas where you would most like to live. Please use the grid below the map to indicate your first and second choices.



	Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Sector 7	Sector 8
First choice:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Second choice:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The rest of the survey focuses on the housing you would choose to buy, or to rent, within Auckland. In order to do this, we need to first ask some questions relating to your current financial situation. The following questions are designed to calculate a maximum amount for your household to buy, or to rent, within your preferred parts of Auckland.

Please answer the questions as honestly and accurately as you can. The information you provide will remain confidential and will only be used for the purposes of this survey.

Household Composition

4. To factor in the typical living costs (e.g. food, utilities, rates, insurance etc.) of running a household of your size, please indicate the number of dependents that would be living with you.

To start with, please can you tell us how many adults are currently living in your household, including yourself? By adults we mean people aged 18 years and over.

And how many children aged up to 18 are living with you? By that we mean on a full time basis (more than five days a week) Please enter '0' if children do not reside with you

5. Please select your annual household income range (before tax) from the drop down box below:

If you don't know, please give your best estimate.

6. What are your credit limits on the following?

Please type the amount in the appropriate boxes below .

Please enter '0' if an item doesn't apply.

Please do not include commas or decimal points.

Credit card/s:

Overdraft:

7. These are fixed expenses that you are committed to regularly paying (such as hire purchase payments, child support, personal loans or student loans). This does not include typical household living costs such as groceries, power, rent and mortgage.

Please calculate a combined amount for your household and type it in the box below:

Please enter '0' if an item doesn't apply.

Please do not include commas or decimal points.

Total expenses or outgoings:

Please also indicate whether this combined amount is on a weekly, fortnightly, monthly or annual basis:

Frequency of payment

No expenses

Weekly

Fortnightly

Monthly

Yearly

8. This is the amount of money you could realistically raise for a deposit on a home. It could include equity on an existing property, savings, help from family or other assets/ investments you may choose to sell.

Please remember to include any grants you may be entitled to such as FirstHome or money from your KiwiSaver Investments.

Given the details you provided previously, our calculator suggests that you could potentially afford to buy a house worth: \$xxxx.

Or you could potentially afford a rental of: \$xxxx per week.

(You might want to note how much you can afford.)

If they cannot afford to buy any options in any of the eight sectors they are automatically diverted to rent options and are not offered Question 9 below .

9. Would you prefer to buy or rent?

- Buy
- Rent

Options

In this part of the survey you will be presented with various housing options and floor plans that would potentially be available to you.

Please consider the options in each set carefully before moving forward to the next set.

There will be a maximum of four sets and a final decision set.

Please assume that all the housing options presented are new and of medium standard quality.

***Please note that the same house floor plans may be presented several times, in different regions (sectors). Your preferred sectors have been considered, but some options may be excluded due to affordability. Also it may be possible that you are shown housing that you feel is impractical for your household or family type. Please make a selection based on the most attractive and best fit in other respects as you will be given the opportunity to explain this after your final selection.**

Set 1 to Set 4 shown– *see example set on next page. Each screen says at the top:*

Please select your preferred housing option from the following options (Set x).

To make your choice, click on the small circle to the centre left of your preferred option, then click 'Next' at the bottom of the page to advance to the next set.

Please choose carefully as you will not be able to alter your selection by going back.

You can click on the floor plan, map, and picture to see a larger version of each.

To close the enlarged images, click the 'X' at the bottom right corner of the image.

Please assume that all the housing options presented are new and of medium standard quality.

Example of set

Option 1	Option 2	Option 3	Option 4
1 BEDROOM SINGLE FLOOR APARTMENT (WALKUP)	5 BEDROOM TWO-STORY DETACHED	2 BEDROOM TWO STOREY TOWNHOUSE	3 BEDROOM SINGLE-STORY DETACHED
<p>General Description</p> <p>Floor Area: 60m² Deck Area: 20m² 1 x Bedroom 1 x Bathroom 1 x Car Spaces</p>	<p>General Description</p> <p>Floor Area: 200m² 5 x Bedroom 2.5 x Bathroom 2 x Car Spaces</p> <p>Land Area: 450m² Frontage: 14m Depth: 32m Specifics: Yard setback all sides</p>	<p>General Description</p> <p>Floor Area: 140m² 2 x Bedroom 1 x Bathroom 2 x Car Spaces</p> <p>Land Area: 150m² Frontage: 6m Depth: 25.5m Specifics: Zero setback both sides</p>	<p>General Description</p> <p>Floor Area: 130m² 3 x Bedroom 1 x Bathroom 2 x Car Spaces</p> <p>Land Area: 400m² Frontage: 16m Depth: 25m Specifics: Yard setback all sides</p>
Price: \$337,600	Price: \$855,600	Price: \$500,300	Price: \$564,400

Final Set

Below are your chosen options from the preceding questions. Please select your most preferred housing option overall.

Respondents are shown a final set of four.

Decision Making Factors

13. If you planned to move tomorrow, does the housing option you ranked as your final choice reflect the housing you would choose given your current financial situation?

- Yes
- No
- Don't know

13b. What would you have preferred and why? *(open ended)*

14. In order to understand how you chose your preferred housing option please rank the following factors in order of importance where 1 is most important and 4 is least important.

Please record your preferred order by typing 1, 2, 3 or 4 in the boxes below. You may only enter one of each ranking.

Dwelling value (perceived value for money of the housing option)

Location (the area you chose)

House type (If the house is a specific type e.g. detached, semi-detached or an apartment)

Dwelling features (size of lot, number of parking spaces, presence of garden, number of bedrooms and living areas)

15. Now that you have looked at the purchase options, would you be interested in seeing what would be available as a rental?

- Yes
- No
- Don't know

16. Are there any additional comments you would like to make in respect of this survey?
(Open ended)

Final Screen

Thank you for completing the survey, your efforts are greatly appreciated.

