

Study Report

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Defining medium-density housing

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Preface

This is the first of a series of reports prepared as part of the BRANZ medium-density housing research programme entitled 'Medium-density housing that meets the needs of New Zealanders' (BRANZ, 2016b). This programme of work aims to develop tools for the built environment industry that can aid in the delivery of high-quality, affordable MDH across New Zealand (BRANZ, 2016a).

The purpose of this report is to develop an understanding of what MDH means in the New Zealand context. The aim is also to establish a definition of MDH that can be used to guide additional work undertaken as part of the BRANZ MDH programme of work. An examination of New Zealand strategy and policy documents relating to MDH and a review of local literature was conducted. This informed the development of a working definition and the MDH research programme more generally. Technical research relating to the design and construction of MDH is beyond the scope of this report.



Defining medium-density housing

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Abstract

There are many definitions of medium-density housing (MDH) in use in New Zealand. This report reviews the existing definitions and suggests a working definition for the purposes of BRANZ's MDH research programme. It then reviews the New Zealand MDH literature in detail and describes the common typologies currently provided in the New Zealand market.

Keywords

Medium-density housing, MDH, attached housing, intensification, housing typologies



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A decorative graphic in the top left corner consisting of several overlapping triangles in shades of blue and grey.

Executive summary

This report is to inform the BRANZ medium-density housing (MDH) research programme entitled 'Medium-density housing that meets the needs of New Zealanders' (BRANZ, 2016b). Its aims are to:

- review definitions of MDH and determine a definition for use by the research programme
- review New Zealand strategy, policy and research documents relating to MDH
- identify common MDH typologies present in the national housing stock
- identify knowledge gaps relating to MDH in New Zealand.

Defining medium-density housing

No standard definition of MDH is applied across the built environment industry. Various typology and neighbourhood-based definitions are in use. To facilitate communication with the building industry and other stakeholders, the research programme identified the need to develop a working definition of MDH. The following definition has been adopted: multi-unit dwellings (up to 6 storeys).

Reviewing strategy and policy documents and research literature

Providing a greater number of MDH options is widely recognised as a growth management tool for New Zealand towns and cities facing growth issues. It is seen as a way to avoid sprawl, thus, protecting valuable productive land and reducing the infrastructure demands of towns and cities.

There is a growing recognition of the potential for MDH projects to meet the needs of an increasingly diverse population. This includes an ageing population, increasing numbers of single-person households, smaller family sizes and later family formation. It is also seen as a mechanism to assist with housing affordability.

An increasing number of local and regional councils are adding MDH goals and predictions into their growth management strategies and policies. They are engaging in new ways of trying to support growth through policy reform and initiatives such as Special Housing Accords.

Compact growth continues to be the predominant urban growth management model favoured in New Zealand. Alongside this, MDH is seen as a way to increase density and intensify existing neighbourhoods while still maintaining, or even enhancing, the quality of urban life experienced by residents.

Market forces affecting current supply trends range from increasing land prices, development capacity unknowns, affordability issues, reduced home ownership and an increasing rental market. While this can be generalised across New Zealand, forces are different in different areas.

Current supply is predominantly a mixture of single-storey and 2-storey detached homes, with the proportion of 2-storey dwelling increasing and site sizes decreasing. However, the number of attached homes is increasing.

Supply trends are varied and include:

- an increasing number of larger homes and homes with spare bedrooms

- an increasing number of larger families sharing smaller homes (especially 2-bedroom homes)
- a mismatch between supply and demand
- falling rates of home ownership.

Ageing housing stock is a supply issue alongside the need to increase the delivery of a more varied mix of MDH options. Of note are typologies across the 'missing middle' category of attached terraced houses and mixed-use, low-rise apartments.

Housing is becoming less affordable, predominantly in the main centres, and MDH is seen as one of the solutions to ease this issue.

Housing demand encompasses housing needs, housing choices and housing aspirations. To accurately predict housing demand requires an understanding of the complex issues associated with housing choices and trade-offs. An understanding of housing aspirations and how they follow life-stage priorities and lifestyle expectation shifts is also important.

Research into choices and preferences is increasing, particularly in the main centres.

Housing experiences influence a person's perceptions of MDH, with residents more likely to accept a greater range of typologies if they have had prior experience of living in similar types of housing. The latest MDH research also points towards increasing ideas about preparedness to move alongside MDH acceptance.

Perceptions of MDH are also shifting as more new builds of different typologies and spatial configurations are delivered by the market. It is increasingly being acknowledged in housing demand literature that, because MDH is a diverse category of housing typologies, it suits different people at different life stages and with different lifestyle preferences.

Trade-offs are made in housing choice between cost, typology and location. Proximity to urban amenities (parks, schools, shops and public transport), work, family and friends are important locational factors. Access to public open space may be traded off against reduced private outdoor spaces.

Residential mobility of New Zealand's population aged 65 years and over has increased over the last decade. This demographic group is now the most likely to have moved house within New Zealand within the previous 5 years. Still, both existing housing stock and new builds lack basic accessibility features for older residents. In the past, MDH options in particular have not necessarily been designed with this target market in mind (James, 2016b).

Common medium-density housing typologies

MDH typologies present in the New Zealand housing stock are differentiated in the report into the three main categories of:

- 1–2-storey attached houses
- 2–4-storey attached houses
- apartments.

Diagrams of common spatial layouts are presented in section 3.

The common trade-offs made in selecting the various typologies (garage type, storage capacity) are discussed and comparisons made to amenity values of low-density homes.

Knowledge gaps and areas for future research

This list of knowledge gaps was compiled during the literature review process:

- While the urban growth context of MDH is generally well documented, ongoing research will be needed to track and identify future growth trends.
- Research that links planning policy to delivery issues and the implementation process for MDH is lacking in a New Zealand context. Studies are needed that engage with the complexities of housing supply – for example, the relationships between market forces, current growth strategy and policy and delivery of MDH. Research on the ‘missing middle’ set of MDH typologies could also build a more complete picture of the implementation issues facing the market delivery of urban intensification in New Zealand.
- Supply-side research generally across the whole development and construction industry is lacking. Examples include the long-term impacts of skill and supply shortages, up-zoning with no value capture and investigating the potential for housing supply to be used as an economics tool.
- Comparative analysis is needed to relate growth targets to development capacity, zoning and design regulations. These include site coverage percentages, minimum unit sizes, height limits, height-to-boundary ratios, daylight recession planes, minimum setbacks from internal and roadside boundaries and outdoor living space minimums.
- Medium-density housing in the context of social housing and funding for emergency housing and its long-term impacts on neighbourhoods is also under-researched.
- The relationship or disconnect between housing supply and demand along with the interconnected nature of regulatory mechanisms could benefit from further research.
- Comparative analysis of demand by location and the relevance of MDH options outside of the main centres (Auckland, Christchurch and Wellington) is also lacking.
- Longitudinal research into the meaning of quality of life and how it is evolving in the New Zealand context as a result of shifting lifestyle preferences would also be beneficial.
- The impact of the media on perceptions of intensification is under-researched. This includes issues ranging from the quality of MDH construction, the effect of the ‘leaky homes’ crisis, perceptions of ongoing maintenance requirements and the role of bodies corporate.
- Work that considers how neighbourhood satisfaction is achieved, including visualisations of differing densities, such as what 30 units/hectare versus 50 versus 120 looks like, would benefit the overall understanding of perceived density. This could include research on the integration of urban amenities into existing neighbourhoods.

1. Introduction

Medium-density housing (MDH) is receiving increasing attention in New Zealand. It is the preferred form of neighbourhood intensification to accommodate urban growth projections and diversifying demographics without compromising the quality of life outcomes for residents. To understand this evolving research space, BRANZ has developed an MDH research programme that aims to provide industry with the tools to deliver medium-density housing that meets the needs of New Zealanders (Litten, 2016). It is designed to address key issues critical to the delivery of MDH across New Zealand and aid the industry in identifying key drivers and possibilities associated with high-quality, affordable MDH options (BRANZ, 2016a).

This report is the first of a series of BRANZ publications developed as part of this MDH programme. As a contextualising document, it seeks to develop an understanding of what MDH means in New Zealand. The report reviews literature, strategy and policy documents relating to MDH and establishes a definition of MDH. This definition will be used to guide BRANZ's MDH research programme.

1.1 Defining medium-density housing

The purpose of defining MDH is to ensure a common understanding of what is and is not considered MDH for future research work. It will also clarify what BRANZ means by MDH when communicating with the building industry and other stakeholders.

The first step in the process of establishing the most appropriate definition was to identify definitions that are already in use in New Zealand. Slocombe (2010) reviewed MDH literature for the then Department of Building and Housing and collated an exhaustive list of definitions. This list formed the basis of this search and was checked for any revisions or amendments to the definitions since publication. An online search for new definitions since 2009 followed, and experts at Boffa Miskell and MartinJenkins were also consulted. The online search was concluded once it became apparent that no new definitional information was being retrieved. Thirteen definitions from MDH policy documents in New Zealand were found. Appendix A shows all the definitions and their sources.

What is clear is that, to date, there is no consensus about how MDH should be defined in New Zealand. Definitions vary, and many include seemingly arbitrary limits for site size, building height, number of units per site or number of dwellings per hectare. Some definitions mention house typology, while others focus on the density of dwellings over a specific site size or land allocation.

The Ministry for the Environment's (2016) definition incorporates many of the different aspects of MDH included in the other definitions:

Medium-density housing means comprehensive developments including four or more dwellings with an average density of less than 350 m² per unit. It can include stand-alone dwellings, semi-detached (or duplex) dwellings, terraced housing or apartments within a building of four storeys or less. These can be located on either single or aggregated sites, or as part of larger master-planned developments.

In the early stages of the MDH research programme, this definition developed for Ministry for the Environment by Boffa Miskell seemed to be most fit for purpose. It was

derived from a review of MDH literature and aimed to bring together various elements that characterise MDH (T. Church, personal communication, November 10, 2016). Initially, this definition did not include a height restriction, and it is unclear why 4 storeys was later included as the upper limit for MDH apartment buildings. Discussions with building industry stakeholders and BRANZ's MDH Advisory Group revealed that limiting MDH to 4 storeys unnecessarily excludes many mid-rise developments that would most appropriately fit within a medium-density context. The consensus was that, as New Zealand moves towards more intensive housing solutions, 6 storeys is now a more appropriate demarcation point between medium-density and high-density apartments.

Context can influence how people perceive the density of different typologies. For example, MDH amid low-density surroundings might be perceived as more imposing in a regional setting than in a large urban centre. However, a 6-storey development in a region like Nelson is equally a part of the MDH category as a 6-storey development in Auckland. BRANZ's definition of MDH must be applicable in all New Zealand contexts.

An alternative approach to defining housing density, as described in more detail later in the report, is to measure the average density of whole developments or neighbourhoods. The density of a neighbourhood is often measured in dwellings or people per hectare. Different house typologies deliver different densities of people and dwellings. For example, 4–6-storey mid-rise apartment buildings house more people per hectare than terraced or attached townhouses. However, a well designed neighbourhood will incorporate a variety of different house typologies to accommodate the needs of many different kinds of people. This means that any given neighbourhood's measure of density is an average across all the different house typologies within that area.

A definition of MDH that relies on a dwelling/people per hectare measure would not fit the purpose of BRANZ's MDH research programme. Although not covered in this report, some of the work in the programme focuses on technical issues related to specific building typologies that fall within MDH. BRANZ's definition needs to be able to differentiate house typologies that are typical of MDH from those usually associated with low-density and high-density living.

Further, it is not BRANZ's intention to decide on a single definition to overwrite all existing ones, as one's definition of MDH will frequently depend on one's reason for defining it. Researchers may require different parameters than developers, building consent authorities (BCAs), urban planners or builders, for example. However, as New Zealand moves towards more-intensive neighbourhoods, a common understanding of what MDH looks like across all sectors would be beneficial.

While the Ministry for the Environment (2016) definition describes MDH relatively well, it includes seemingly arbitrary stipulations around number of dwellings, site size and building height. Each of these stipulations is contradicted in other definitions used in New Zealand, meaning that the Ministry for the Environment definition is unlikely to be universally accepted.

What BRANZ aims to achieve by defining MDH is to come up with a simple description that can work with existing definitions. This will enable everyone working in the field to use a common language.

For the reasons discussed, it was decided that BRANZ would define MDH as follows: multi-unit dwellings (up to 6 storeys).

This definition encompasses all the typologies of building that are commonly thought of as MDH. It intentionally excludes stand-alone houses. There is a wealth of technical building information about stand-alone houses in New Zealand. As New Zealand intensifies its housing, the need to investigate stand-alone houses in an MDH context is likely to become less pressing. In contrast, there is still much to be investigated regarding multi-unit dwellings. Focusing on multi-unit dwellings of up to 6 storeys futureproofs the definition by allowing for the emergence of new typologies and ways of thinking about MDH without having to revise the definition.

The multi-unit dwellings definition sits well with the other definitions used around New Zealand. It is flexible in that it may be added to when a narrower definition is required. For example, a study may focus specifically on mid-rise apartments of 4–6 storeys or attached housing developments of more than four units. Both of these studies are investigating multi-unit dwellings but have narrowed their scope by typology and/or number of units. However, in all cases when we talk about MDH, we are discussing multi-unit dwellings in one form or another.

1.2 Structure of the report

The report comprises two main sections: a review of New Zealand-wide literature, policy and strategy on MDH issues and a description of the range of typologies that constitute MDH. These sections are followed by a concluding section and a summary of knowledge gaps identified through the process of preparing this report.

The literature review section (section 2) opens with an overview of various definitions of MDH used in New Zealand research and policy documents (see Appendix A). This is followed by sections relating to the growth context surrounding MDH, supply-side dynamics and, on the demand side, MDH delivery and issues and opportunities associated with the delivery process.

The section on the range of typologies that constitute MDH (section 3) includes a description of:

- resident demographics
- neighbourhood environments where each MDH typology is likely to work well
- the market forces that differ for each typology
- typology-associated trade-offs made in the housing choices process.

The literature review and typology description sections have been designed to function both as stand-alone documents as well as to be integrated as part of this report.

2. Literature review

There has been a shift in thinking over the last decade about the potential value and necessity of 'density done well' to manage growth (Environmental Management Services, 2015; The Committee for Sydney, 2016). The increasing interest in MDH and its prominence in the New Zealand housing landscape has led to a notable increase in the amount and variety of MDH research taking place. There has also been an increase in recent years in the number of local and regional councils that have developed MDH strategy and policy to shape their future growth.

This literature review contributes to an understanding of what MDH means in the New Zealand context. It identifies the critical research gaps and opportunities that will aid BRANZ in further shaping its MDH programme. It includes a review of:

- relevant books
- journal articles
- conference papers
- master's and doctoral theses
- reports and consultation documents
- national strategy and advisory research
- local and regional government research reports
- documents related to urban growth management and housing strategy and policy.

The search engines used included SAGE Journals, Taylor & Francis Online, Informit, SpringerLink, JSTOR, Trove and Blackwell Reference Online. The search terms used included: New Zealand housing, medium-density housing, housing density, housing intensification and housing typologies. Other online searches involved groups' and organisations' websites including:

- BRANZ
- Ministry of Business, Innovation and Employment
- Ministry for the Environment
- Statistics New Zealand
- Beacon Pathway
- Centre for Research Evaluation and Social Assessment
- Infrastructure New Zealand
- Housing New Zealand
- Centre for Housing Research Aotearoa New Zealand.

A systematic search of all local and regional council websites was also undertaken.

2.1 How is medium-density housing defined in the literature?

As noted earlier, a variety of definitions of MDH are in use in New Zealand strategy and policy documents (see Appendix A). Most often, reference is made to typologies included in the scope of the definition – multi-unit dwellings of up to 6 storeys. A key aspect of MDH, when compared to low-density or high-density categories, is that it is the most typologically diverse housing category. Typologies generally include 1-storey units, 1–2-storey duplexes or triplexes, 2–4-storey terraced houses and 3–6-storey apartments. Some definitions also include stand-alone infill housing (Ministry for the Environment, 2016).

Regulatory metrics for MDH such as building height restrictions, site sizes and the number of dwellings per hectare are also frequently included in MDH definitions. Height restrictions range from 8 metres (or 2 storeys) to 18 metres (or 5 storeys) and above depending on the zoning regulations of individual councils. Site sizes predominantly range from 100 m² to 350 m². Dwellings per hectare range from 15 to upwards of 60 dwellings or units. People per hectare, minimum number of dwellings per project and house size minimums are also factors included in the range of definitions cited in New Zealand strategy and policy.

