



External Research Report

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Planning barriers for prefabricated housing

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Planning Barriers for Prefabricated Housing

Final Research Report

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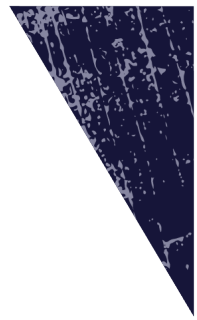
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Executive summary

Stress-testing the planning process for prefabricated housing

In the face of New Zealand's estimated shortfall of 71,766 new houses (Office of the Minister of Housing and Urban Development, 2018), prefabricated housing has been identified as a key enabler to increase the supply of housing (Page and Norman, 2014). It is therefore timely to review the regulatory framework, and the resource consent process in particular, to identify whether any planning barriers exist for the uptake of prefabricated housing.

To achieve this goal, this research reviewed the 25 district plans applicable to New Zealand's high and medium-growth urban areas (MFE, 2017) and interviewed territorial authority planners, to determine whether prefabricated housing is treated differently to non-prefabricated housing in residential zones across the country. It then identified what any specific differences were, and what actions may be taken to overcome them.

In most cases, prefabricated housing is treated the same as non-prefabricated housing in district plans

The research findings indicated that the majority of district plans reviewed (84%) did *not* contain planning barriers for prefabricated housing. That is, they did not require resource consent for prefabricated housing over and above requirements applicable to non-prefabricated housing.

How this was achieved differed. Some district plans did not differentiate between prefabricated and non-prefabricated housing at all (40%); while others did differentiate slightly, but tailored provisions to remove resource consent requirements for prefabricated housing (44%) that may have existed over and above requirements applicable to non-prefabricated housing.

In some cases, however, prefabricated housing was subject to greater resource consent requirements than for non-prefabricated housing

The remaining 16% of district plans reviewed *did* treat prefabricated and non-prefabricated housing differently. The relocated building rules within these district plans triggered the need for resource consent for complete prefabricated housing in residential zones, over and above resource consent requirements for non-prefabricated housing. Despite the fact that resource consent was required as a



controlled activity (meaning that resource consent must be granted), this requirement was considered to create a planning barrier to the uptake of prefabricated housing due to the additional time and cost involved in obtaining resource consent, including the imposition of bonds under relocated building rules.

It is possible to achieve greater consistency across the country regarding resource consent requirements for prefabricated housing

The research findings indicated, however, that a range of actions were available to overcome the planning barriers found in the minority of district plans reviewed.

These actions included streamlining resource consent processes, awaiting the release of the Ministry for the Environment's National Planning Standards (anticipated in April 2019), and reviewing district plans to remove unintended resource consent requirements for prefabricated housing. Implementing these actions would ensure that regulatory processes are simplified, speedier and less costly; thereby expediting the supply of housing (in this case, prefabricated housing) across the country (New Zealand Productivity Commission, 2012).

Other barriers to the uptake of prefabricated housing were also identified

Interviews with territorial authority planners also yielded a number of other potential barriers to the uptake of prefabricated housing, that fell outside the planning framework. The top three such barriers included:

- Private covenants, which can restrict the use of complete prefabricated housing or limit its feasibility due to restraints on house size and value;
- The building consent process, which was not considered to sufficiently provide for differences in prefabricated manufacturing processes; and
- The limited supply of prefabricated housing available. It is estimated that 3,000 to 4,000 complete houses can currently be produced per year (PrefabNZ, 2018).

Opportunities exist to remove barriers to the uptake of prefabricated housing and enable supply

This research establishes that planning barriers for prefabricated housing exist in only a minority (16%) of the district plans for New Zealand's high and medium-growth urban areas. It should be noted, however, that the sample size of 25 district plans reviewed represents just over one third of all district plans nationwide. It would be



interesting to note how prefabricated housing is addressed in the remaining 40 district plans across the country, to determine how widespread this issue may be.

Notwithstanding, this research found that in the majority of cases district plans did not have greater resource consent requirements for prefabricated housing in residential zones, over and above that for non-prefabricated housing. There are also actions available to remedy any unintended planning barriers to the uptake of prefabricated housing that can be implemented by territorial authorities on a case by case basis.

It would therefore be beneficial to look more closely at those areas that are considered more likely to present barriers for the uptake of prefabricated housing, such as private covenants, the building consent process, and stimulating the supply of complete prefabricated housing. In this way New Zealand's housing sector and prefabricated building industry will be in a position to better understand, and respond to, any barriers to the uptake of prefabricated housing and potentially increase the supply of such housing across the country.



1. Introduction

Prefabricated housing has been identified as a key enabler to increase the timely supply of housing in New Zealand (Page and Norman, 2014). The uptake of prefabricated housing, however, remains relatively low. While only five to 10 per cent of newly built homes in New Zealand are currently prefabricated to some degree, in parts of Europe this figure is as high as 80 per cent (Tso, 2018).

With the advent of KiwiBuild and renewed government focus on stimulating housing supply, it is timely to understand any barriers to the uptake of prefabricated housing. This includes barriers created by regulatory processes; particularly resource and building consents.

This research report focuses on resource consent barriers. Specifically, on district plans and the provisions within them that may require resource consent for prefabricated housing, over and above any requirements for non-prefabricated housing. Additional resource consent requirements present a planning barrier to the uptake of prefabricated housing due to the time and cost involved in obtaining such consent.