Your name will be entered into the prize draw for a chance to win one of three prizes. If your name is pulled out of the draw you will have the choice of:

- o A 16gb wifi Apple iPad Mini; or
- o a \$500 donation to a charity of your choice; or
- o a \$500 supermarket voucher.

Please remember that the answers you provide will remain confidential.

If you have any questions about the research please contact Simon Worthington on (0508) 473 732.

Good luck with the prize draw.

You may close your browser window now, or this page will direct to the Research First website shortly.

END OF SURVEY -

Appendix D - Choice modelling

The choice experiment data was used to establish a conditional logit regression model for buyers³⁴. This statistical model tells us about the influence of location, size (using number of bedrooms as a proxy for size) and housing type on the probability that respondents would select any particular option.

For example, the model provides an understanding of how the location of a dwelling changes the probability of the dwelling being picked by respondents. The model reveals the probability of a dwelling in a not preferred location, being picked holding all other aspects of the house constant. This is useful as these models can be used to either predict the probability of a household picking an option or location, or they can be used to understand the relative importance of each aspect of housing.

The conditional logit statistical technique included both primary effects and interaction effects,

- **Primary effects:** these are the individual effects of key characteristics of the housing options. The primary effects show the relative importance of individual aspects of house options, assuming that other aspects remain constant. For example the models provide estimates of the relationship between bedroom numbers and the probability of housing options being selected by respondents. This allows us to understand how the size of a house effects household's purchase decisions.
- **Interaction effects:** show the combined impact of multiple aspects being present within an individual housing choice, for example numbers of bedrooms in an attached house (typology). In this example the model provides an estimate of the likelihood that an attached house will be chosen as the numbers of bedrooms increases, However, note that in a model that includes interaction effects it is not possible to talk about the primary effects as the impact of holding all other variables constant, as the inclusion of interaction effects alters the stand-alone primary effects.

The table below (Figure D.1) shows the relationships that have been revealed by the statistical modelling. In summary, the influence of each variable is represented by the associated (coefficient) number in the second column of the table. The 'stars' beside each coefficient indicate whether the relationship is statistically significant. The greater the number of stars the more likely that the predicted relationship is statistically significant. In the case where there are no stars beside a coefficient, the relationship cannot be accepted as significant. Finally, the coefficients in this table are represented in odds ratio form, this provides an easier interpretation of the relationships.

³⁴ Technical details on the nature of choice models, their background and structure, as well as the data used and tests for correlation are contained in the Technical Document, Choice Modelling, (March 2015) prepared for Auckland Council by Market Economics.

Figure D.7: Choice model output – buyers

	Odds ratio
Primary Effects	
Bedroom	0.897
Attached	0.033***
Apartment	0.003***
Sector Other	0.274***
Price	1.413***
Interaction Effects	
Bedroom*Attached	2.078***
Bedroom*Apartment	4.358***
Bedroom*Sector Other	1.195**
Bedroom*Price	0.913***
Sector Other*Attached	1.093
Sector Other*Apartment	1.231
Attached*Price	0.895*
Apartment*Price	0.955
Sector Other*Price	1.037
Model Information	
Pseudo R2	0.28
Choice Observations	8,639
N	2,169

Note: *** 5% significance level, **10% significance level, *15% significance level

Broadly, the performance tests undertaken indicate that the model performs relatively well, in spite of a low R-square value (note that most models of this nature produce low R-square). For example, values of 0.2 to 0.4 for R-squared in this model represent “EXCELLENT” fit. This model has an R-squared of 0.28 and in terms of prediction, the buy model predicts the correct outcome for 57% of the choice experiments.

Appendix E - Background to the choice experiment method

In order to explore the trade-offs and choices that households make between size, location and housing type, within a budget constraint, we utilised a **discrete choice experiment**. Further details on how this experiment was constructed are provided here.

1 Choosing locational preferences

In order to be able to present respondents with housing options to choose from, it was important to first establish which parts of Auckland they would prefer to live in. There were two stages to establishing this.

Initial screening: All respondents were shown the map of the eight sectors (refer to map in Figure 2.3) and were asked whether they would consider living in ‘at least one of the eight areas’. Of the 1,096 respondents who started this second survey, 10% indicated they would not consider living anywhere within the urban area. These respondents were thanked and exited from the survey via the survey completion screen.

The primary reason for excluding them was because the focus was on housing choices and trade-offs within the eight sectors, and we could not provide any housing choices outside of those area.

Choosing preferred locations: The next step was to ask the remaining 983 respondents to view the map again, and to indicate two sectors they would ‘most like to live’. Respondents were required to indicate a first choice and a different second choice.

2 Establishing financial constraints

Once respondents had indicated their preferred location in Auckland, respondents were asked a range of questions about their current financial and living situation. This self-reported financial data was used to define their budget constraint, using an ASB bank online mortgage tool. (For details on the online mortgage tool refer to Appendix B).

The questions identified features related to their household composition, household income, credit limits, hire purchase commitments, child support commitments, personal loans and levels of equity/deposit that the household could raise, with a view to establishing household’s outgoings and therefore ability to sustain a mortgage or rent of a certain value.

Following this part of the exercise, a total of 223 of the 983 respondents (23%) could not afford any of the options to buy or rent, given the financial information that they provided.³⁵ These respondents were thanked and exited from the survey via the survey completion

³⁵ See Chapter 4 for a discussion on the costs to buy and rent used in this study. Also see Appendix F for detailed dwelling cost data. The lowest priced dwelling was \$287,000 and lowest rent was \$277 per week.

screen. This study has not attempted to investigate the preferences of households that require non-market³⁶ or social³⁷ housing.