Definitions vary across districts. For example, 12–15 dwellings per hectare is defined as MDH in Waipa District, whereas in Wellington, it is considered low density (Waipa District Council, 2009, p. 6; Wellington City Council, 2016a). In MDH literature, specific definitions are often omitted, or rather than relating to aspects of the housing, they are related to people's perceptions, experiences and/or expectations of density. This results in a subjective definition relevant only to the research framework in which they were developed. For example, if someone has experienced housing that is predominantly at the scale of a lifestyle block, traditional low-density detached housing may be perceived as high-density housing. Someone who has experienced predominantly high-rise apartment living may perceive row houses as low density.

Ghosh and Vale (2009, p. 519) divide MDH into three subcategories – medium-density residential, medium-density mixed and medium-density mixed nodal. Differences between these subcategories relate to the proximity of the developments to town centres, with medium-density mixed nodal being the closest, located within a 400–800 metre radius from any neighbourhood centre. Additionally, they are defined by height, with medium-density mixed nodal being 2–6-storey dwellings with other land uses such as shops or offices at ground floor or first floor.

Differences of scale underpin two common approaches to defining MDH: typology-based definitions and neighbourhood-based definitions. A typology-based definition can be applied to an individual building – for example, any form of attached dwelling up to a certain height restriction may be defined as MDH. By contrast, a low-density housing (LDH) typology generally refers to stand-alone dwellings of 1–2 storeys on a full section (≤ 800 m²), half section (≤ 400 m²) or clustered on various-sized sites. At the other end of the density continuum, a high-density housing (HDH) typology generally refers to apartments of greater than 6 storeys. They may accommodate a range of unit sizes from studio apartments to 3–4 bedroom dwellings. However, definitions vary in the literature from apartments over 4 storeys to apartments over 7–8 storeys, depending on the context (disciplinary and locational).

Neighbourhood-based definitions refer to the average density of the area. It may include a mix of LDH, MDH and HDH typologies but will predominantly be comprised of a range of MDH typologies. This distinction is not always made clear in the literature, which has caused some confusion between studies. In New Zealand, most neighbourhoods are predominantly low density. To transition to MDH neighbourhoods, therefore, does not indicate the absence of LDH or HDH typologies. This is reflected in planning policies and strategies that indicate a mix of typologies. These range from low to high density, and a predominance of MDH typology options for residents is likely in MDH neighbourhoods.

The Ministry for the Environment definition (2016), described in the introduction, appears to be the most commonly cited in New Zealand. It was originally developed by the Ministry for the Environment as part of an MDH research project in 2011. However,

a growing body of more recent research is emerging that suggests a shift is occurring in the understanding and acceptance of MDH and how it is defined in New Zealand. Studies carried out in Auckland – for example, by Yeoman and Akehurst (2015) for Auckland Council, Read (2015) and Allen (2016a) – point towards MDH as a constitutive element of growth. Some studies (Allen, 2015, 2016a), for example, have chosen to refer to higher-density housing rather than using the term MDH. This is a way to distinguish between traditional stand-alone housing typologies and typologies that are of a higher density yet not the density of downtown high-rise apartments. Some broader definitions were available prior to the Ministry for the Environment (2016) definition, including the work of Mead and McGregor (2007), which developed an ‘urban’ category of housing. This separated out detached from attached typologies and included terraced houses, low-rise 2–3-storey apartments, mid-rise 4–6-storey apartments and high-rise apartments greater than 6 storeys located in CBDs or subregional centres.

In addition, although beyond the scope of this review, it is worth noting that there is also a significant and evolving international body of knowledge around MDH. Notably, Australian sources include work by Alves (2006), Bunker, Gleeson, Holloway and Randolph (2002), Bunker, Holloway and Randolph (2005a, 2005b), Buxton and Tieman (2005), Buys and Miller (2012), Easthope and Randolph (2009), Kelly, Weidmann and Walsh (2011), Kupke, Rossini and McGreal (2011), Randolph (2002, 2004, 2006), Randolph and Freestone (2012), Randolph and Holloway (2002), Randolph and Tice (2013), Searle, Darchen and Huston (2014), Stimson, McCrea and Western (2011) and The Committee for Sydney (2016).

The definition developed by the Ministry for the Environment (2016) includes stand-alone infill housing and apartments of up to 4 storeys. It can therefore be argued that this definition is becoming increasingly out of date as shifts in thinking about the intensification of existing suburban and urban areas in New Zealand evolve.

The definition developed in this report for the BRANZ MDH research programme excludes infill and all stand-alone typologies. This is in line with Mead and McGregor (2007) and includes apartment buildings of up to 6 storeys. This is more in line with recent academic literature. The definition of MDH will most likely continue to evolve as growth continues and perceptions of density change should urban lifestyles become preferential to new generations of New Zealanders.

2.2 The growth context of medium-density housing

Medium-density housing, and in turn MDH literature, is contextualised by the growth context that surrounds it. Therefore, to understand the context of MDH in New Zealand, it is essential to identify the growth environment and the urban growth management response to growth that frames MDH delivery.

Up until the 1960s, the predominantly low-density urban form of New Zealand towns and cities was developed following a quarter-acre section model (Auckland Council, 2012b; Dixon & Dupuis, 2003; Dixon, Dupuis & Lysnar, 2001a). Medium-density typologies were predominantly in the form of 1-storey and sometimes 2-storey ‘brick and tile’ flats where from three to six homes were connected on one quarter-acre block. In larger centres, various apartment developments were seen in town centres and downtown areas, although these were rarely above 3 storeys in town centres. At this time, suburban sprawl was also supported by government policies that subsidised mortgages for first-home buyers, which encouraged development at urban fringes

(Boon, 2010, p. 297). This is not dissimilar from the KiwiSaver scheme introduced in 2007. This scheme enables first-home buyers to access a government subsidy for purchasing their first home for under a set price, which is often below the average house price in the main centres (Allen, 2016a, p. 16). In more rural areas, MDH has not, until now, been an issue because populations, relative to available land, have been low. This is slowly changing as rural populations become ever more conscious about preserving valuable arable and pastoral land (Ashburton District Council, 2012, pp. 4–15; Hastings District Council, 2013, 2015).

Since the 1960s, as growth pressures have increased in the main centres, intensification has significantly shaped the urban form of New Zealand's cities. Levels of growth and growth patterns have been different in different areas. Auckland, for example, has seen the most widespread growth across its metropolitan area, including a surge in the intensification of city-fringe suburbs since the 1980s (Auckland Regional Council, 2010). Since 1951, Auckland has also used a rural urban boundary, also known as a metropolitan urban limit or urban fence. This is to protect rural or open space land and areas of high environmental amenity and to encourage intensified development in specific urban areas to reduce infrastructure cost (Williamson, Paling & Waite, 2007, p. 11). Wellington has seen considerable intensification through both suburban infill and downtown apartment development in the central city. The broader metropolitan area of Wellington has remained low density due to the continued availability of greenfield land and because it does not have the job concentration or geographical constraints of Wellington City (The Property Group, 2014, p. 19). More recently, the urban form of Christchurch has been enormously affected by the 2010 and 2011 earthquakes, which left a great deal of suburban Christchurch devastated by liquefaction. Large areas from Bexley curving around to Avondale, Dallington and Avonside were condemned as part of the Residential Red Zone, and 7,857 homes have subsequently been purchased by the Crown. The majority of these have now been demolished (Statistics New Zealand, 2017a). Newer subdivisions with some MDH integrated as part of these developments have occurred in areas such as Hoon Hay and Delamain. The number of apartments 4 storeys or above has decreased by two-thirds (Goodyear, 2014) in the central city of Christchurch.

While a greater variety of MDH developments, such as terraced housing and low-rise apartments, have been occurring in each of these centres, in many cases, they have not been meeting the intensification targets set out in the centres' urban growth management strategy and policy (Dixon et al., 2001a, p. 1). In existing neighbourhoods around New Zealand, dwelling patterns continue to predominantly take the form of single-storey detached houses (Boon, 2010, p. 297; Dixon & Dupuis, 2003, p. 353). Data from Statistics New Zealand indicates that, at the 2013 Census, low-density stand-alone housing made up 81.1% (1,193,358 dwellings) of the total occupied New Zealand housing stock. Of these, three out of four were single-storey (2017b). In contrast, medium-density attached housing such as units, terraced housing and apartments made up 18.1% (266,748 dwellings) of occupied private dwellings (Statistics New Zealand, 2017b). In Auckland, attached dwellings as a percentage of total dwellings have increased by only 1 percentage point, from 22% to 23%, between the 2006 and the 2013 Censuses (Statistics New Zealand, 2017a). When compared to the 70% of Auckland dwellings that are detached, attached dwellings (23%¹ of the

¹ The remaining 7% include retirement villages and boarding houses, which could be either detached or attached typologies.

total number of dwellings) constitute a relatively small but not insignificant proportion of Auckland's housing stock.

There has been a slower uptake of intensification in smaller towns across New Zealand, although in some areas, this is now beginning to mirror the faster rate of development in main centres. For example, the Ashburton District Council has provided for the development of housing at increased densities within central Ashburton. This is being achieved through the introduction of a new residential zone, which sanctions MDH development ranging from shop-top developments to terraced housing to low-rise apartments. This also promotes "a concentration of people around centrally provided services" (Ashburton District Council, 2012, pp. 4–15). Waipa District Council (2009) has also sought to accommodate increasing densities in the established areas of Cambridge and Te Awamutu by focusing development around the town centres. It also sees the potential for mixed-use development to be integrated into existing residential areas. Further shifts are happening in areas like Gisborne where the District Council has identified a need to provide "opportunities for medium density concepts of housing" (Gisborne District Council, 2015, p. 10).

Framing urban growth management in New Zealand today is a compact city approach to growth (Arbury, 2005; Auckland Council, 2012a; Hamilton City Council, 2010; Knox & Smith, 2007, p. 89; Vallance, Perkins & Moore, 2005; Wellington City Council, 2014a; Wilson, 2009). Current urban growth management policies and strategies have been developed to prioritise continued intensification, primarily in an attempt to avoid further sprawl, protect valuable arable and pastoral land (Waipa District Council, 2009). They are also a response to concerns about sustainability and resilience thinking (Allen, 2016a). New Zealand's changing demographic profile and changing lifestyle preferences have also seen the introduction of liveability or quality of life goals as fundamental components of many growth management strategies across New Zealand (Auckland Council, 2012a; Wellington City Council, 2014a, p. 9). Following international trends, the idea that quality of life can be maintained or enhanced by living at increased densities has also come to the forefront of urban growth literature in New Zealand (Allen, 2016a; Beattie & Haarhoff, 2012; Del Rio, Levi & Duarte, 2011; Gallent & Wong, 2009; Haarhoff et al., 2013; Howley, 2010; Kennedy & Buys, 2010; Lau Leby & Hashim, 2010; McCrea & Walters, 2012; Wagner & Caves, 2011). Wellington City Council adds that "good quality, affordable housing is essential for the wellbeing of our families, communities and a successful city" (2014a, p. 57).

Growth management strategies in New Zealand are underpinned by a belief that distributing density within existing neighbourhoods is the most effective way to manage growth without sprawling or compromising quality of life. This would preferably be achieved through the integration of an increasing number of MDH projects (Auckland Council, 2013; Crawford & Miller, 2014; Saville-Smith, Dwyer & Warren, 2009; Tauranga City Council, 2000; Woodcock, Dovey, Wollan & Beyerle, 2010). As a result, building a compact liveable city has come to mean "focusing growth around town centres that can provide the services, shops and jobs the growing population needs" (Auckland City Council, 2003, p. 12). Moreover, increasing the range of MDH typologies available to residents has been identified as the cornerstone of any successful intensification strategy in existing, traditionally low-density, neighbourhoods (Dixon et al., 2001a; Gray Partners Limited, 2016; Ministry for the Environment, 2012; Wellington City Council, 2016a). In Christchurch, new MDH is also being used as a catalyst for regeneration after the earthquakes (Wines, 2014).

However, Alves (2006), an Australian author, asserts that integrating a greater range of MDH options into the existing urban fabric of established neighbourhoods is one of the most contentious urban growth management issues facing cities today. Similarly, Randolph identifies that the “complexity of the social, institutional and local contexts into which this new higher density urban future is to be injected needs to be fully factored into the planning process to avoid the pitfalls of past urban consolidation policy” (Alves, 2006, p. 489). Turner et al. (2004) argue that planning strategies advocating a compact city approach to growth inherently presuppose the market feasibility of integrating attached typologies into existing neighbourhoods. This is an assumption that is criticised elsewhere in the literature (Udale, 2012).

Affordability is a further issue that is frequently referenced in the literature as affecting the urban growth context (Bassett & Malpass, 2013; Dunbar & McDermott, 2011; Hitchins, Fairgray, Rohani & Wilson, 2014; Mitchell, 2011; Murphy, 2014; Parker, 2015; Thorns, 2009). It relates to MDH in particular because MDH is seen as being one of the answers to the affordability crisis currently occurring in New Zealand’s main centres and rapidly spreading as internal migration to smaller centres also increases. Similarly, ageing housing stock is an issue, especially in a market where skills shortages call into question the market’s capacity to balance the necessary renovation of ageing housing stock alongside new builds (Wilson, 2009, p. 216). These issues, as they are debated in New Zealand literature, are discussed in the subsequent three sections, which address the policy context of MDH in New Zealand, MDH supply and MDH demand.

2.3 The policy context of medium-density housing

The MDH policy context continues to become an increasingly significant component of urban growth management planning. The most significant trend is the increasing number of councils that are developing and implementing MDH-specific urban growth management strategy and policy.

Similarities include procedural concerns about understanding the continued absorption of growth through intensification, barriers to intensification, supply issues and demand considerations. Differences at a strategy and policy level between government agencies and councils are limited and are mostly contextual variances caused by regional dissimilarities in current densities and expected growth. These similarities and differences are outlined in the subsequent two sections.

2.3.1 Regional similarities

In reviewing the strategy and policy context of MDH in New Zealand, it is evident that a fundamental similarity across all the documentation is a preference for compact city approaches to growth that prioritise intensification. Most growth strategies identify that, as a result of favouring MDH options, a ‘business as usual’ approach to managing urban growth will not result in sustainability or quality of life outcomes sought (Auckland Council, 2012a; Hamilton City Council, 2010; Hutt City Council, 2012, p. 6). Most strategy documents in New Zealand also inherently recognise the importance of integrating MDH into existing areas alongside a range of urban amenities. They comment on the importance of MDH being located near town centres and within walking distance of public transport infrastructure, key public amenities, open spaces and parks, shops and other community facilities (Auckland Council, 2013; Dunedin City Council, 2015; Environmental Management Services, 2015, p. 6; Tauranga City Council, 2007; Wellington City Council, 2014a).

Typical of many cities, for example, Hamilton is looking to accommodate 50% of its new dwellings within existing areas of the city and aims to achieve this through regeneration projects. These focus growth around “key nodes including the CityHeart, transport hubs, suburban centres and areas of high public amenity such as parks and the river” (Hamilton City Council, 2010, p. 8). Similarly, in Wellington, MDH “is encouraged in and around key suburban centres complemented by quality housing infill in residential areas. Growth in suburban centres is supported by improvements to transport infrastructure between these centres and the central city” (Wellington City Council, 2014a, p. 9). Furthermore, after evaluating four different growth options, Timaru District Council opted to follow a ‘managed growth model’. This was in order to ensure its residents had “choice, provided in housing typologies, allotment sizes, location, recreation, community facilities and business opportunities” (Morrow, 2015, p. 32). However, there is not always follow-through demonstrated at a policy level (district and long-term plans) in terms of facilitating or incentivising the delivery of this medium-density development.