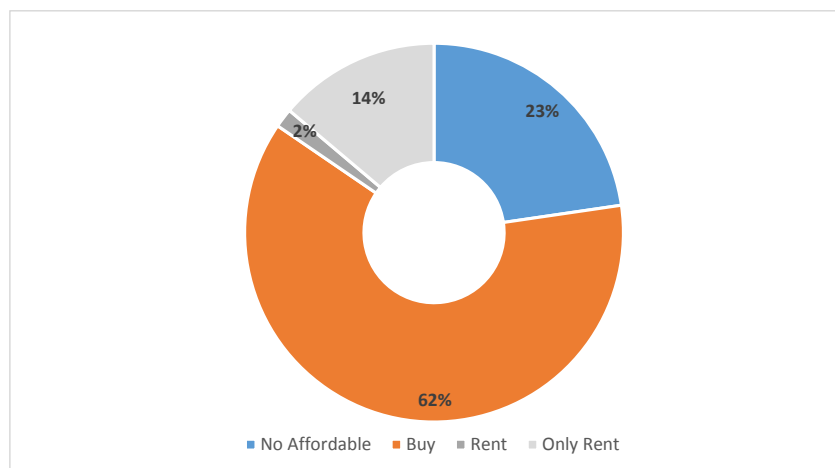
3 Choosing to buy or rent

The next step was to ascertain whether the remaining respondents would be offered housing options to buy or to rent.

In some instances, respondents could only afford to rent, given the financial information they had provided. These 137 respondents were not shown any options to purchase and were automatically directed to renting options.

All remaining (624) respondents were invited to choose whether they wished to buy or rent. For those who chose to buy, they were later offered the chance to undertake the exercise again as a rent option. A total of 608 respondents (62% of the total) elected to buy. These respondents were shown the choice experiment for buying. Only 16 respondents (2%) elected to rent. These respondents were shown the choice experiment for rentals.

Figure E.1: Proportion of respondents who bought or rented



4 Undertaking the experiment – choosing a place to live

The survey combined the potential budget of each respondent with the value of housing in the sectors that the participant preferred, and then presented respondents with a choice experiment. No one was allowed to choose a housing option which was beyond their stated budget.

It is worth noting that as this was a choice ‘experiment’ we created certain conditions, and we offered housing types in some parts of Auckland that do not currently exist.

³⁶ Government housing in Auckland represents over 6% of the housing stock and there are also non-government providers (community housing).

³⁷ There is also social housing, which refers to households that receive income-related rental subsidies that allow them to live in houses with market rents. The Government’s income-related rent subsidy ensures low income social housing tenants pay no more than 25 per cent of their income towards rent (up to a threshold).

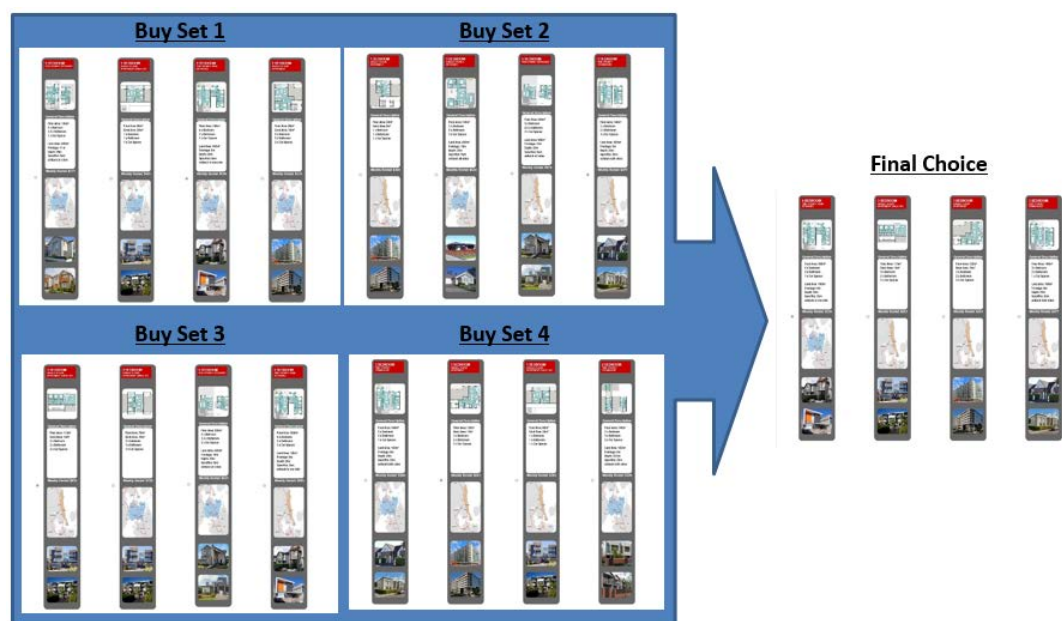
Firstly, respondents were asked to choose one option out of four made up of four iterations of **constrained choice sets** that would match their budget constraint, from which they were asked to select their most preferred option (see Figure E.2). This means that in total each respondent viewed a maximum of 16 different housing options. The only difference between the buy and rent experiments is that the buy option had a price and the rent option had a weekly rent.

For each of the four options available the participant was shown a floor plan, as well as key information on the house itself (e.g. floor area, deck area, bedrooms, bathroom, car parking and land area), purchase price or rental outgoing, a location map (sector), and some representative photos. Refer to Appendix G for more details on these.

There was a total of 96 possible ‘options’ of combinations of 12 housing types across the eight sectors, which varied by house type and number of bedrooms, and each had their own cost to buy or rent. All possible options within each individual’s final price range were presented in a randomised order. Respondents could click on the floor plan, map, and picture to see larger version of each. They were informed that “all the housing options presented are new and of medium standard quality”.

Respondents had to choose an option before moving forward, and they had to do this four times. Each choice set was quite different than the one before. This was an essential part of the experiment.

Figure E.2: The five stages of choosing housing options



As a final step, and having completed the exercise, respondents were asked to rank the following four factors in order of importance: Dwelling value (perceived value for money of the housing option), location (the area they chose), house type (If the house is a specific type

e.g. detached, semi-detached or an apartment) and dwelling features (size of lot, number of parking spaces, presence of garden, number of bedrooms and living areas).