The literature acknowledges that managing urban growth in a way that prioritises intensification and the increased delivery of MDH options will depend on the following:

- Planning processes that are more consultative and collaborative to increase the range of MDH typologies and affordable options available to residents (Environmental Management Services, 2015, p. 51; Hutt City Council, 2012; Wellington City Council, 2014a, p. 60; 2016b). This includes working with the market to understand the feasibility of such development projects and development capacity, land agglomeration issues, redevelopment potential and market demand (Dunedin City Council, 2015, p. 1; Environmental Management Services, 2015, p. 10; Wellington City Council, 2016a).
- More active facilitation by councils of MDH projects (Environmental Management Services, 2015, p. 53). Ideas suggested in Wellington strategy and policy documentation (Wellington City Council, 2014a, p. 59) include:
 - taking an active development role by partnering with external parties to deliver MDH development in existing growth areas
 - removing legislative barriers to assist external partners to deliver housing that aligns with council vision and facilitating the amalgamation of lots to remove fiscal barriers for approved MDH projects.

Hastings District Council agrees that delivering increased MDH “will require a change in development methods to achieve the necessary form of intensification” (2015, p. 1). Similarly, a review of nine previous Auckland housing studies by Mitchell (2011) found a key solution to encourage market-led intensification in the form of attached dwellings is the removal of existing legislative barriers that are encumbering MDH development. Auckland Council acknowledges that it will need to look at “new and bold approaches” (2011b, p. 134) to deliver intensification and that “there will have to be major changes to the urban form of the city, and a major reshaping of the planning system” (2011c, p. 52).

- A comprehensive mixed-use approach that encourages walkability and accessibility to a variety of urban amenities. These include local shops and services, community facilities, schools, public transport, and parks and open spaces (Auckland Council, 2012a, p. 31; 2013; Wellington City Council, 2016a).
- The promotion of increasing housing choices and the range of typologies on the market (Wellington City Council, 2014a, p. 60; Environmental Management Services, 2015, p. 6; Hastings District Council, 2015). This is largely in response to affordability concerns and in response to demographic changes that are creating a demand for more diverse housing opportunities (Napier City Council, 2011).

- Lastly, an emphasis on good urban design and quality architecture reflecting the context, character and scale of building anticipated in the neighbourhood (Environmental Management Services, 2015, p. 51; Wellington City Council, 2016a). Poor urban design is seen as a barrier to quality MDH outcomes (Ministry for the Environment, 2004, 2005a, 2005b, 2006; Waipa District Council, 2009). Part of this is the amenity of intensification projects determined by their location and their design. Sunlight admission, noise concerns, privacy, traffic impacts, perceived open spaces and infrastructural capacity are examples of some of the amenity concerns (Dunedin City Council, 2015, p. 2; Environmental Management Services, 2015; Napier City Council, 2011). An urban amenity indicators project was undertaken by the Ministry for the Environment in the early 2000s as part of a liveability and neighbourhood development project (Bell, 2000a, 2000b, 2000c, 2001; Hill & Spargo, 1998; Leggett, 1996; Parliamentary Commissioner for the Environment, 1997). The project was conducted nationwide and focused on amenity attributes and amenity values. Amenity attributes were defined as “the tangible and measurable aspects of the environment” such as noise and pollution (Bell, 2000c). Amenity values were defined as “the less tangible aspects of the environment such as people’s perceptions, expectations, desires, and tolerance” (Bell, 2000c). These factors were assessed as indicators of liveability. The project also drew in notions of wellbeing and the role amenity attributes and values played in satisfaction. There was no differentiation made between the attributes and value associated with MDH neighbourhoods versus low-density ones.

This list of regional similarities at a policy and strategy level in New Zealand strongly contributes to key aspects of MDH supply and demand issues, outlined in sections 2.4 and 2.5.

2.3.2 Regional differences

Regional differences are generally minimal and fall into two categories. They are either semantic differences between strategy or policy wording and terminology, or they are contextual differences relative to the existing scale and density of the surrounding built environment. For example, in the Hutt City housing policy, high-rise apartments are defined as being 4–5 storeys (Hutt City Council, 2012, p. 27), whereas 3–5-storey apartments are considered low-rise medium-density apartments in Auckland (Auckland Council, 2013). While these definitions differ and are shaped by the context of each city, both cities have an urban growth management strategy that prioritises intensification and is therefore methodologically or ideologically aligned.

In some city policy, MDH predications are more clearly stated than in others. The Central Hawke’s Bay District Plan, for example, seeks “to promote medium density development as the predominant residential character” (Central Hawke’s Bay District Council, 2003, p. 73), whereas other regions have developed an approach to density more incrementally (Queenstown Lakes District Council, 2016). Despite the different approaches in MDH strategy and policy statements, they are generally methodologically and ideologically aligned in the way they favour intensification, so it is considered that these differences are minor.

Contextual differences by region are most noticeable between New Zealand’s main cities. For example, whilst rising house prices and declining housing affordability have been given national attention, their effects have been felt most keenly in Auckland. Rising land and construction costs relative to incomes, as well as supply and demand mismatches, have been cited as the main issues (The Property Group, 2014, p. 25).

Christchurch is in a different position because of how the 2010 and 2011 earthquakes spatially changed the city and the opportunities for land agglomeration and redevelopment. As a result, “the Land Use Recovery Plan (LURP) ... introduces a set of changes to the Christchurch City Plan which incentivise medium density multi-unit residential redevelopment within existing parts of the city’s built up areas” (Christchurch City Council, 2014, p. 2). Notably, this mechanism also: “encourages the comprehensive design and redevelopment of multiple adjacent residential sites with the goal of securing better residential environments than those which might be achieved from uncoordinated site by site redevelopment of the same land” (Christchurch City Council, 2014, p. 2).

Beyond the aforementioned differences, large-scale inter-regional studies across New Zealand are limited, and therefore, to report further on the regional differences in the policy context would require further research.

2.4 Medium-density housing supply

The supply of housing generally, and MDH in particular, is a significant issue facing New Zealand cities. There are two distinct aspects of housing supply covered in the literature: current supply and future supply. Current supply includes all the available housing stock for purchase or rental, issues associated with the state of this stock and the market forces affecting its procurement by potential renters and buyers. Future supply includes all the housing that is in the consent pipeline and that which could potentially be built as the result of the convergence of market forces and housing demand.

The area of housing supply research has received increasing attention in recent years, as it has become a growing issue. However, it remains one of the more under-researched areas of housing research in New Zealand when compared to other topics and sectors. The resultant research gaps are outlined where appropriate in the subsequent sections.

2.4.1 Current supply trends and market forces

Ultimately, Housing New Zealand Corporation concludes that “there is an insufficient supply of affordable housing in some areas, especially Auckland where the greatest growth in households is projected” (2004, p. 10). There are a series of components that make up the current supply of MDH. Firstly, the statistics on the available stock are listed by Statistics New Zealand. They are then used in the literature to outline some of the challenges that the housing market is either faced with or causing.

At the time of the 2013 Census, nine out of 10 dwellings (1,570,695 dwellings) were occupied (Statistics New Zealand, 2017a). One in 10 dwellings was unoccupied (185,448 dwellings). The number of occupied dwellings has risen by 0.9% since the previous Census in 2006, whereas the number of unoccupied dwellings has risen by 16.4%² over the same period (Statistics New Zealand, 2017a). New dwellings are only a relatively small share of house sales – the majority comes from existing stock (Department of the Prime Minister and Cabinet, 2008, p. 35).

² About one-quarter of this total can be accounted for because people were away from their homes at the time of the Census, leaving 12.3% to be a truer representation of unoccupied dwellings.

Detached dwellings remain the predominant typology across New Zealand, making up 80.1%³ (1,193,358 dwellings) of current housing supply. Of these, three out of four dwellings are single-storey. Attached housing, such as units, terraced houses and apartments, make up 18.1% (266,748 dwellings) of the current housing supply (Statistics New Zealand, 2017a).

A trend noted by both Statistics New Zealand and in other literature was that the supply of larger dwellings has continued to increase in recent years. This is particularly the case at the city fringes, despite affordability issues and an increasing number of smaller households (Department of the Prime Minister and Cabinet, 2008; Statistics New Zealand, 2017a). Larger dwellings have also become occupied by smaller households. As a result, 'surplus bedrooms', where one or more rooms are not occupied, is increasing. This needs to be factored in to an understanding of how supply and demand interact (Auckland Regional Council, 2003). Conversely, smaller dwellings of 1 and 2 bedrooms have increasingly become occupied by larger households (Auckland Regional Council, 2003, p. 12). This has led to reports of a mismatch between supply and demand in cities such as Auckland (Auckland Council, 2011a; Yeoman & Akehurst, 2015). For example, Page (2008) concluded from 225 recent mover surveys that it seemed unlikely that the housing currently being built in Auckland would be adequate to meet the future needs and evolving preferences of residents.

3-bedroom dwellings continue to be the most prevalent typology, making up 44.5% of occupied private dwellings (Statistics New Zealand, 2017a). 2-bedroom dwellings experienced a slight decline in the current supply, and 1-bedroom dwellings remained the rarest at 5.7% of total occupied private dwellings as at the 2013 Census (Statistics New Zealand, 2017a). This supply data contradicts the demand data presented in section 2.5, which connects the demographic trend towards smaller households with the need to increase the number of 1–2-bedroom dwellings.

Market forces affecting current supply trends range from increasing land prices, development capacity unknowns, affordability issues, reduced home ownership and an increasing rental market. While this can be generalised across New Zealand, forces are different in different areas. Auckland's booming house prices, for example, are difficult to compare to Palmerston North where the market has slowed (Palmerston North City Council, 2011).

An additional trend presented in the literature that reflects supply issues is the 'missing middle' concept (Opticos Design, 2017; Parolek, 2017; The Committee for Sydney, 2016). The missing middle is described as "the range of multi-unit or clustered housing types compatible in scale with single-family homes that help meet the growing demand for walkable urban living" (Parolek, 2017). These typologies are not available in the quantities that are needed for potential residents. See Figure 1 for the range of typologies included. Despite its relevance, the missing middle concept has not yet been extensively considered in New Zealand. One of the only references to it is on the Greater Auckland website (2012), which provides evidence-based debate on urban form, transport, housing, design and public space.

³ Figures calculated from the data returned to Statistics New Zealand from occupied households.



Figure 1. The missing middle typologies (Parolek, 2017).

A final issue identified in the literature regarding current supply is the need to address the state of New Zealand's MDH stock (Buckett, Jones & Marston, 2012). In a Centre for Housing Research Aotearoa New Zealand report (2006, p. 7), it is identified that there is a need to address the quality of 70% of New Zealand's current housing stock. It is unclear what proportion of this 70% are MDH typologies.

Housing in New Zealand follows market ebbs and flows, and thus there are large portions of New Zealand cities with ageing housing stock. This needs to be factored in to calculations of both current and future supply. Housing New Zealand Corporation, for example, acknowledges that "much of the state housing stock needs to be modernised to meet current standards, especially in kitchens and other wet areas" (2005, p. 49). The leaky homes crisis is another issue factored in to a complete picture of housing supply. This is "where a relaxation of building standards resulted in a number of houses being built that were not weathertight" (Statistics New Zealand, 2015, p. 9). This issue affected typologies of varying densities, including MDH ones. It is not often discussed in the literature alongside maintenance issues as a factor that affects supply forecasts. Ultimately, to develop a complete picture of current and future MDH supply, the existing and likely future issues with existing MDH stock must be factored in to supply calculations and predictions.

2.4.2 Future supply trends and market forces

The supply pipeline includes all the approved building consents granted by councils. It is part of the future predicted supply of housing. Future supply is, in turn, also strongly affected by demand predictions, which may or may not turn into building consents and eventually a completed dwelling. Demand predictions are still mostly geared towards conventional building forms such as single-storey detached dwellings. However, "when circumstances change (for example, where the land supply reduces, where planning policy changes or where customer preferences change), the building sector is generally quick to respond" (Environmental Management Services, 2015, p. 52). The ability of the built environment industry to respond to shifts in demand is affected by market forces. These include project funding mechanisms, land supply or development capacity concerns (including zoning and amalgamation issues) and capacity and capability of the construction sector to deliver (Environmental Management Services, 2015, p. 52).

Consents overall have been steadily increasing, as shown in Figure 2. This includes low-density stand-alone housing, a range of MDH typologies and high-density apartments.

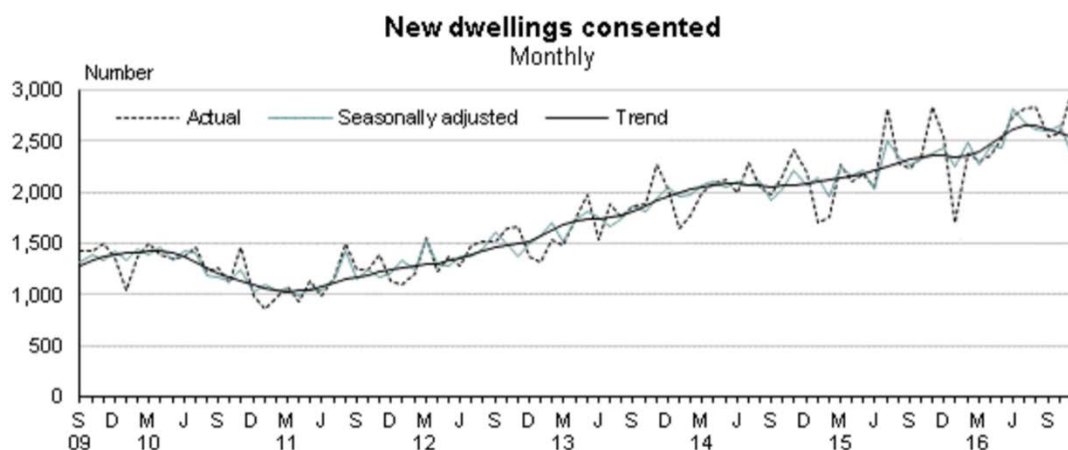


Figure 2. Trends in consented dwellings (Statistics New Zealand, 2017a).

Source: [Stats NZ](#) and licensed by Stats NZ for reuse under the [Creative Commons Attribution 4.0 International](#) licence.

The percentage of overall housing that can be classified as MDH is not increasing at the rates predicted by local councils. This contradiction between housing supply predictions and consented percentages of MDH has caused a number of local councils to carry out MDH viability research (Moncrieff, 2015). In many instances, this has led to the discovery of a key supply issue – the potential shortfall of homes, irrespective of density, to meet housing needs. For example, it is acknowledged in the Auckland Plan that there is currently a shortfall of approximately 10,000 homes to meet the basic housing needs of existing Auckland residents (Auckland Council, 2012a). Additionally, on average, 11,000 homes will need to be built each year to meet projected growth targets up to 2040. This shortfall equates to a ‘housing crisis’, “with a chronic and increasing shortfall in supply, affordability, diversity and quality of housing stock” (Auckland Council, 2012b).

In the Wellington Housing Accord, the city’s housing shortfall is estimated to be 3,842 dwellings (Wellington City Council, 2014b). Following the devastating earthquakes in Christchurch in 2010 and 2011, it was estimated that there was a housing shortfall of 7,100 homes. This takes into consideration the effects of the Christchurch earthquakes on homes and on internal migration to and from the centre (Ministry of Business, Innovation and Employment, 2013). However, more recent reports are hopeful that housing supply is tracking to meet housing demand in Christchurch by mid-2017 (Ministry of Business, Innovation and Employment, 2016b). Given that, on average, 24,000 homes are built each year in New Zealand, the ability of the current market to meet these housing needs across New Zealand is not assured (Auckland Council, 2012a). Where supply is being delivered, it is not necessarily MDH nor in the existing neighbourhoods identified in the Auckland Plan as being the most desirable. This would appear to be due to issues with the following four market forces:

- The difficulty of aggregating sufficient land for meaningful redevelopment in urban centres due to fragmented land ownership and the high level of land prices in areas surrounding the city centre.
- Lack of specificity in council district plans, which creates uncertainty for developers about where and when development is needed.
- Increased holding costs for developers awaiting approval processes.

- Community resistance to higher-density development based on poor perceptions of previous poorly located, low-quality developments, including leaky buildings (Department of the Prime Minister and Cabinet, 2008, p. 63).

In response to these supply issues and to boost supply, Housing Accords and Special Housing Areas legislation was introduced as part of Budget 2013. It is designed to enable the streamlining of new housing developments (which can include but are not necessarily MDH). Housing Accords have been signed in Auckland, Christchurch, Nelson, Queenstown, Selwyn, Tasman, Tauranga, Wellington and the Western Bay of Plenty (Ministry of Business, Innovation and Employment, 2016a). To address the housing shortage in Auckland, developers such as Udale argue that “to assist the industry to meet the targets for supply, the Unitary Plan should be permissive and enable widespread infill housing with a range of typologies to occur” (2012, p. 4). He also contends that, “the most viable and prolific forms of infill housing for at least the next decade will be small lot/attached/terraced housing delivered by a multiplicity of projects” (see also Auckland Council, 2011c, p. 51; 2012, p. 4). While the Unitary Plan has now been released, it is too early to conduct research to assess its impact. There remain challenges to the small-scale development discussed by Udale. The challenges include the contribution costs associated with individual subdivisions as well as land agglomeration issues coupled with land in relation to building costs affecting the viability of smaller projects.

Dunedin City Council has actively looked at policy barriers to MDH and tried to correct them. Additional MDH zones have been added to Dunedin’s planning policy. Building and site performance standards have been altered in some areas, including reducing the minimum site size from 500 m² to 200 m². Minimum setbacks from the street have been reduced from 4.5 m to 3 m, and the minimum side/rear boundary setback has changed from 2 m to 1 m. Height in relation to boundary angles has also changed from 63° to 45°. Maximum heights have increased from 9 m to 12 m in some zones, and maximum site coverage has increased from 40% to 60% (Dunedin City Council, 2015, p. 6).

Medium-density typologies are seen as a potential way to increase supply as land prices rise (Auckland Council, 2012a; Nunns & Rohani, 2016; The Property Group, 2014; Wellington City Council, 2016a, 2016c; Whanganui District Council, 2013). Gray and Hill, for example, consider that supply should anticipate and shape demand “by offering housing at a quality and price point that incentivises a wider range of households to live in intensive housing” (Gray & Hill, 2010, p. 51).

The development process and a development perspective are increasingly being seen as a necessary angle to consider when addressing supply trends and shortfalls in research (Gray Partners Limited, 2016). Gray Partners Limited, for example, notes that developers have “begun to recognise the commercial benefits of building small” (2016, p. 19). Based on their “feasibility assessment series”, townhouse-style developments currently provide the best returns for developers in all locations. In particular, 2-bedroom townhouse-style units (70–80 m²) spread over two levels, with basic levels of amenity including car parking but no garage, and similar-style 3-bedroom townhouse units (90–100 m²) without garaging (2016, p. 19).

Other market forces affecting future supply trends include:

- issues of feasibility from borrowing or finance issues
- zoning changes to land amalgamation issues
- development capacity to accommodate growth

- changing construction costs as they are affected by skills and materials shortages (Department of the Prime Minister and Cabinet, 2008; The Property Group, 2014, p. 53).

New Zealand's "highly customised and labour intensive approach to residential construction" (Department of the Prime Minister and Cabinet, 2008, p. 51), which makes it difficult to take advantage of economies of scale, is also an issue. These trends are identified as issues in a variety of publications yet remain one of the least-researched areas of housing research in New Zealand. The Department of the Prime Minister and Cabinet, for example, suggests that "the New Zealand construction sector has exhibited low levels of productivity over the last 20 years". However, they also state that "further work is needed to understand how best to address these issues" (2008, p. 8).

2.4.3 Demographic profiles of medium-density housing residents

Although reported in previous literature reviews (Slocombe, 2010), demographic profiles of MDH dwellers are difficult to isolate in the literature. Statistics New Zealand does not divide its tenure data by typology nor group its data as per low-density, medium-density or high-density categories. Generally, information is provided for apartments as a single grouping, whether they are high-rise downtown apartments or more MDH typologies integrated into suburban areas. For these reasons, it is difficult to distinguish between the findings for high-density downtown apartments and smaller-scale medium-density ones of up to 6 storeys.

While the data is not itemised, there are still trends identified about the type of residents who are likely to be currently living in MDH stock or for whom MDH is suitable. These include first-home buyers, young professionals, students, families with children, single-parent families, retirees and empty-nesters (Page & Rosevear, 2015). Gray Partners Limited (2016) comments that, to understand which MDH housing typologies are the most viable, it is useful to know who is currently living in MDH. It offers the following list of the current demographic groupings inhabiting MDH based on feedback it gathered from developers and real estate agents and through its own research:

Professional couples and singles are the mainstay of the suburban multi-unit housing market, including first-home buyers who are able to take advantage of lower deposit requirements for new-build housing

There is also strong interest in medium density housing from investors, especially in areas where net yields are accompanied by strong prospects for capital growth.

Post-family households looking to downsize from an existing home are also represented strongly in areas where they can trade down from their existing home and free up capital for other uses.

Family households (generally two parent families with one or two small children) make up only a small minority of current multi-unit housing purchasers, and are mostly first-home buyers.

We also note that a significant proportion of recent multi-unit sales in suburban and inner residential areas appear to be to 'new [New] Zealanders' [(first and

second generation New Zealanders)], perhaps reflecting high levels of external migration over the past fifteen years. (Gray Partners Limited, 2016, p. 1)

This range is indicative of the way that MDH is reported in planning strategy and policy to suit a broad demographic. This also means that to understand both housing needs and preferences requires considering the trade-offs that this broad demographic might make when choosing where to live. The issues associated with these demographic groupings are outlined in section 3.

2.5 Medium-density housing demand

Discourse about MDH needs, preferences and choices is embedded within broader housing literature, which is not always density specific. Therefore, while the focus of this section is the literature that pertains to MDH demand, the literature reviewed here is a mix of MDH-specific and generalised housing literature.

Housing demand and the identification of future housing trends are core elements in determining if current and future housing supply are on track to meet the needs and preferences of residents. To understand the full complexity of housing demand, it is critical to understand both sides of the demand equation. Demand results from a combination of housing needs and housing preferences. Housing needs largely can be determined by identifying demographic trends and projections and synthesising these alongside tenure trends and projections. Housing preferences, on the other hand, are subjective and changeable. They are impacted by the housing experiences of residents, their perceptions of quality of life and their preparedness to move as linked to their housing aspirations. As a result, they are also impacted by the trade-offs that they make in the housing choices process.

One of the key points missing from housing demand research is the acknowledgement of how multifaceted it is. A core issue in much of the literature is that the demand equation between housing needs and preferences is rarely considered thoroughly. There tends to be a 'one or other' approach where housing needs are considered in isolation from preferences or vice versa, giving an incomplete picture of the true nature of housing demand. This is in large part because housing preferences are continually evolving. Preferences are influenced by population, employment trends, lifestyle preferences and settlement patterns (Bay of Plenty Regional Council, 2016). Therefore, research must be continuously updated to remain current.

The biggest issue within housing demand research is that it is generally linked to quantitative rather than qualitative data. For example, it is often assessed by considering factors such as population growth rates, household formation patterns, the cost and availability of credit, economic growth projections, employment levels and investment demand (Department of the Prime Minister and Cabinet, 2008, p. 23). These are some of the key factors of demand. However, this list does not account for people's preferences or their lifestyle expectations. These factors are changeable and are affected by socio-cultural shifts. The changeability and qualitative nature of these factors make them more difficult to research and predict, but anything less is an incomplete picture of housing demand. The demand specifically for MDH typologies is embedded within trends in the overall demand for housing. Studies that consider MDH specifically are considered in section 2.5.2 and section 2.5.3.

2.5.1 Medium-density housing needs

Housing needs are defined as “shortfalls from certain normative standards of adequate accommodation” (Bramley, Pawson, White, Watkins & Pleace, 2010, p. 25). Adequate housing is considered to be “a fundamental human need”, which has a significant influence on health, wellbeing, and economic advancement (Carter, Paterson & Williams, 2005). Basic housing needs are determined by assessing how many homes will be required to meet demographic and locational predictions. In other words, this means assessing the likely numbers of single-person households, couples, dependents and shared households (those likely to flat with others) and where these groupings are likely to be living. They are also affected by trends in tenure. Understanding how well MDH meets the needs of residents is identified as a key research area by Statistics New Zealand (2017a) as part of its Social Statistics Programme.

However, housing need is only one part of the housing demand equation because it does not account for housing preferences. In other words, identifying housing need alone does not account for where people may choose to live due to financial means. People may end up accepting something other than their preferred housing choice if they don't have the financial means. It is, therefore, a combination of housing needs and housing preferences that ultimately shape housing choices and the trade-off process residents engage in to make these choices (Kelly et al., 2011; Mead & McGregor, 2007, p. 15; Yeoman & Akehurst, 2015).

Demographic trends and projections

Demographic trends reported in the literature as affecting housing needs include, most commonly, an ageing population and later family formation, resulting in smaller household sizes (Statistics New Zealand, 2017a; The Property Group, 2014, pp. 8–9; Wilson, 2009). These affect both housing needs generally and MDH needs specifically, because these demographic groups are seen as the most likely to opt for MDH typologies when they make their housing choices.

An ageing population has received considerable attention in New Zealand-based MDH research in recent years (Davey, 2008; Davies, 2007; James, 2016a; James & Saville-Smith, 2014; Jeram, 2014; Saville-Smith & Fraser, 2014; Saville-Smith & James, 2010; Saville-Smith, James, Warren & Coleman, 2009). Population ageing is caused when decreasing fertility rates are accompanied by decreasing mortality rates that together result in an overall increase in the median age of the population (Statistics New Zealand, 2013). Housing needs for an ageing population are associated with their reduction in income as well as their changing needs for healthcare, social services and practical support (James, 2016a). Statistics New Zealand projections for an ageing population are also likely to see demand grow for MDH options located close to town centres within walking distance of a range of urban amenities (Statistics New Zealand, 2017a; Whanganui District Council, 2013).

One of the biggest decisions older people make is whether to stay in their current home or to move. Many choose to downsize in order to free up capital for their retirement and/or enjoy a lower-maintenance home (James, 2016a). This downsizing process often involves a move into an MDH typology. There does remain a strong cohort within this grouping that wish to remain in their family home (James, 2016b). However, Statistics New Zealand (2009) has been consistently reporting that the New Zealand resident population aged 65 years and over has become increasingly mobile over the last decade. Over 65's are now the most likely demographic grouping to have moved house within New Zealand within the previous 5 years. Still, both existing

housing stock and new builds lack basic accessibility features for older residents. In the past, MDH options in particular have not necessarily been designed with this target market in mind (James, 2016b). Gray Partners Limited (2016) comment that the motivations and potential MDH choices available to older renters is worthy of additional study.

As part of this, a key trend identified in the literature is the desire to 'age in place' (Davey, 2008; Davies, 2007; James, 2016a; Saville-Smith, James et al., 2009). Depending on how it is defined in individual studies, this can involve either staying in the family home or moving but staying in the same neighbourhood. For example, in a national survey of 1,600 older New Zealanders, James and Saville-Smith (2010) found that nearly 20% of participants reported that they intended to move within the next few years. Furthermore, a recent doctoral study conducted by Allen also confirmed that retirees interviewed in the study, who currently lived in MDH typologies, were "anxious about 'ageing in place'. This was because, even though they wanted to, there were not enough attached housing options available for them if they wanted to downsize" (2016b, p. 105).

A second key trend shaping housing needs predictions in New Zealand is the diversification of family life that is occurring. This includes delayed household formation rates, increasing divorce rates, a decreasing number of households with children, delayed childbearing, an increase in single-parent households and an increase in one-person households (Wilson, 2009). This is relevant to MDH needs because smaller households are believed to be one of the best-suited demographics to embrace an increasing number of MDH options.

There are several crossovers discussed in the literature between MDH needs and the diversification of demographics. Dunedin City Council, for example, is currently promoting MDH as a response to its largest demographic growth area – smaller households. This includes 'empty nesters', couples with no children at home "who often want to transition to warm and low maintenance housing types in their existing neighbourhoods" (Dunedin City Council, 2015, p. 1). A Dunedin study reported that the growth in smaller households of one or two people has prompted the council to rethink how it estimates housing needs and consider residential development (Johnson, 2016).

The housing needs of Māori and Pacific peoples have also arisen as an important issue in the literature (Berry, 2014; Carter et al., 2005; Flynn, Carne & Soa-Lafoa'i, 2010; Housing New Zealand Corporation, 2004, 2005; Joynt, Tuatagaloa & Lysnar, 2016; Lysnar, Tuatagaloa & Joynt, 2016; Ministry of Business, Innovation and Employment, 2014; Waldegrave, King, Walker & Fitzgerald, 2006; Waldegrave, Love & Stuart, 2000; Waldegrave, Thompson & Love, 2013).

In terms of statistics, these ethnic groups are characterised by high rates of mobility (Flynn et al., 2010) and are less likely to own their home and more likely to live in rental accommodation (Carter et al., 2005; Lysnar et al., 2016; Statistics New Zealand, 2017a). Other primary housing challenges include higher than average rates of household crowding (Lysnar et al., 2016). This may be as a result of needing to accommodate larger numbers of people in each dwelling (Lysnar et al., 2016, p. 33). Housing quality issues were embedded within the findings. For example, while nearly half of all New Zealanders consider that they live in cold homes, the Pacific population were the ethnic group most likely to report issues regarding cold and damp dwellings (Berry, 2014; Statistics New Zealand, 2016). Joynt et al. add that it is important to

remember that, just as with any grouping, Pacific people aspire to “safe and secure tenure in healthy homes” (2016, p. 28).

Flynn et al. (2010) highlight the importance of thinking beyond these base statistics. Māori research must engage with a tikanga Māori view of housing and land guardianship, which is guided by the social, spiritual and emotional values Māori associate with concepts of home. These are often a step removed from Western systems of home ownership (Flynn et al., 2010). Lysnar et al. add that “care must be taken to avoid viewing Māori as a homogenous group” (2016, p. 2). This sentiment carries across to MDH-specific studies, which must also embrace a tikanga Māori view of housing and land guardianship when addressing Māori MDH issues and preferences.

In 2014, the Ministry of Business, Innovation and Employment developed He Whare Āhuru He Oranga Tāngata, The Māori Housing Strategy. It identified six directions to improve housing outcomes for Māori:

- Te Huarahi Tuatahi – Direction One: Ensure the most vulnerable Māori have secure tenure, and access to safe, quality housing with integrated support services.
- Te Huarahi Tuarua – Direction Two: Improve the quality of housing for Māori communities.
- Te Huarahi Tuatoru – Direction Three: Support Māori and their whānau to transition to preferred housing choices.
- Te Huarahi Tuawhā – Direction Four: Increase the amount of social housing provided by Māori organisations.
- Te Huarahi Tuarima – Direction Five: Increase housing on Māori-owned land.
- Te Huarahi Tuaono – Direction Six: Increase large-scale housing developments involving Māori organisations (2014a, p. 9).

Māori housing has also been identified as a priority area within the Whai Painga workstream of the Te Toa Takitini programme and is being addressed by the Māori Housing Unit in the Development Programme Office at Auckland Council (Lysnar et al., 2016).

A consistent theme in the literature is the lack of both qualitative and quantitative data regarding Māori and Pacifica housing preferences and choices (Berry, 2014, p. 7; Joynt et al., 2016).

Tenure trends and projections

The data on home ownership by households shows that ownership is slowly declining (Bourassa & Song, 2016; Statistics New Zealand, 2017a; The Property Group, 2014, pp. 8–9). Some research has questioned if the recent decline in home ownership is “a permanent/structural shift towards a new tenure mix or is it merely a deferral of purchase by a new generation of buyers whose associated decisions – on marriage, final degree qualifications and fulltime job entry – are also being taken later in life?” (Morrison, 2008).

In total, 64.8% of households owned their home or held it in a family trust in 2013, down by 2.1 percentage points from 2006 (Statistics New Zealand, 2017a). This includes both households who did and did not make mortgage payments. Rentals have been steadily increasing in New Zealand. In 2013, 453,135 households rented their home, up by 64,860 since 2006 (Statistics New Zealand, 2017a). Like households overall, renters were most likely to be single-family households (63.3%) or one-person households (23.5%). Flattening arrangements or multi-person households made up 9.3%



of households that rented their home. Increasing numbers of renters can be attributed to the increases in real house prices. The Department of the Prime Minister and Cabinet (2008, p. 20) reported that, between March 2002 to 2007, real house prices increased dramatically by nearly 80%. This was an equivalent rise for the entire period spanning from 1962 to 2002. On 15 July 2016, the *NZ Herald* reported Auckland prices had “risen by 85 per cent in four years, taking the average price to around nine times the average household’s disposable income”. Affordability issues, tied to land prices, are intrinsically linked to MDH outcomes. The literature implies that, because of the growing unaffordability of land, MDH typologies will become increasingly common because the land cost per dwelling decreases with increasing housing density (Murphy, 2014).