5 A 'reality' check

Once this experiment was completed, the survey then included a further question asking "if you planned to move tomorrow, does the housing option you ranked as your final choice reflect the housing you would choose, given your current financial information?".

That was the chance for respondents to indicate whether the choice they had made in the experiment was actually one they were likely to make. Also, respondents could tell us in their own words what they would have preferred, and why.

Appendix F - Housing options: calculation of costs

Housing Options

A total of 12 housing options were offered in the discrete choice exercise, across all eight sectors – a total of 96 possible options. The 12 options were categorised into four broad ‘types’, namely, detached (stand-alone) houses, attached (townhouses and semi-detached), apartments in buildings up to four storeys and apartments in buildings five or more storeys.

Each type was categorised into three ‘sizes’, proxied by the number of bedrooms.

Aspects related to the size and dwelling characteristics of each option was further refined in the development of the options to be costed and provided in the online survey.

Figure F.1 outlines the detailed characteristics of each option (Appendix G also shows the photos and floor plans that were presented for each option).

Figure F.1: Housing options presented in discrete choice exercise

	Number of storeys (of dwelling)	Floor space (sqm)	Number of bedrooms	Number of bathrooms	Number of car spaces	Number of living spaces	Land area (sqm)
Detached - small	1	130	3	2	1	1	400
Detached- medium	2	160	4	3	1	2	400
Detached - large	2	200	5	3	2	2	450
Attached - small	2	140	2	1	2	1	150
Attached - medium	2	140	3	2	1	1	160
Attached - large	2	160	4	3	1	1	180
Apartment (building up to 4 storeys) - small	1	60	1	1	1	1	
Apartment (building up to 4 storeys) - medium	1	70	2	1	1	1	
Apartment (building up to 4 storeys) - large	1	110	3	2	2	1	
Apartment (building 5 or more storeys) - small	1	50	1	1	1	1	
Apartment (building 5 or more storeys) - medium	1	90	2	2	2	1	
Apartment (building 5 or more storeys) - large	1	120	3	2	2	1	

Valuation and Rental of Housing Options

The 96 housing options in this study were valued using land value data, build and project cost data.

The land values have been estimated for each of the sectors and types of housing based on residential land value data drawn from Quotable Value NZ.³⁸ This data shows the average dollar value per square metre for residential land and the spread of values (see Figure F.2). In this study we have applied the average land value for each sector to the detached, and attached housing types. The apartments have land values set at the 80th percentile. This difference is necessary as land zoned for higher density tends to have higher land values³⁹.

Figure F.2: Land value by sector, percentile and average dollar per sqm (\$)

	LV/sqm 25th percentile	LV/Sqm	LV/sqm 75th percentile	LV/sqm 80th percentile	LV/sqm 95th percentile
Sector 1 - Auckland Central	2043	4319	4944	6221	14,869
Sector 2 - Auckland Isthmus	646	1039	1446	1607	2124
Sector 3 - North Shore Coastal	598	901	1509	1700	2526
Sector 4 - North Shore Harbour	402	466	681	776	1090
Sector 5 - West Auckland Harbour	301	342	474	491	572
Sector 6 - West Auckland	284	308	444	477	589
Sector 7 - East Auckland	482	533	759	833	1076
Sector 8 - South Auckland	252	330	416	446	578
Total	302	509	909	1078	1597

The build cost of the different dwellings was estimated using an average build cost, which was drawn from the Rawlinsons 2014 New Zealand Construction Handbook. These averages provide an understanding of the medium quality build in each sector. The guide also includes costings for decking area.

The final costs measured in the study were those relating to build projects overall. This includes; design, project management, advertising/sales costs, legal costs, contingency, developer margin and GST⁴⁰.

These estimates provide a final costing for each dwelling type within each location, or sector. It is important to note that the estimates are an **average build** on an **average site** in the sector. It is a fact that there will be many existing (second-hand dwellings) that cost less or more than the estimates shown in the table, these will form part of the selection sets of actual buyers. It is also true that there will be many new dwellings that are developed that

³⁸ Quotable Value (2014).

³⁹ Each apartment is attributed land area based on assumed height, site coverage and communal areas. The walk-up apartments are assumed to be in buildings that are three storeys and the other apartments are in eight storey buildings. The site coverage is set at 80% and communal areas are set at 20%.

⁴⁰ Note that development contributions and other costs associated with conversion from bare land to vacant residential land is not included, as this cost is imbedded in the Quotable Value land value. The project costs have been estimated based on Market Economics experience across a number of residential development projects within Auckland.

will be different to the average, as the developer will make decisions around quality of the build (better or worse) and/or the land on which the development occurs may be higher or lower value land than the average. The potential range of developments that could occur in each sector is too large to represent in a survey, the average development is considered to be the best alternative for this study.

Figure F.3: Sale value of dwelling options by sector (\$)