It has been predicted that future housing demand will be characterised by an increasing reliance on and acceptance of the rental market. This is not only for single occupants but also for families with young children (Beacon Pathway, 2010). It is predicted demand for MDH will rise as families face an “on-going trade-off between housing performance and price in both the home ownership and rental sectors” (Beacon Pathway, 2010, p. 117). From a 2015 advisory report for the Christchurch City Council, Environmental Management Services commented that it felt “the Kiwi dream of owning a ‘quarter-acre pavlova paradise’ is still alive and well despite the diminishing prospect of its becoming a reality in cities where land is becoming an increasingly scarce and higher priced resource” (Environmental Management Services, 2015). It is unclear how this conclusion was researched and whether it spoke to all demographics in all centres in New Zealand as it claimed. However, the key takeaway from this research is that affordability constraints are set to play a significant role in uptake and desirability of MDH options as growth continues in New Zealand’s urban centres.

Small-scale policy interventions to support households into home ownership are currently provided in New Zealand through programmes such as:

- Welcome Home Loans (3,000 people since September 2003)
- Shared Equity pilot scheme (beginning in July 2008)
- KiwiSaver (projected to assist 1,400 people into home ownership each year from 2010)
- the Housing Innovation Fund (HIF), which provides support for the non-government social housing sector (Department of the Prime Minister and Cabinet, 2008, p. 20).

The efficacy of these programmes is unclear in the literature. The Social Housing Reform Act 2016 has implications here also by enabling community housing providers to access income-related rents that were previously only accessible to Housing New Zealand. Waimahia Inlet in Auckland is an example of this (Fergusson, Witten, Kearns & Kearns, 2016). However, only a minority of the houses built are MDH.

A key link expressed in the literature between tenure trends and housing demand overall is ‘ability to pay’ (Yeoman & Akehurst, 2015). Housing affordability is connected closely in the literature to tenure trends (The Property Group, 2014). The Department of the Prime Minister and Cabinet posits that:

Financial deregulation helped put in place the conditions that have allowed households to borrow more through a gradual change in lending practices. Financial deregulation in isolation is likely to have had a relatively small impact on the demand for housing, however, the combination of deregulation, lower

nominal and real interest rates and an increase in the global availability of credit has seen a large increase in borrowing capacity. This has encouraged people to 'trade up' their dwelling by buying a bigger and better house, adding to demand for housing and lifting prices. Interest rates began to increase from 2004 onwards, progressively reducing the importance of interest rates as a driver of increased demand for housing. Many of these factors have also played a part in driving house prices up in a number of other countries. (2008, p. 29)

Beyond the New Zealand Productivity Commission's work (2011, 2015), there is limited economic research into these housing issues, particularly the issues surrounding the relationship between the lending practices of the present debt-based monetary system and the subsequent competition for home ownership. This, in turn, bids up the prices of real estate out of proportion to average incomes. Similarly, the specific effects on MDH outcomes within this relationship are not being considered.

Available information about housing choices may also be skewed towards indicating a demand for larger homes (likely to be traditional stand-alone low-density housing typologies) over MDH typologies because the market has enabled such choices to occur. Ultimately, people can only choose what is available to them, and these choices can then become preferences by default rather than through merit. However, given the continued issues with affordability, it is unclear from the literature if this process will continue and, if so, what the effect on MDH typologies will be.

A significant driver of rental housing growth identified in the literature has been the shift in housing behaviour of 30–44-year-olds. This age group are now spending longer in the rental market and are also more likely to accept MDH typologies. Historically, this group entered home ownership during their family-formation life stage, yet between 2001 and 2013, home ownership rates for this group fell by 15 percentage points. This has been attributed both to later family formation and also to changing lifestyle preferences (Beacon Pathway, 2010; The Property Group, 2014, p. 37).

2.5.2 Medium-density housing preferences

There is an increasing body of literature in New Zealand that points towards a reshaping of housing preferences as significant economic, social and technological changes over the last 30 years have revised how residents conceptualise their housing preferences and, thus, their process for making housing choices.

Housing preferences literature reports on a long-standing preference for detached housing typologies (Dixon & Dupuis, 2003; Dixon et al., 2001a; Haarhoff et al., 2012). This is despite some studies reporting that MDH dwellers are generally happy with their housing (Allen, 2016a; Dunbar & McDermott, 2011; Haarhoff et al., 2012). Johnson (2016) concludes that not everyone who wants to live in an apartment or low-maintenance typology also wants to live in the central city. This suggests that MDH typologies are more likely to be accepted where they are carefully integrated into existing suburban neighbourhoods. Speaking about the Dunedin context, Johnson (2016) adds that a growing number of residents want choices within their existing neighbourhoods. This has resulted in a rise in demand for quality smaller homes, some of which are MDH, in popular Dunedin suburbs.

Research on MDH preferences in Wellington considers that "although three bedroom housing is still the norm, two bedroom townhouses have become a regular feature in recent suburban multi-unit developments as the market adjusts to smaller housing forms that suit singles and couples, and that are more affordable than bigger housing

forms" (Gray Partners Limited, 2016, p. 4). However, despite considering the growing acceptance of MDH in Wellington, Gray Partners Limited (2016, p. 19) contends that the market acceptance of medium-density options has yet to extend to 1-bedroom housing. Multi-unit apartment-style units (with neighbours above and below) have become an accepted typology in downtown areas but are not generally a preference for residents in more suburban areas.

A study based in Christchurch considered the relationship between demand barriers to MDH and housing preferences. It was concluded that two core challenges need to be overcome if MDH is to become an increasing reality:

- Negative perceptions associated with medium-density residential developments resulting in reduced demand and greater risks for developers.
- Opposition to proposed medium-density residential developments from owners of more traditional forms of residential accommodation, exhibiting the classic NIMBY (not in my backyard) syndrome (Environmental Management Services, 2015).

Housing preferences vary depending on the life stages and lifestyle expectations of residents (Allen, 2016a). This can also be reflected in variations by region (Early, Howden-Chapman & Russell, 2015, p. 215). Favouring security, outdoor entertaining spaces and storage for key life acquisitions are three housing preferences that were found to strongly affect housing preferences (Allen, 2016a; Wilkinson, 2006). Location preferences are also an important aspect of housing preferences. Wilkinson (2006) conducted a stocktake of existing consultation on urban intensification in Auckland. They found that the secure, low-maintenance nature of MDH developments linked to location preferences and the convenience of living near urban amenities are the most common housing preferences that influenced housing choices.

A study by Saville-Smith (2010) found that, for a majority of the 87 focus group participants, location was a critical factor when deciding where to live. Participants identified that their location preferences were shaped by factors such as proximity to family and friends and proximity to parks, green spaces and recreational and education amenities (Saville-Smith, 2010, p. 78). These observations were echoed in a survey of tenants in the private rental market (Witten et al., 2017). Similarly, a study by Beacon Pathway (2010, p. 98) looked at the determinants of tenure and location choices by 20–40-year-olds in the Auckland region. It found that, while the design and amenity of dwellings is important in forming housing preferences, so too is their location.

In addition to security and storage being an aspect of housing preferences for Māori and Pacific communities, so too is a preference for more open-plan living that can create more flexible living spaces as well as enabling easier intergenerational integration into the home (Joynt et al., 2016, p. 29). Māori and Pacific housing preferences also prioritise proximity to whānau (Lysnar et al., 2016, p. 32).

Gray Partners Limited concludes that "a better understanding of the housing preferences of post-family households is required before committing to a planning regime intended to enable supply growth to meet the needs of this cohort" (2016, p. 5). The same can also be said for smaller households across all demographic life stages. Housing preferences and how they manifest in the housing choices of residents remains an area of research that needs continued redevelopment to stay current because housing preferences are always evolving.

The impact of housing experiences on medium-density housing perceptions

It was noted in the literature that housing experiences also shape housing preferences. Residents are more likely to accept or have a preference for MDH options if they have previously lived in them either here or overseas (Allen, 2016a; Dixon & Dupuis, 2003; Dixon et al., 2001a; Dixon, Dupuis & Lysnar, 2001b; Dupuis & Dixon, 2002). An Auckland-based study by Allen (2016a) pointed to the idea that residents who had experienced certain densities of typologies were likely to be accepting of the same or an incrementally higher density. The majority of residents who had previously experienced living in terraced houses were more likely to be accepting of low-rise apartment typologies than people who had lived only in stand-alone housing. However, this idea and the impact of housing experiences on housing preferences generally is an area of housing research that requires further investigation. Similarly, it is unclear the extent to which factors such as the leaky building crisis, previous experiences with varying tenure models and previous experiences with bodies corporate cumulatively influence MDH perceptions.

Resident perceptions of medium-density housing and quality of life outcomes

The literature increasingly recognises that MDH has not always been perceived positively in New Zealand. Despite this, it is increasingly seen to have the potential to help deliver quality urban living experiences for residents in the future (Whanganui District Council, 2013, p. 2; 2016). What is most important is getting the mix of typologies right to suit the needs of diverse demographic groups because “great suburbs provide a variety of housing options” (Porirua City Council, 2016). A number of studies also encourage further research into how quality of life and intensification are perceived by residents within the housing choices process (Dixon & Dupuis, 2003; Kelly et al., 2011; Preval, Chapman & Howden-Chapman, 2010; Yeoman & Akehurst, 2015).

Embedded within quality of life and housing demand research is information about neighbourhood satisfaction (Bijoux, Lietz & Saville-Smith, 2007; Howley, Scott & Redmond, 2009; Saville-Smith, 2010). Neighbourhood satisfaction is defined as “the degree to which people perceive their residential environment as able to meet their needs and further the attainment of their goals” (Yang, 2008, p. 309). Urban amenities have a strong role to play in this satisfaction. Urban amenities are discussed in various ways and different terminology is used in different studies. Some examples of urban amenities include supermarkets, convenience stores, schools and professional services – such as a medical clinic or a dentist. Public sector amenities provided by local government (parks, public squares and recreational facilities) stand alongside private sector amenities (cafés, restaurants, retail and other goods and services providers) (Randall, 2008, p. 47). Dunbar and McDermott (2011), for example, link the role of urban amenities to the trade-offs residents make when deciding where to live. They state that “the nature and range of facilities within easy reach [of a resident’s home] enter the trade-off, including shops, schools, banks, and public transport” (2011, p. 39). They describe urban amenities as a “must have” to ensure the marketability of higher-density housing (2011, p. x).

At a district and local council level, urban amenities are often considered, albeit in an indirect way, in strategy documentation. Wellington City Council acknowledges that ensuring the successful delivery of MDH outcomes is connected to making sure centres earmarked for growth “are attractive and ready to support that growth” (2014a, p. 42). This is because easily accessible urban amenities contribute to quality of life outcomes, which ultimately also result in satisfied residents. Similarly, the Western Bay of Plenty District Council identifies that “medium density residential development should only be

developed in identified growth areas and locations that are close to amenities and social infrastructure have adequate open space and can be efficiently serviced” (2013, p. 4).

The relationships between perceptions of density, quality of life and the successful integration of MDH into existing neighbourhoods is a growing area of housing research in New Zealand (Allen, 2015, 2016a, 2016b; Auckland Council Market Research and Engagement, 2016; Haarhoff, Hunt, Beattie, Manfredini & Gu, 2013).

Preparedness to move and housing aspirations

Recent research into housing demands has revealed that there is an increasing preparedness to move, which contradicts the historical timeline of staying in the family home for life (Allen, 2016a; The Property Group, 2014, p. 45). A resident survey in Wellington, for example, confirmed recently released findings from the 2013 Census, that Wellington City households are highly mobile. 50% of all respondents had moved to their current address within the last 4 years. Similarly, 83% of all renting households and 33% of owner-occupier households expected to move again within the next 5 years (The Property Group, 2014, p. 45). Housing pathways are more diverse now than in the past. A recent survey of tenants living in the private rental market found a third of respondents had previously owned their own home, a relationship breakup being the most commonly reported reason for selling (Witten et al., 2017). Research on how a preparedness to move has evolved in New Zealand remains limited. This could prove to be an important area for further research to contribute to a more complete understanding of demand trends.

Work has also been done in Christchurch (Environmental Management Services, 2015; Wines, 2014) and Wellington (Gray Partners Limited, 2014; Moncrieff, 2015) to identify what aspects of MDH result in quality of life experiences for residents transitioning from suburban to more urban lifestyles. Research into the delivery of additional MDH options is projected to continue as low-density suburbs in both main and regional centres face continued growth pressures and rising land costs. These centres will look to accommodate increasing numbers of residents within established neighbourhoods.

2.5.3 Housing choices and the process of making trade-offs

Choosing a home is an important life decision and requires both the choice of a location and the choice of a housing typology (Allen, 2016b). Housing choices are framed in the literature as the housing chosen by residents after a process of trade-offs between their housing needs and their housing preferences, and ultimately, they are constrained by price (Allen, 2016b; Kelly et al., 2011; Mead & McGregor, 2007, p. 15; Yeoman & Akehurst, 2015). The housing choices residents and investors make en masse affect the development patterns and urban form of cities (Darroch Ltd, 2010, p. 46; Preval et al., 2010, p. 34). It is acknowledged in the literature that, for intensification to be truly successful, more residents will need to express a preference for and choose to live in medium-density attached forms of housing (Allen, 2016b). If demand increases, it follows that so too should supply (Environmental Management Services, 2015, p. 52).

Because many residents cannot always afford their housing and locational first-choice preferences, trade-offs are generally required in terms of the typology of the home, its build quality and its location. The idea that there is a trade-off process as part of housing choices is widely acknowledged in the literature (Allen, 2016b; Beattie & Haarhoff, 2012; Dunbar & McDermott, 2011; Haarhoff et al., 2012; Thomas, Walton &

Lamb, 2010; Yeoman & Akehurst, 2015). Beattie and Haarhoff (2012, p. 5) contend a more comprehensive understanding needs to be developed regarding how various household types make their housing choices and what trade-offs are included in this process.

The trade-off process that takes place when choosing a home is affected “by a multiplicity of considerations around the different places household members need to be for work, for education, for their families and their friends” (Beacon Pathway, 2010, p. 106). Describing locational preferences affecting housing choice, it is noted in a Beacon Pathway report that residents also “undertake micro-scale decisions about a location which relate to perceptions of neighbourhood safety, access to desired schools, ease of access to public transport ... ease of access to commuting routes, and proximity to shops” (2010, p. 107).

Reporting on a survey of 369 Auckland residents, Walton, Murray, and Thomas, identified that residents “trade-off elements of their environment against each other for their overall neighbourhood satisfaction” (2008, p. 418). Neighbourhood amenities favoured by residents included access to schools and employment locations and proximity to family and friends. In a subsequent study, Thomas et al. (2010) developed a quantitative online survey to address the idea of making trade-offs when deciding where to live. This was conducted with 106 homeowners in Lower Hutt. Residents reported making trade-offs between factors such as typology, house size, location features and neighbourhood satisfaction, the latter including access to key infrastructure and urban amenities. An Auckland-based study found access to “amenities ..., open space, schools, employment, and transport connections, including public transport, social and community connections” (Mitchell, 2011, p. 40) feature strongly in the trade-off process. In a Wellington study, The Property Group (2014, p. 10) found 80% of survey respondents claimed a preference for remaining in the same neighbourhood or general area in which they currently lived. At least half commented that they would actively consider higher-density MDH in order to stay in their preferred location. About 30% of respondents had made trade-offs to live in their chosen location, including paying more for housing. Half of the sample cited placing a high priority on accessibility to neighbourhood amenities, such as local shops, cafés and restaurants, health and social services, as part of this trade-off process.

The idea of a trade-off between private space and favoured neighbourhood amenities is highlighted in research conducted by Mead and McGregor (2007), Syme, McGregor and Mead (2005) and Wilkinson (2006). In other words, a trade-off occurs between low-density typologies and medium-density ones when people choose to forgo private space, such as a fenced back garden, usually available in low-density homes. People choose instead the proximity of town centres and amenities where more MDH is likely to be located as growth continues.

Research conducted by Dunbar and McDermott (2011) across five diverse neighbourhoods in Auckland, Wellington and Tauranga found that the housing choices process is made more complex because residents have increasingly diverse needs and preferences, and as a result, trade-offs are increasingly individualised. The study gathered data through both face-to-face interviews and a series of focus groups.