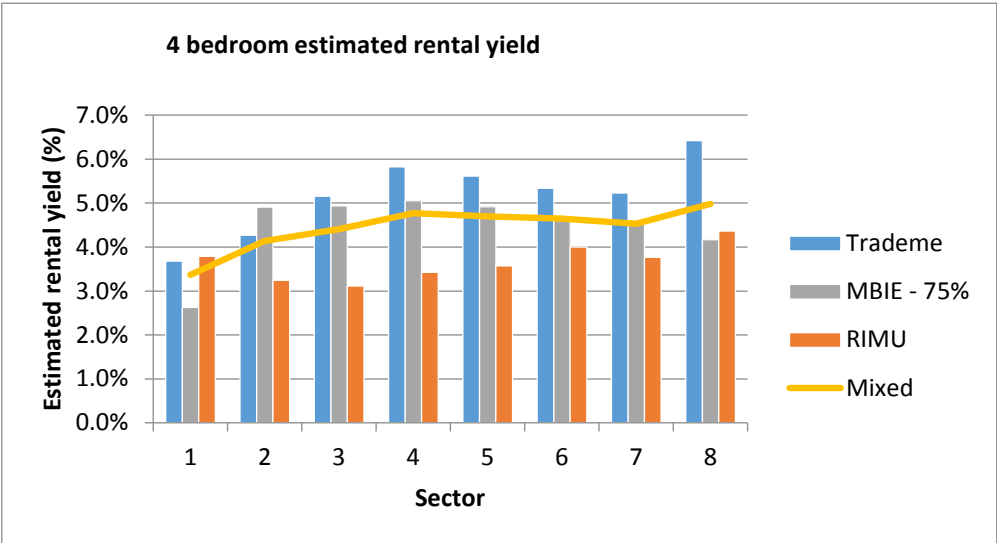
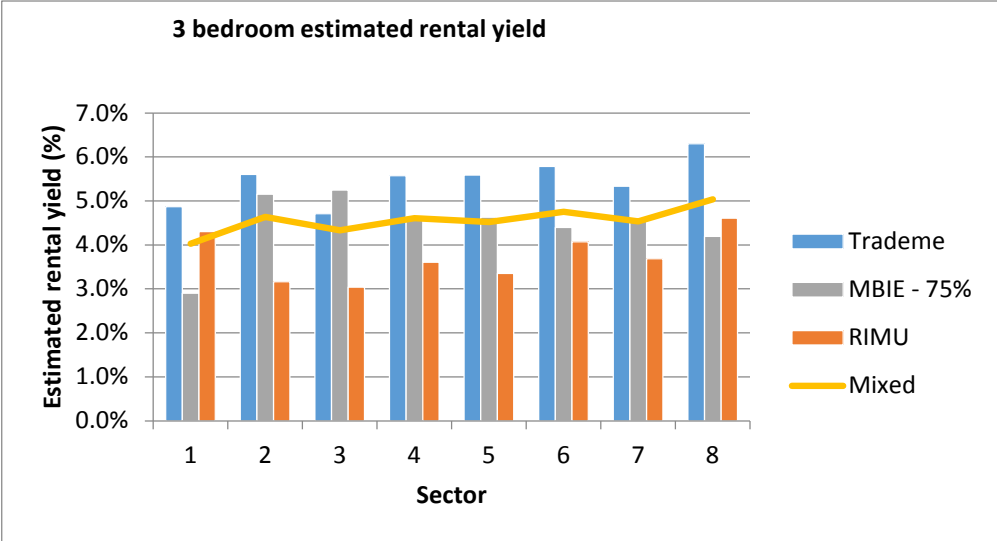
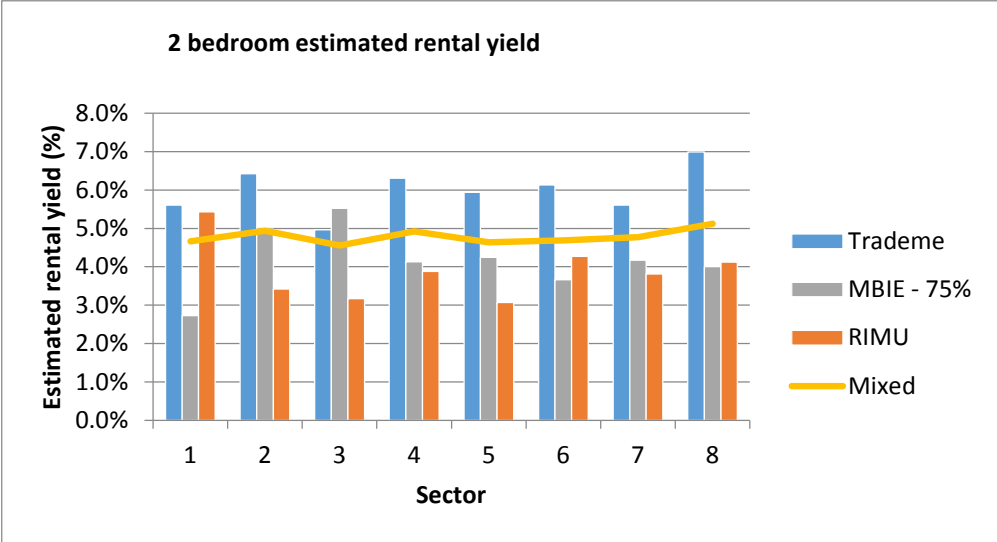
	Sector 1 - Auckland Central	Sector 2 - Auckland Isthmus	Sector 3 - North Shore Coastal	Sector 4 - North Shore Harbour	Sector 5 - West Auckland Harbour	Sector 6 - West Auckland	Sector 7 - East Auckland	Sector 8 - South Auckland
Detached - small	2,690,900	880,400	804,500	564,400	495,300	475,900	600,100	488,400
Detached- medium	2,860,800	1,048,700	974,400	732,700	665,200	645,800	770,000	658,300
Detached - large	3,248,500	1,211,700	1,126,100	855,600	778,300	757,600	897,000	771,500
Attached - small	1,298,000	619,000	590,000	500,300	474,100	467,200	514,100	471,300
Attached - medium	1,376,200	651,700	621,300	524,600	497,000	490,200	539,900	494,200
Attached - large	1,562,400	746,800	713,800	604,600	574,300	566,100	621,200	571,600
Apartment (building up to 4 storeys) - small	1,040,000	405,100	424,600	337,600	308,600	308,600	338,900	307,300
Apartment (building up to 4 storeys) - medium	1,065,200	430,300	448,200	362,700	333,800	333,800	364,100	332,400
Apartment (building up to 4 storeys) - large	1,639,900	665,500	693,100	562,100	516,500	516,500	563,400	513,700
Apartment (building 5 or more storeys) - small	487,600	315,100	319,200	295,700	287,400	289,000	297,200	287,500
Apartment (building 5 or more storeys) - medium	891,200	575,100	584,900	542,100	526,900	526,900	542,000	525,400
Apartment (building 5 or more storeys) - large	1,077,900	702,400	713,500	662,400	645,900	645,900	663,800	644,500

The rents associated with each dwelling type were estimated using rental yield factors for each of the sectors and the types of dwelling. The rental yield factor was calculated by assessing recent market rents⁴¹, current market rents⁴² and RIMU assessment of average market rents compared to average sales value. Rental yields range from as low as 2% to as high as 7%. This study combines the three data sources to create a mixed estimate of the yield, as shown by the yellow line in Figure F.4.