Building on the work of Dunbar and McDermott and after interviewing 57 MDH residents in Auckland, Allen (2016a) developed a ‘trade-off hierarchy’ concept. This hierarchy describes the nuanced way housing choices are made by prioritising various personal preferences. Six key interrelated factors were identified that affected the



decision-making processes of residents when they were making housing choices: “an interviewee’s life stage, their lifestyle preferences, the convenience they felt was offered by a specific location, the benefits of choosing one housing typology over another, the affordability parameters they faced, and the effect of a pre-established sense of place attachment” (Allen, 2016b, p. 10). Primary trade-offs, or those trade-offs discussed most frequently by interviewees, included lifestyle preferences, location convenience and affordability concerns.

This literature review has highlighted the complexity of the housing choices process and the relationships amongst housing needs, housing preferences and ultimately housing choices. It further indicates the value of researching this field in New Zealand as the uptake of an increasing number of MDH typologies occurs (Allen, 2016a, 2016b)

In summary, the literature on MDH indicates how complex and context-dependent the MDH marketplace is in New Zealand. It is clear, however, that MDH continues to be the favoured response to urban growth management pressures.

3. Identifying medium-density typologies

Medium-density housing was introduced to New Zealand in the 1950s and 1960s. It began with blocks of flats and units in newly developing post-war suburbs and some downtown infill apartment developments. Housing New Zealand also played a significant role in the early years of MDH provision in New Zealand. State housing MDH was notable in areas such as Ponsonby and Glen Innes in Auckland and Cannons Creek in Porirua. MDH infill within existing neighbourhoods by private investors and developers accounts for the majority of new MDH projects. Retirement developments have also increasingly taken MDH forms. Large-scale MDH developments have also taken place in renewal areas such as Hobsonville Point in Auckland and Hoon Hay in Christchurch.

New Zealand's housing stock now includes a range of MDH typologies that fall within the definition adopted by BRANZ for its MDH research programme: multi-unit dwelling (up to 6 storeys). This section describes the range of attached housing typologies that constitute MDH, including 1-storey units, 1–2-storey duplexes or triplexes, 2–4-storey terraced houses and 3–6-storey apartments. In comparison, low-density housing (LDH) is comprised of stand-alone typologies that are generally 1–2 storeys on a full section ($\leq 800 \text{ m}^2$), a half section ($\leq 400 \text{ m}^2$) or clustered on sites of varying sizes. High-density housing (HDH), predominantly a fixture of downtown and, more sporadically, main town centres, includes apartment typologies 7 storeys or higher. They may accommodate a range of sizes from studio apartments to 3–4 bedroom apartments.

As discussed in earlier sections of the report, the integration of a range of MDH options into existing neighbourhoods is widely recognised as the favoured urban growth management tool. This is reflected in planning documents in the majority of New Zealand towns and cities facing growth issues. The key reasons for this shift towards higher densities can be attributed to:

- changing lifestyle preferences
- diversifying demographics
- a desire to avoid sprawl and improve sustainability by protecting valuable productive land and reducing the infrastructure demands of towns and cities.

As the availability and diversity of MDH typologies in New Zealand has increased, so too has the demand for them. The purpose of this section of the report is to describe common MDH typologies. It draws on the literature and describes the types of households that commonly occupy or are likely to occupy these various housing forms in New Zealand. It needs to be noted that design features vary within and between MDH typologies – for example, dwellings may vary greatly in size and in the number of bedrooms (1–5). However, a consistent feature of MDH compared to LDH is a reduction in private outdoor space. Proximity to amenities is often noted as a desirable feature of MDH compared to LDH, but to date, this is not always evident in New Zealand examples. If trade-offs between private and public space are to be made, the accessibility of neighbourhood amenities and their integration into existing suburbs as they intensify will need to be realised.

Schmitz promotes the view that diverse neighbourhoods are best served by a range of housing typologies and observes that “the broad diversity of today's population means a broad diversity of opportunities for developers and builders” (Schmitz, 2003, p. 5). Accordingly, it is acknowledged in this report that central to the success of delivering

MDH is the provision of a diverse mix of typologies to suit differing housing needs and preferences.

In this report, MDH typologies are divided into three main categories and six subcategories as shown in Figure 3.

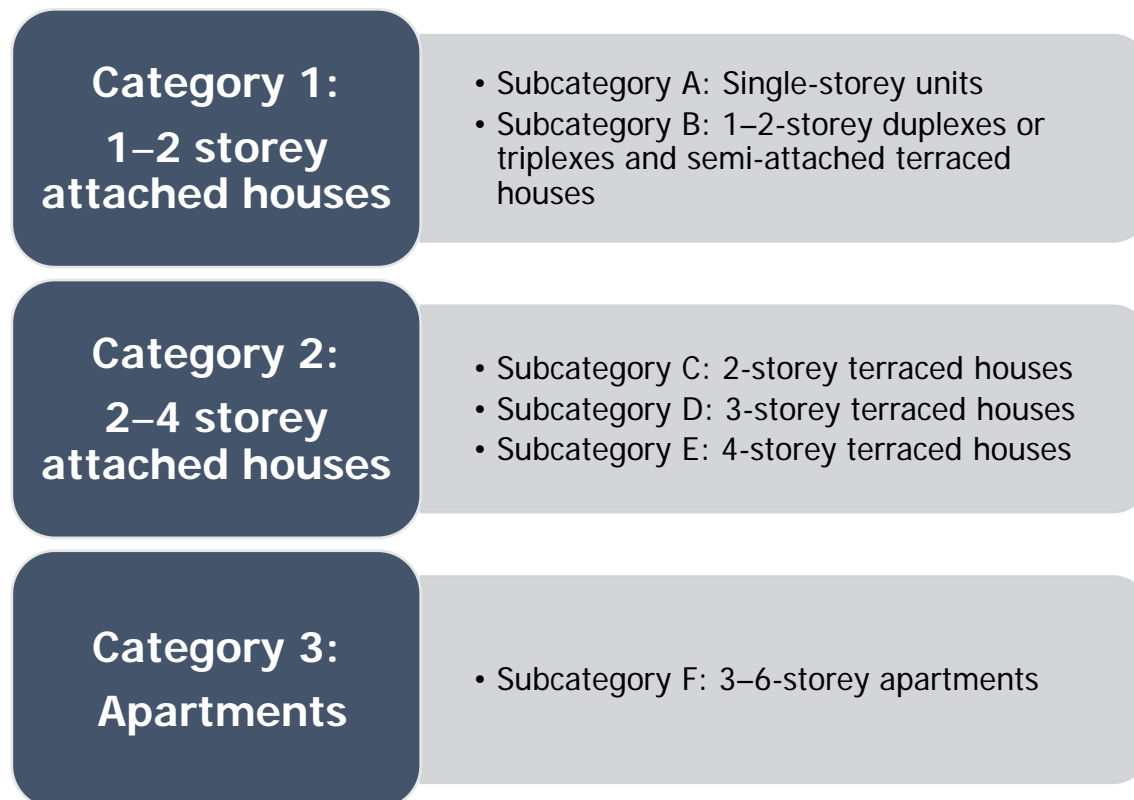


Figure 3. Categories of medium-density housing.

This section seeks to clarify what is meant by the BRANZ definition of MDH, being multi-unit dwellings up to 6 storeys. It also aims to identify some of the key similarities and differences between different typologies, including the range of typology-associated trade-offs that play a key part in housing choices.

3.1 Category 1: 1–2-storey attached houses

Category summary

1–2-storey attached housing is the lowest density category included in the broader MDH definition. These houses range in size from 2–4 bedrooms and can have a similar spatial layout to traditional detached houses. Back gardens or patios of varying depths are also common. This feature has seen this typology become popular with residents who enjoy entertaining with barbeques and eating outdoors or gardening or who have a family who use the back garden for play.

Resident demographics

This typological category has long been synonymous with retirees who are downsizing and, at the other end of the spectrum, with first-home buyers. Units in particular can offer a more affordable option than a stand-alone home and enable first-home buyers to invest in their preferred location, trading off private space for location amenity. Duplexes and semi-attached terraced houses, due to their size, do not always fall into

this more affordable category. Because they follow a similar spatial layout to a traditional detached home, they are considered suitable for a broad range of demographics from young professionals to families through to retirees.

Location description and neighbourhood amenities

Because 2-storey attached houses are of a similar scale to existing low-density suburbs, they are more easily incorporated into the existing suburban fabric. A range of neighbourhood amenities such as cafés, supermarkets and medical and community facilities in close walking proximity to these typologies enhances liveability. It means that, while residents may have traded off private space to make this housing choice, where they live is convenient for them.

3.1.1 Single-storey units



Photo 1. Example of a single-storey attached unit.

Typology description

Single-storey units came to prominence in New Zealand in the 1960s and have been “associated in the public mind with increased density” (Turner et al., 2004, p. 7) ever since. They are the lowest density category still considered MDH and are generally 1–2 bedrooms. Less common is a 3-bedroom model.

Often the spatial layout has an open-plan kitchen, living and dining to make use of the smaller footprint (see Figure 4). In some cases, off-street parking and carports or a row of separate one-car garages are provided on site for residents. The corner units are often the most popular because they have the most daylight access as compared to the middle units. They also only share one party wall, and where the outdoor space is not communal, they also have more access to private outdoor space.

Typology-associated trade-offs

The main trade-off for residents moving to this typology over traditional stand-alone homes is related to a reduction in private space. Units may also have less storage than traditional homes, and their separate garaging or carports can be a trade-off for those residents who are accustomed to having an internal-access garage.

These factors are traded off against affordability, or if downsizing, the trade-off is freed-up capital because unit typologies are cheaper than stand-alone homes in the same neighbourhood.

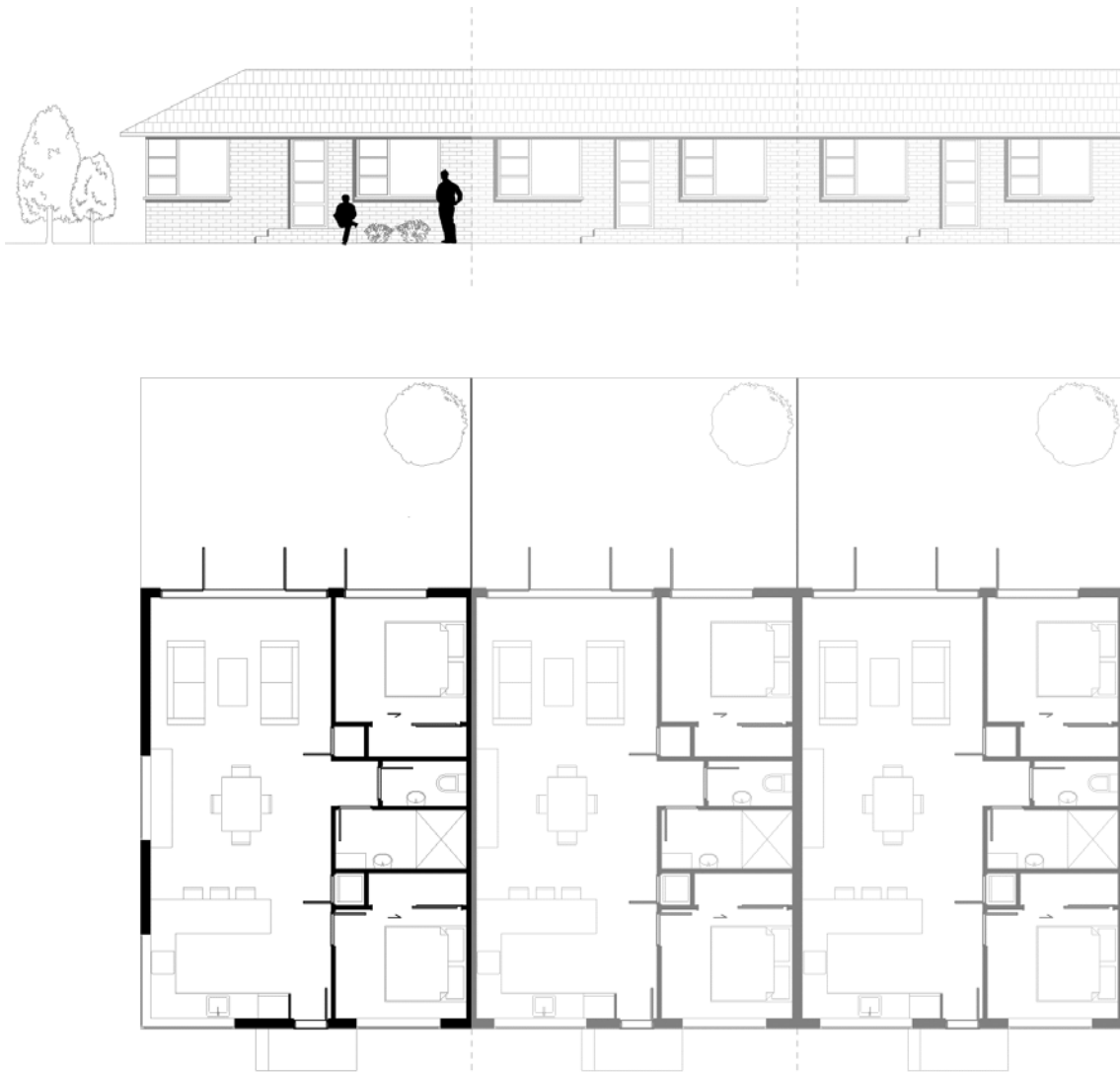


Figure 4. Typical single-storey unit elevation and spatial layout.



Photo 2. Alternative example of a single-storey attached unit.

3.1.2 1–2-storey duplexes or triplexes and semi-attached terraced houses



Photo 3. Example of 2-storey attached duplex.

Typology description

Semi-attached terraced houses are attached by a garage only rather than sharing additional party walls. They are easily incorporated into existing suburbs as their scale and bulk is similar to stand-alone homes, albeit they are better suited to constrained sites and use the available land more efficiently.

They usually range from 1–3 bedrooms. Often these typologies have a small garden at the front to connect the dwelling to the street and provide a small driveway space. They also have a back patio and/or a small back garden. If the living is upstairs, this can mean that there is a good indoor-outdoor flow between interior and exterior living (see Figure 5).

Privacy in these outdoor spaces can be an issue if the dwellings are not sensitively designed.

Typology-associated trade-offs

2-storey attached housing can offer affordability due to the reduced land size for those that would otherwise have chosen a stand-alone home. This is not always the case however, with some high-spec semi-attached homes selling for the same price as their stand-alone neighbours. These homes offer lower maintenance than detached homes with only two or three façades to maintain.



Figure 5. Typical semi-attached terraced house elevation and spatial layout.

3.2 Category 2: 2–4-storey attached houses

Category summary

2–4-storey attached housing is growing in popularity in New Zealand (Statistics New Zealand, 2017a). While examples came to prominence in main centres in the 1970s, it is now the most rapidly growing category of MDH in existing suburban neighbourhoods.

Terraced housing or row housing refers to individual dwellings connected on two sides via a shared or party wall. They are suited to both urban and suburban locations. They are also part of the 'missing middle' group of housing typologies. It is argued that many cities need more of these typologies in order to satisfy the housing needs and demands of increasingly diverse residents (Opticos Design, 2017; Parolek, 2017).

Resident demographics

2–4-storey attached houses cater to a wide demographic due to their versatility. They are popular with young professionals, smaller families and individuals or couples who are in the post-family life stage. Given the shift occurring in New Zealand (later family formation, smaller families, more single-parent households and an ageing population), it is likely this medium-density typology will increase in popularity in coming years.

Location description and neighbourhood amenities

The physical bulk of 2–4-storey attached houses integrates well into existing neighbourhoods. However, due to increases in the number of residents able to live in a given area, it is useful to incorporate additional amenities. These include local parks, food shops and cafés, medical facilities and other services to offset the potential for the oversubscription of existing amenities. This can result in attached houses being better suited to town centres or areas where the increased provision of amenities is welcomed.

3.2.1 2-storey terraced houses



Photo 4. Example of a 2-storey terraced house.