⁴¹ Ministry of Business, Innovation and Employment (2014). Market Rent, upper quartile rents used as a proxy for new builds.

⁴² TradeMe asking rents for 443 properties compared to Rateable values (factored for suburb level price change from Quotable value).

Figure F.4: Rental yields by sector and bedroom number



The final step is to apply the rental yields to the sales value to estimate the rents required to meet the average return. Figure F.5 shows the range of rents, it is important to note that most landlords purchase second hand properties which have less capital value than the options shown in this study. This means that the rents shown in the figure are generally in the upper end of the rental market within each sector and type.

Figure F.5: Rental value of dwelling options by sector (\$)

	Sector 1 - Auckland Central	Sector 2 - Auckland Isthmus	Sector 3 - North Shore Coastal	Sector 4 - North Shore Harbour	Sector 5 - West Auckland Harbour	Sector 6 - West Auckland	Sector 7 - East Auckland	Sector 8 - South Auckland
Detached - small	1616	624	553	467	415	432	485	472
Detached- medium	1705	771	712	594	554	562	612	599
Detached - large	1768	921	878	694	663	711	712	725
Attached - small	1018	520	451	451	389	424	402	455
Attached - medium	1039	588	477	464	438	461	477	475
Attached - large	1087	636	685	616	557	516	586	573
Apartment (building up to 4 storeys) - small	911	421	382	328	304	293	377	321
Apartment (building up to 4 storeys) - medium	971	430	427	348	323	298	386	336
Apartment (building up to 4 storeys) - large	1295	658	653	529	467	477	520	511
Apartment (building 5 or more storeys) - small	521	366	369	322	277	291	331	319
Apartment (building 5 or more storeys) - medium	878	576	527	526	464	474	489	510
Apartment (building 5 or more storeys) - large	1016	675	661	583	546	565	573	607

How budget constraints were calculated and applied

Budget constraints were calculated for each participant, using self-reported income, household dependents, available net assets and liabilities. Respondents in the survey were only shown dwellings that fit within their budget constraint.

An adaptation of the ASB online loan calculator was used to provide an estimate of the loan a respondent could secure. Mortgage repayments assumed a 6.5% p.a. interest rate and a 25 year loan period. It is true that in negotiation with a bank, prospective purchasers may arrive at alternative interest rates or terms that may make it easier (or more difficult) to enter the housing market. For the purposes of this study an average middle ground has been adopted.

In the case of renters, net assets were not taken into account.

Appendix G: Housing options – details presented in the discrete choice experiment

What was shown to respondents

During the discrete choice experiment, respondents were presented with the following information for each housing option:

Dwelling type: There was a total of 12 possible dwelling options shown to respondents, including single-storey detached, two-storey detached, two-storey townhouse, two-storey semi-detached, apartment (walk-up) and apartment.

Dwelling floor plans: Respondents were shown a floor plan that displayed the number of bedrooms, living spaces, kitchen, car parks, toilets, decks and outside space. The floorplans were developed by architects Sill van Bohemen based on their knowledge of recent new builds in Auckland, with feedback from Auckland Council.

General description: A succinct definition about each dwelling type was provided: namely, floor area in square metres, number of bedrooms, number of bathrooms, number of car spaces and if applicable, land area, road frontage, site depth and set back. This data is a summary of the information shown in the dwelling floor plan.

Price or weekly rent: Each option was accompanied by a price to buy or sell. These were estimated using average floorspace build cost ratios, average land values and other development costs, assuming medium quality builds⁴³. The rents associated with each dwelling type were estimated using rental yield factors for each sector and type of dwelling⁴⁴.

Street view: the respondents were shown two representative street views for each of the dwelling options. The pictures used in the study were provided by Auckland Council.

An example set is shown below in Figure G.1, as it appeared on-screen, and more detail is presented in the following pages.

⁴³ See Appendix F for full details on the estimation method.

⁴⁴ *Ibid.*

Figure G.1: Example choice set from second survey

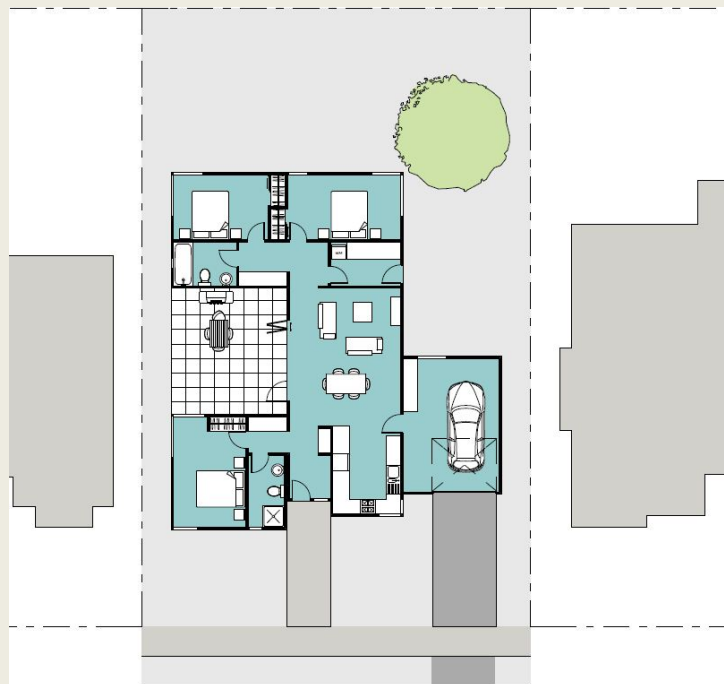


Three bedroom Single storey detached

Specifics

Floor area: 130 m²
3 x bedroom
2 x bathroom
1 x car space

Land area: 400 m²
Frontage: 16 m
Depth: 25 m
Specifics: Yard setback all sides



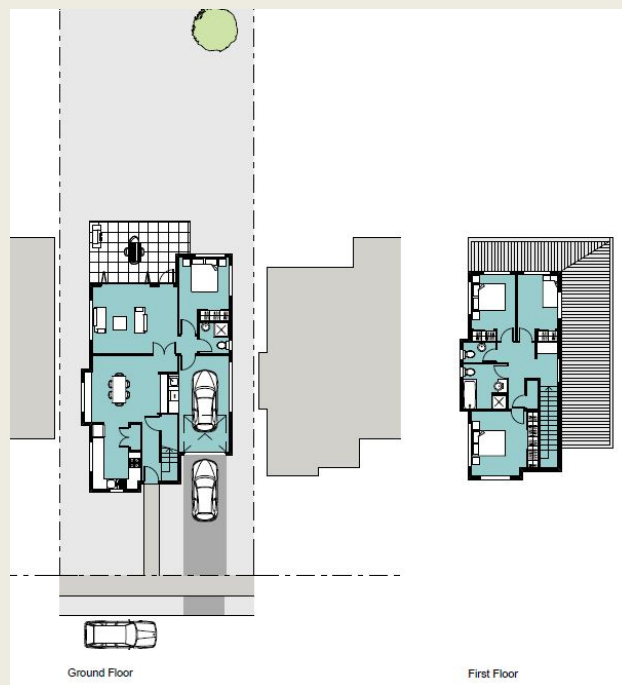
Floor plans by Sills van Bohemen Architects Ltd.
Images provided by Auckland Council.

Four bedroom Two Storey Detached

Specifics

Floor area: 160 m²
4 x bedroom
2.5 x bathroom
1 x car space

Land area: 400 m²
Frontage: 11 m
Depth: 36 m
Specifics: Yard setback all sides



Floor plans by Sills van Bohemen Architects Ltd.
Images provided by Auckland Council.

Five bedroom Two Storey Detached

Specifics

Floor area: 200 m²
5 x bedroom
2.5 x bathroom
2 x car spaces

Land area: 450 m²
Frontage: 14 m
Depth: 32 m
Specifics: Yard setback all sides



Floor plans by Sills van Bohemen Architects Ltd.
Images provided by Auckland Council.

Two bedroom Two Storey Townhouse

Specifics

Floor area: 140 m²
2 x bedroom
1 x bathroom
2 x car spaces

Land area: 150 m²
Frontage: 6 m
Depth: 25.5 m
Specifics: Zero setback both sides



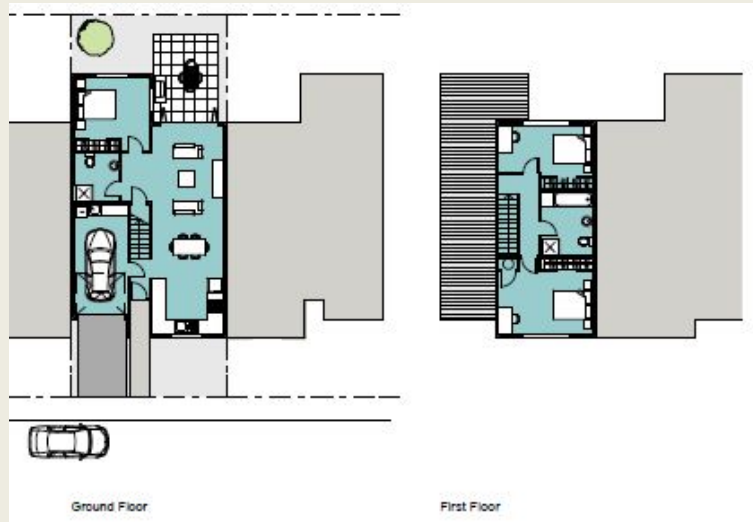
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Images provided by Auckland Council.

Three bedroom Two Storey Townhouse

Specifics

Floor area: 140 m²
3 x bedroom
2 x bathroom
1 x car space

Land area: 160 m²
Frontage: 8 m
Depth: 20 m
Specifics: Zero setback both sides



Floor plans by Sills van Bohemen Architects Ltd.
Images provided by Auckland Council.

Four bedroom Two Storey Semi-Detached

Specifics

Floor area: 160 m²
4 x bedroom
3 x bathroom
1 x car space

Land area: 180 m²
Frontage: 9 m
Depth: 20 m
Specifics: Zero setback to one side

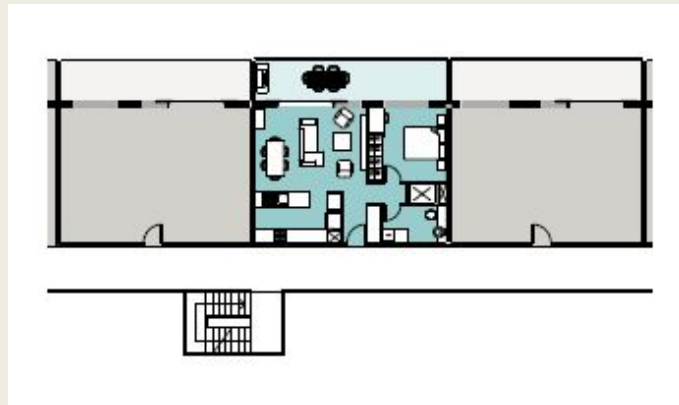


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One bedroom Single Floor Apartment (walk-up)