Typology description

2-storey terraced houses are popular overseas and are a long-established option in many European cities. They are increasing in popularity in New Zealand as they are of a similar scale to traditional suburban homes yet more compact. They do require land agglomeration if they are being incorporated into existing areas, which adds complexity to the development process. They are either arranged in rows or they are staggered for privacy if they are part of a large site that permits this form of arrangement. Generally, these homes have 2 bedrooms or sometimes 2 bedrooms and a study or media room. Where the living is on the ground floor, they can have good indoor-outdoor flow to a back patio and/or small garden (see Figure 6).

Typology-associated trade-offs

These houses are the modern equivalent of the brick and tile unit. They are seen as desirable by retirees who are downsizing and first-home buyers who want to enter the property market. These groups are also likely to prioritise the convenience associated with living in closer proximity to town centres and the urban amenities available there. A 2-storey terraced house is therefore a trade-off between convenience and price because they are a more affordable option than a stand-alone home in the same area.

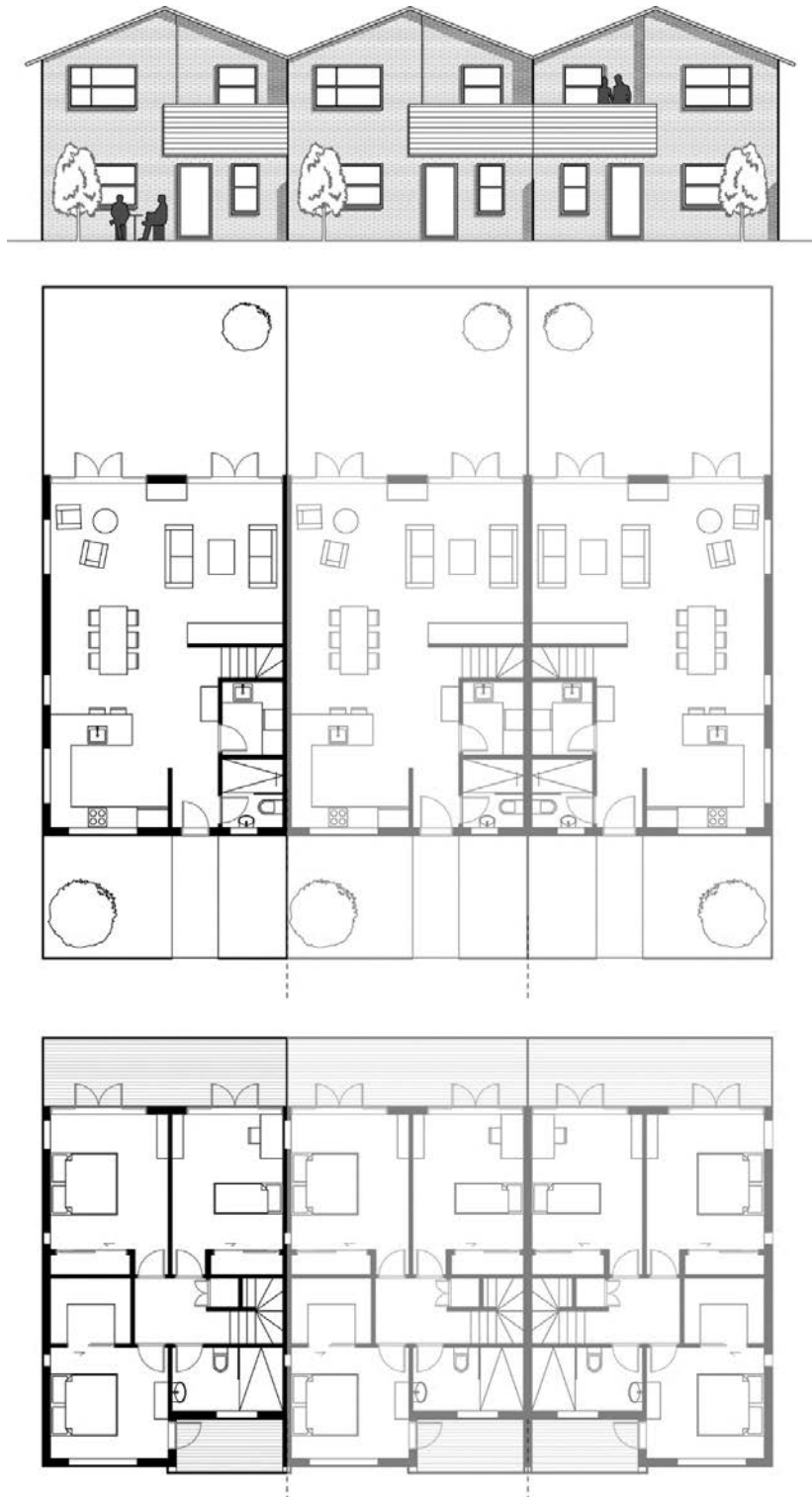


Figure 6. Typical 2-storey terraced house elevation and spatial layout.

3.2.2 3-storey terraced houses



Photo 5. Example of a 3-storey terraced house.

Typology description

3-storey terraced houses provide a variety of options, from triple-storey apartments to give families more space and an additional bedroom (see A in Figure 7) to double-storey apartments above a level of commercial or retail (see C in Figure 7).

This can either be public retail amenities or a home-office scenario where small-business owners and entrepreneurs are able to live above where they work. This versatility also means that terraced houses can be used to incorporate necessary urban amenities into neighbourhoods as intensification increases.

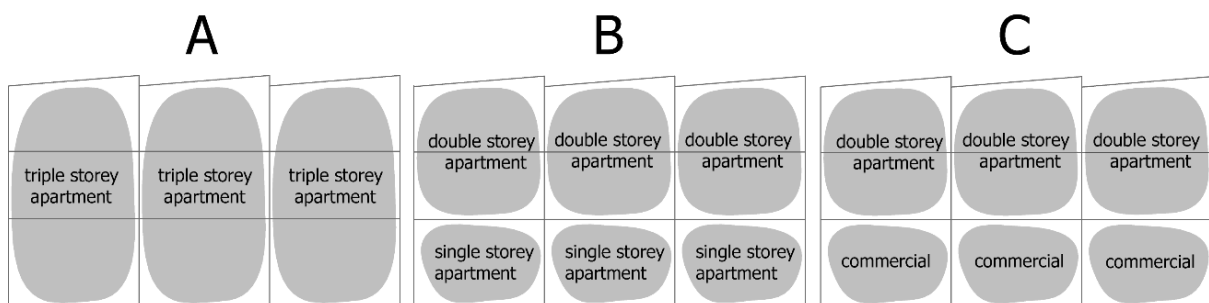


Figure 7. Examples of 3-storey vertical layouts.

Figure 8 provides an example of a typical 3-storey terraced house layout with 3 bedrooms, a bathroom and a separate toilet and an open-plan kitchen, dining and lounge space.

The living space opens on to a back deck rather than a ground-floor patio in order to provide private outdoor space while also allowing for a retail level on the ground floor.

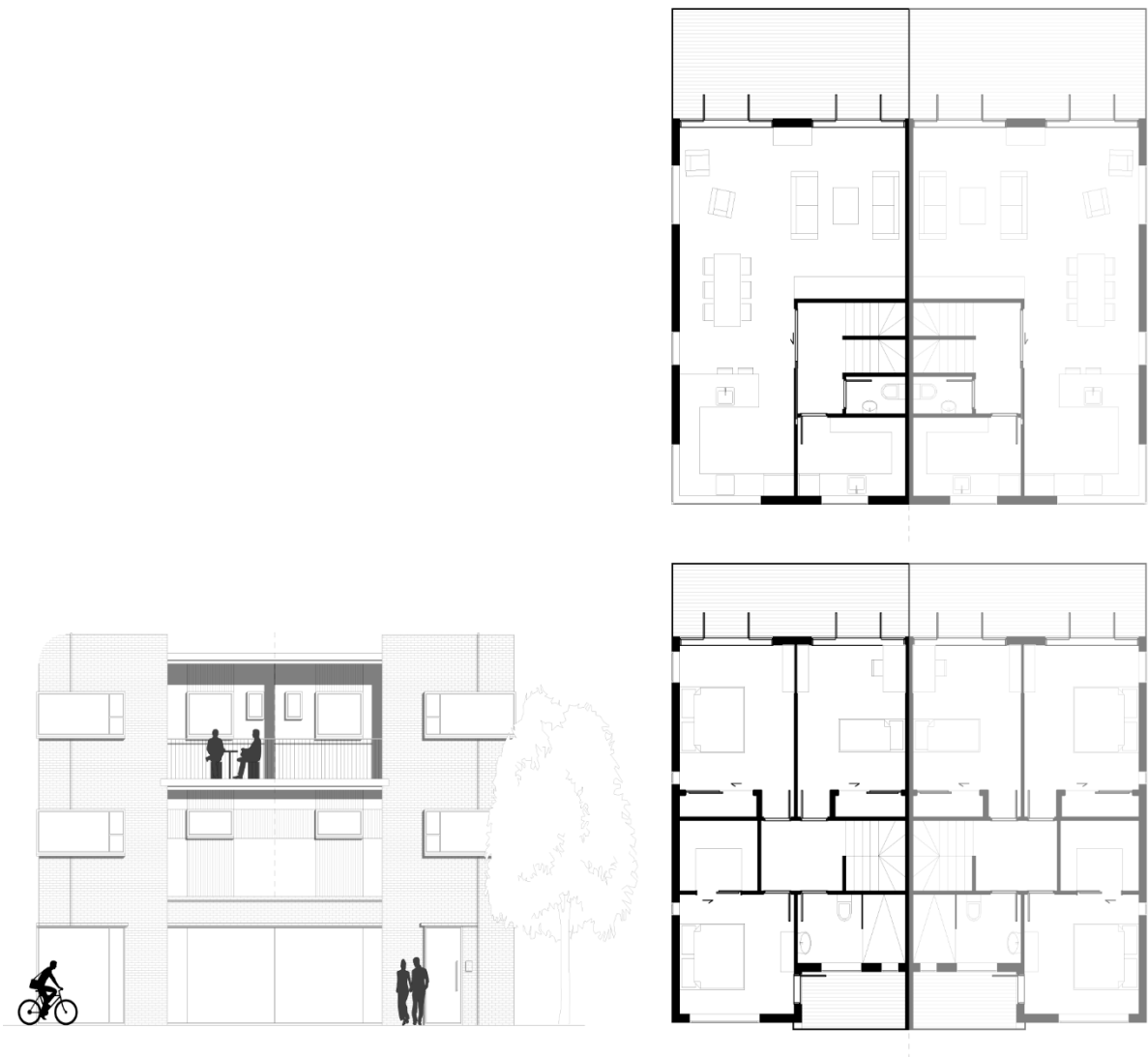


Figure 8. Typical 3-storey terraced house elevation and spatial layout, 2-storey units with retail located on the ground floor.

Typology-associated trade-offs

The trade-offs associated with this typology are in line with those for a 2-storey attached house with the addition that residents may need to trade-off ground-level outdoor space for a deck.

However, some 3-storey terraced houses are designed to incorporate large deck spaces as a roof layer above the shops below in order to elongate the available retail space.

Where the 3 storeys are part of one home, residents may need to adjust to a more vertical form of living than they may be accustomed to.

3.2.3 4-storey terraced houses



Photo 6. Example of a 4-storey terraced house,

Typology description

4-storey terraced houses are not common in New Zealand. However, they provide the opportunity to stack two double-storey apartments on top of one another. They can provide walk-up access from the ground floor to the front door of the second apartment entrance on the third floor (see A in Figure 9). They also provide for the opportunity to incorporate either one or two floors of commercial or retail space and/or a mix of apartment sizes. These range from single-storey studios or 1-bedroom units to double-storey 2–3 bedroom units (see B in Figure 9).

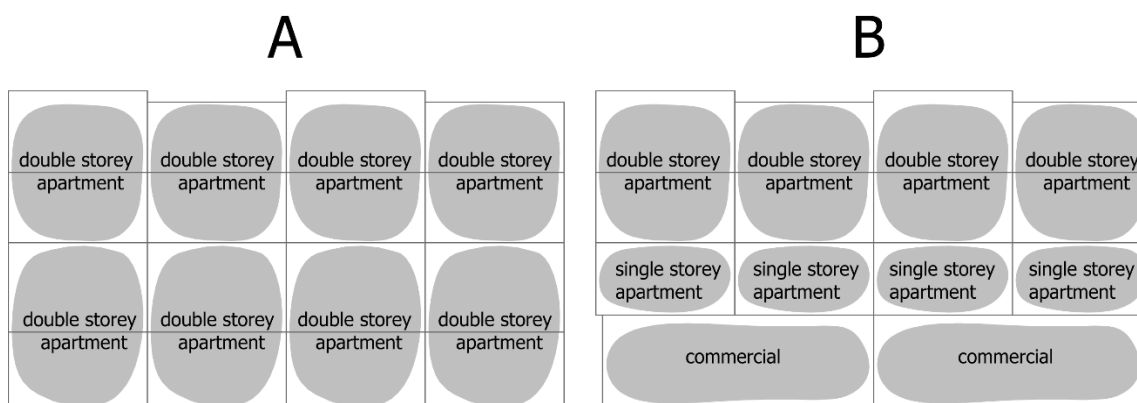


Figure 9. Examples of 4-storey vertical layouts.

Typology-associated trade-offs

For residents living in the upper-level apartment, a trade-off is required between a lack of private outdoor space and affordability. In other words, these units may be cheaper because they have less land attached to them. However, the height can also mean that residents may have a good view from their apartment depending on its location. An example of this type of walk-up 4-storey terraced house is shown in Figure 10.



Figure 10. Typical 4-storey terraced house elevation and spatial layout.

3.3 Category 3: Apartment buildings

Category summary

An apartment building is a multi-storey building in which residential units are separated on each floor horizontally. In other words, an apartment building can have multiple units arranged across from each other on a single floor. This distinguishes apartment buildings from terraced houses, where individual residential units are stacked or separated vertically and are only one unit deep. While apartments are generally separated horizontally, it is possible for an individual apartment to be arranged over more than one level. This is particularly common with penthouse apartments.

Apartment buildings located near town centres often have commercial or retail spaces incorporated at ground-floor level. Integrated into apartment building designs can be both indoor and outdoor shared spaces. This may include an internal or rear courtyard with play spaces, a shared pool facility and/or landscaped gardens or lawns. It may also include interior spaces that residents can book for events such as birthdays or entertaining large groups, which they would not otherwise have space for in their own apartment. The maintenance of these facilities is organised by a body corporate to which residents pay fees. Individual apartment sizes vary greatly. In the Unitary Plan, for example, the minimum net internal floor area is 30 m² for studio dwellings and 45 m² for dwellings with 1 or more bedrooms (Auckland Council, 2017). However, apartment sizes can vary just as stand-alone dwellings can.

Resident demographics

Because apartments can vary greatly in their size and spatial layout, as a broad category, they suit all demographic groups. Apartments up to 3–4 storeys are often walk-up only, to save costs, which doesn't suit all residents, especially those with disabilities. However, many apartment buildings do incorporate lifts, which often provide easier access than walk-up terraced houses. Internal access via a lift is also not affected by the weather.

Location description and neighbourhood amenities

Apartments are generally located in town and city centres. It is preferential for them to be located within walking distance of a range of local amenities, including local parks, to offset a lack of private outdoor space.

3.3.1 3–6-storey apartment buildings



Photo 7. Example of a 3-storey apartment building.

Typology description

Apartment buildings less than 3 storeys are not often viable in today's market, given land prices and build costs – most are 3 storeys or above. Figure 11 shows a typical apartment elevation and floor plan, although individual designs can vary greatly. One of the great opportunities with apartment buildings is the ability to incorporate units of varying sizes and prices, meaning that a diverse community can be accommodated within the one complex.

Medium-density apartment buildings of up to 6 storeys could be considered a single broad subcategory. The differences between a 3-storey and a 6-storey apartment building are minimal, other than that a 3-storey apartment may have walk-up internal access rather than lifts. However, in some instances, it has also been reported that some residents prefer 3-storey apartments in existing suburban neighbourhoods (Allen, 2016a, p. 95). This is cited as being because residents can still maintain a connection with the ground for visual surveillance. In addition, residents are more likely to maintain a connection to nature and the buildings are unlikely to overshadow their neighbours. However, a mix of 3-6-storey apartments is increasingly popular in intensifying neighbourhoods because of the varied housing options they provide.

Typology-associated trade-offs

In essence, the key trade-off when choosing an apartment over a stand-alone home is the relationship between the accessibility and convenience of a location versus the affordability or cost of the dwelling. The spatial layouts of apartments can also be quite different from traditional stand-alone homes, and this is a trade-off for some residents. Similarly, storage and a lack of private outdoor space other than a deck can also be a point of contention when choosing to live in an apartment.



Photos 8–13: Examples of a range of apartment typologies.

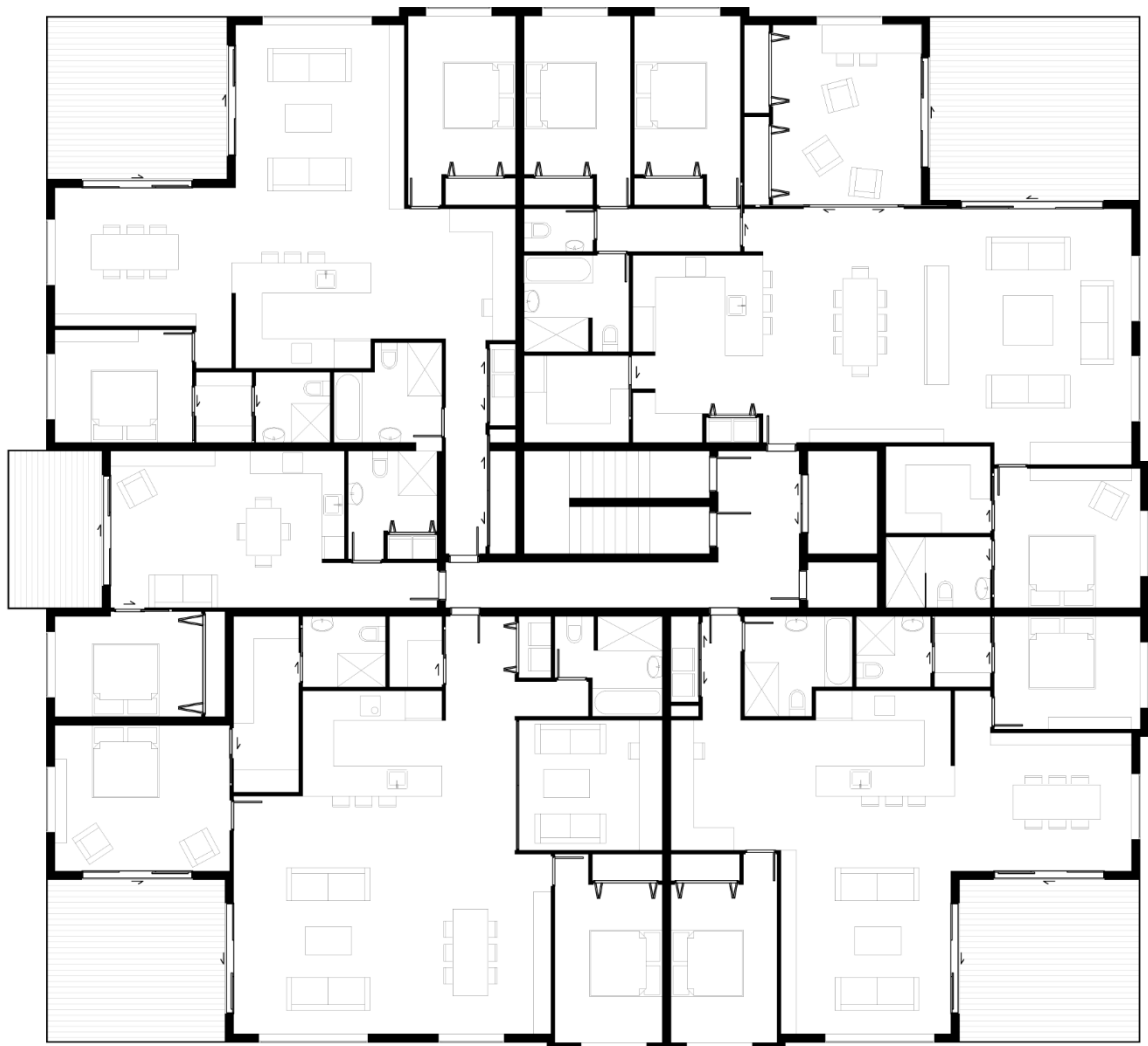
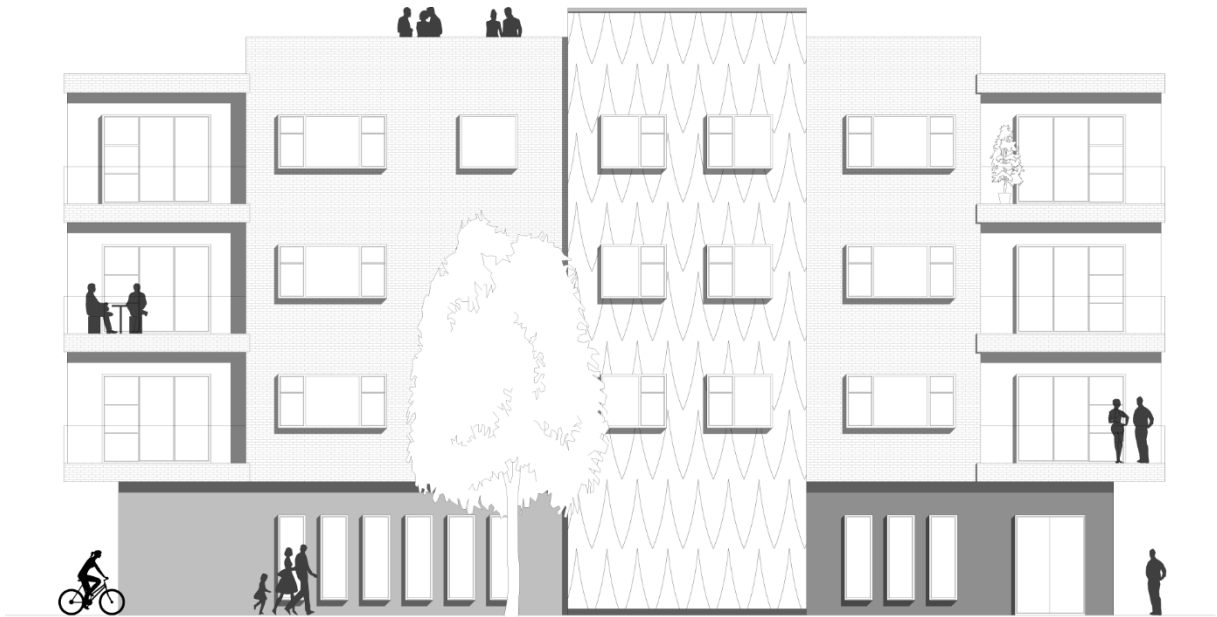


Figure 11. Typical apartment elevation and spatial layout, 4 storeys with retail on the ground floor.

4. Conclusion

A review of housing literature in New Zealand has revealed that there is increasing interest in the delivery of MDH. Despite this, there is no agreed standard definition of MDH across the built environment industry.

BRANZ has defined MDH as multi-unit dwellings up to 6 storeys. This definition is not intended to overwrite the many existing definitions but to be compatible with them. It provides a clear and common understanding of the building typologies included in the MDH research programme. The 6-storey limit reflects the increasing availability of higher-density typologies in New Zealand neighbourhoods. The exclusion of stand-alone housing recognises that the focus of BRANZ's MDH research programme is on issues particular to multi-unit dwellings.

There has been a shift in thinking over the last 5–10 years about the value of MDH and its ability to deliver quality of life outcomes for the current and future residents of existing neighbourhoods. By alleviating further sprawl, MDH is seen as a growth management tool for protecting productive land and reducing the infrastructure demands of towns and cities. It is also seen as a mechanism to assist with the growing issue of housing affordability. As a result, there has been an increase in recent years in the number of local and regional councils that have developed MDH strategy and policy to shape their future growth.

Supply and demand trends are core to understanding MDH. It is unclear from reviewing the literature whether housing supply is likely to be able to meet the growing demand. However, ongoing affordability issues and changing preferences may continue to cause a mismatch between housing supply and housing needs and aspirations.

Supply trends are varied and include:

- an increasing number of larger homes
- an increasing number of spare bedrooms
- an increasing number of larger families sharing smaller homes (especially 2 bedrooms)
- a mismatch between supply and demand
- falling rates of home ownership due to affordability issues.

Ageing housing stock is also a supply issue. Alongside this is the need to increase the delivery of a more varied mix of MDH options, notably across the 'missing middle' category of attached terraced houses and mixed-use, low-rise apartments.

Housing demand encompasses housing needs, housing choices and housing aspirations. These areas of research have risen to prominence in recent years. Nevertheless, it is impossible to predict housing demand without an understanding of the complex issues associated with housing choices and trade-offs. In addition, an understanding of housing aspirations and how they follow life-stage priorities and shifts in lifestyle expectation is critical. It is also an area of MDH research that requires continued attention because of its changeable nature.

A variety of key research gaps have been identified through the literature review process. Research that links planning policy to delivery issues and the implementation process for MDH, for example, is lacking. In addition, supply-side issues across the

whole development and construction industry are under-researched. For example, further research into the long-term impacts of skill and supply shortages is required. Additionally, investigating the potential for housing supply to be used as an economic tool could clarify some of the supply-side issues associated with housing provision. The relationship or disconnect between housing supply and demand issues is also a critical area that could benefit from further research.

Because demand research has tended to be carried out in individual cities or neighbourhoods, it could be of value to conduct comparative analysis of where demand differs across the country. Longitudinal research to track the changing face of housing demand in New Zealand would be useful. This could facilitate the development of demand indicators would result in a clearer picture of the complexity of housing demand issues.

In summary, the literature on MDH indicates how complex and context-dependent the MDH marketplace is in New Zealand. It is clear, however, that MDH continues to be the favoured response to urban growth management pressures.

The MDH research programme at BRANZ has been developed in response to many of the issues highlighted in this literature review. Medium-density housing is a research priority for BRANZ with the aim of giving industry the tools to deliver MDH that meets the needs of New Zealanders. Many of the gaps identified in the literature review are already being addressed. An economic analysis of current and future supply and demand of MDH has been completed. A nationwide survey of New Zealand householders' attitudes and perceptions of MDH is under way in order to gauge current housing preferences across the country. Liveability and maintenance of MDH is also being investigated. Projects that examine the building industry's capacity and interest in delivering MDH will be carried out in the coming year. Technical construction issues specific to MDH were outside the scope of this review, however, there are several projects under way that examine these aspects of MDH. Information about these projects can be found in BRANZ's *Levy in Action* resource (2016a).

In conclusion, this review has defined and described MDH in New Zealand. It provides the starting point for BRANZ's MDH research programme but also informs industry and researchers about the status of MDH in New Zealand at this point in time. While it is clear that we already know much about MDH, there is more yet to learn if we are to offer a diverse range of housing typology options to New Zealanders.

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Appendix A: MDH definitions currently used in New Zealand

Author	Source	Definition
Auckland Council	http://www.aucklandcity.govt.nz/council/documents/districtplanpakura/317_p16_takstructureplanareaappendices16c_res8a_270910.pdf	A medium-density housing development is a residential development comprising four or more household units on a site with a minimum area of 1400 m ² and at a density of greater than one household unit per 350 m ² of net site area.
Christchurch City Council	https://www.ccc.govt.nz/assets/Documents/Consents-and-Licences/resource-consents/P332-UrbanDesignGuideL3Zones.pdf	Medium-density housing is generally townhouse and apartment style development up to 4 storeys in height.
Kāpiti Coast District Council	http://www.kapiticoast.govt.nz/contentassets/81cf8e07395c466da729ff9337412620/kapiti-coast-medium-density-housing-best-practice-guide.pdf	Medium-density housing means comprehensive developments involving four or more dwelling units on an average density between 250 m ² and 350 m ² . These may be stand-alone, semi-detached or terraced. It does not include conventional infill where a house is 'stuck on the back' of a single lot.
Land Use Recovery Plan	http://www.ecan.govt.nz/OUR-RESPONSIBILITIES/REGIONAL-LEADERSHIP/Pages/lurp-review.aspx	Primarily townhouse, terrace and apartment-style housing of 2–4 storeys that increases the residential density of areas compared with low-density suburban housing.
Ministry for the Environment	http://www.mfe.govt.nz/more/towns-and-cities/medium-density-housing	Medium-density housing means comprehensive developments including four or more dwellings with an average density of less than 350 m ² per unit. It can include stand-alone dwellings, semi-detached (or duplex) dwellings, terraced housing or apartments within a building of 4 storeys or less. These can be located on either single or aggregated sites or as part of larger master-planned developments.
Queenstown Lakes District Council	http://www.qldc.govt.nz/assets/Uploads/Planning/District-Plan/District-Plan-Review-Residential/Medium-Density-Chapter-9-Feb-15.pdf	The development of up to three dwellings, with a maximum height of 8 metres.
Richard Dunbar and Philip McDermott	http://thehub.superu.govt.nz/project/improving-design-quality-and-affordability-residential-intensification-new-zealand	Medium-density is used as a shorthand for higher-than-traditional residential densities ... achieved by increasing the number of dwellings in a neighbourhood either by increasing the land available to housing or by lifting the share of multi-unit dwellings, or both, to achieve a lift in population or household units per area.

Author	Source	Definition
Selwyn District Council	https://www.selwyn.govt.nz/_data/assets/pdf_file/0015/18510/M-DH-Guide-FINAL-Sept-11.pdf	<p>Density is a way of measuring the amount of built development in an area. It is usually expressed in the form of the number of housing units in an area (dwellings per hectare, d/ha). At present, most residential development in the district occurs at a density of less than 10 dwellings per hectare. The council wishes to see a range of housing built at a variety of densities but not at the expense of achieving well designed and pleasant places. Some typical density ranges for housing are:</p> <ul style="list-style-type: none"> • small lot subdivision (13–20 dwellings per hectare, stand-alone houses) • comprehensive housing (20–25 dwellings per hectare, paired houses) • comprehensive housing (20–30 dwellings per hectare, houses linked by garages) • comprehensive housing (25–50 dwellings per hectare, terraced houses). <p>It is not expected that densities above 30 d/ha will be widely built (although such densities may be appropriate in limited areas).</p>
Tasman District Council	http://www.tasman.govt.nz/tasman/projects/environmental-projects/richmond-residential-density-project/	<p>“Medium density” describes homes with a site area of less than 350 square metres. These homes could include standalone (detached) houses, semi-detached (or duplex) units, or terraced or low-rise apartments. (Tasman District Council, 2016, p. 2)</p>
Tauranga City Council	http://econtent.tauranga.govt.nz/data/documents/strategies/urban_design/guidelines/devguide_part5.pdf	<p>Medium-density housing relates to comprehensively planned multi-unit residential developments of more than three units at densities between one unit per 100 m² to one unit per 325 m² of land.</p>
Waipa District Council	http://www.waipadc.govt.nz/our-council/Waipac2050/DistrictGrowthStrategy/Documents/Waipac%20District%20Growth%20Strategy.pdf	<p>12–15 dwellings per ha on a gross basis across all new developments. (Waipa District Council, 2009, p. 6)</p>
Waitakere City Council	http://www.aucklandcity.govt.nz/council/documents/districtplanwaitakere/infosheets/humanenviron/medhseguide.pdf	<p>Medium-density housing is defined as building for residential purposes up to 11 metres or 3 storeys in height. The common form is terrace housing, which is usually 2 storeys high. There is no upper limit to the size of sites where medium-density housing can be built. There is also no set minimum size for each house in a medium-density housing development.</p>

Author	Source	Definition
Wellington City Council	http://wellington.govt.nz/your-council/projects/housing-choice-and-supply/medium-density-housing	<ul style="list-style-type: none"> • Medium-density housing can be stand-alone, semi-detached, terraced houses or apartments building all up to 3 storeys high. Wellington City Council's current standards have a maximum height of 8 m, 50 m² of open space per unit and one parking space per unit. • ... medium-density (townhouses and terraces) (Wellington City Council, 2014a, p. 60) • Medium-density housing includes a range of possible development options, from infill housing through to more comprehensive site redevelopment. The density of these of developments varies significantly and can include: standalone dwellings; semi-detached or duplex dwellings; terraced housing; apartments. Developments can be between one and three storeys with low-maintenance sections. The range of sizes and types of houses give people choices that suit their needs. (Wellington City Council, 2016a)