Specifics

Floor area: 60 m²
Deck area: 20m²
1 x bedroom
1 x bathroom
1 x car space

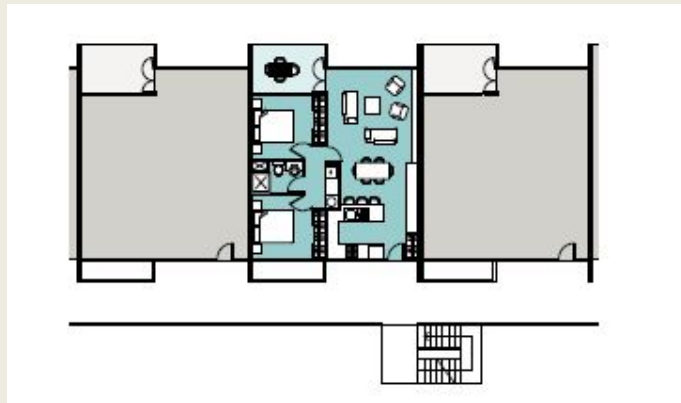


Floor plans by Sills van Bohemen Architects Ltd.
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Two bedroom Single Floor Apartment (walk-up)

Specifics

Floor area: 70 m²
Deck area: 10m²
2 x bedroom
1 x bathroom
1 x car spaces

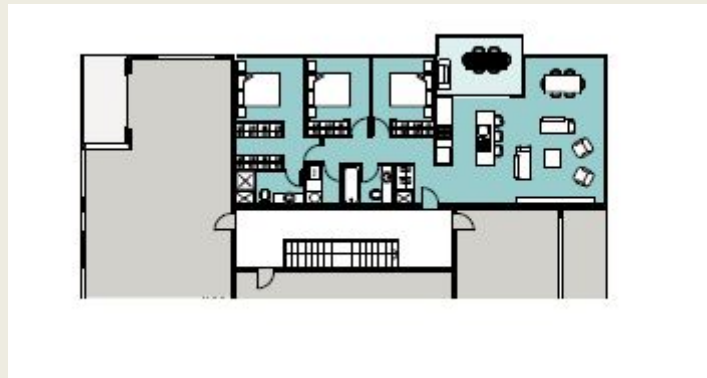


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Three bedroom Single Floor Apartment (walk-up)

Specifics

Floor area: 110 m²
Deck area: 10m²
3 x bedroom
2 x bathroom
2 x car spaces



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One bedroom Single Floor Apartment

Specifics

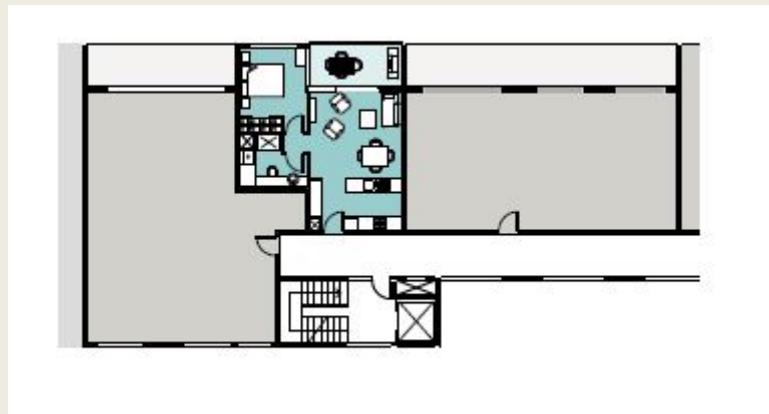
Floor area: 50 m²

Deck area: 9m²

1 x bedroom

1 x bathroom

1 x car spaces



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Two bedroom Single Floor Apartment

Specifics

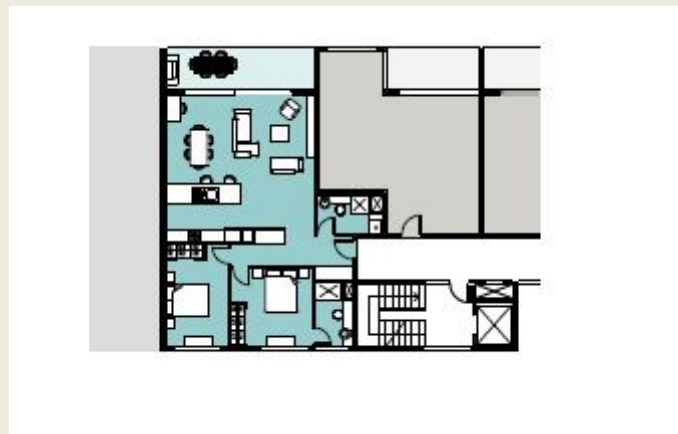
Floor area: 90 m²

Deck area: 15m²

2 x bedroom

2 x bathroom

2 x car spaces



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Three bedroom Single Floor Apartment

Specifics

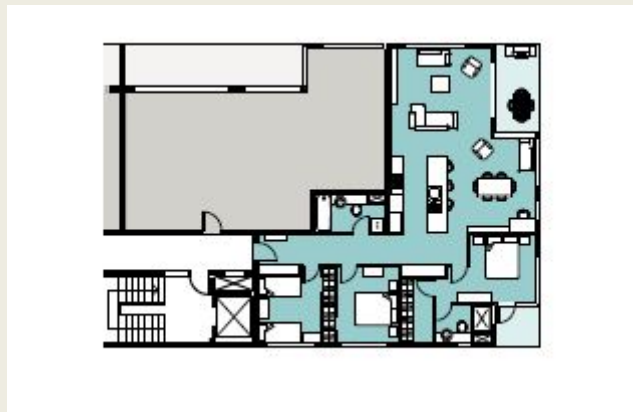
Floor area: 120 m²

Deck area: 10m²

3 x bedroom

2 x bathroom

2 x car spaces



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