This research report therefore assesses whether prefabricated housing is treated differently to non-prefabricated housing in district plans across the country, in order to identify whether additional planning barriers for prefabricated housing exist. If found to exist, it then identifies specific actions to overcome any such planning barriers.

It is anticipated that this research will raise awareness of any planning barriers to prefabricated housing and incentivise the actions necessary to convert these barriers into opportunities to optimise planning processes and increase the ability of prefabricated housing to meet the growing demand for quality housing nationwide.

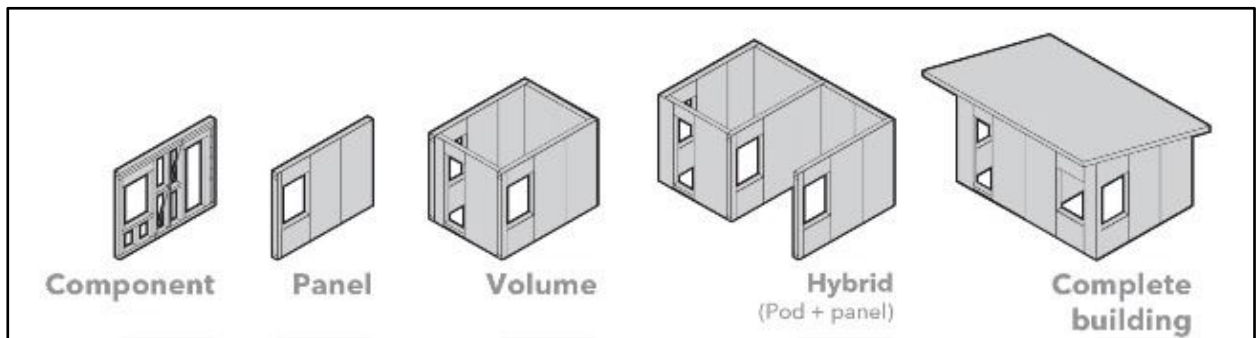
1.1 What is prefabricated housing?

Prefabrication, also known as prefab and/or offsite manufacture, means manufacturing and assembling whole buildings or substantial parts of buildings in controlled conditions prior to installation at their final location (PrefabNZ, 2015). Prefabricated components can include pre-cut and pre-nailed wall framing and roof trusses; or the prefabrication of complete structures which are then transported to a site and attached to foundations (Page and Norman, 2014).

1.1.1 Degrees of prefabrication

Prefabrication can refer to the partial or full prefabrication of a building. For the purposes of this report, the various degrees or stages of prefabrication will be referred to as indicated in Figure 1.

Figure 1: Degrees of prefabrication



Source: PrefabNZ.com, 2018a

Each of these stages of prefabrication are defined by PrefabNZ as follows:

- **Component:** Small scale items that are assembled offsite; including structural components (frames and trusses), fittings, fixtures and joinery that is cut, sized or shaped away from the site for assembly on site.
- **Panel:** Planar units that do not enclose usable space, such as panel systems and cladding panels. This may include windows, doors or integrated services, and are either open-framing or closed-in with cladding and/or lining.
- **Volume:** Volumetric prefabricated units enclose usable space and are then installed within or onto a building or structure. These are typically fully finished internally, such as toilet/bathroom pods or plant-rooms.
- **Hybrid:** Hybrid-based prefabrication consists of a mixture of volumetric or modular units and non-volumetric or panelised units (module plus panel). It may also include component and site-built elements.
- **Complete building:** Fully-finished volumetric construction. Typically yard or factory finished internally (and possibly also externally), to make a single building or parts of a multi-unit building (PrefabNZ, 2017).



1.1.2 Advantages

A substantial amount of research has been undertaken regarding the advantages of utilising prefabricated building processes, including for prefabricated housing construction. These advantages accrue for both the home buyer and the building industry, each of which are discussed in turn as follows.

As noted by Page and Norman (2014), the home buyer benefits from prefabrication through a reduced build time, increased time and cost certainty, and through improved value for money and fewer defects. In a case study of construction in Auckland, an average of 34% reduction in time and 19% reduction in cost through the use of prefabrication systems was observed compared to traditional building systems (Shahzad et.al., 2015).

Key advantages for the building sector itself were seen in greater product certainty and quality control, time reduction, and lower rates of re-work due to offsite assembly (New Zealand Productivity Commission, 2012). It has been further noted that prefabricated construction offers a series of practical benefits, including climate-controlled environments; reduced on-site work; reduced on-site staff; heightened quality control; enhanced waste capture and waste reduction, reuse and recycling; and improved health and safety (PrefabNZ, 2014).

PrefabNZ estimate that as a result of the above process advantages, prefabrication can remove \$25,000 from the cost of a standard house (PrefabNZ, 2015), while at the same time reducing waste, energy and greenhouse gas emissions compared to traditional on-site construction methods (Burgess et.al., 2013).

1.1.3 Disadvantages

Interestingly, less research was available regarding the disadvantages of prefabricated building. It can be surmised, however, that one disadvantage of complete prefabricated buildings could include a lack of ability to alter designs to respond to site context, given that design is standardised. It has also been noted that a lack of scale and negative consumer perceptions are key impediments to growth in the use of prefabrication in residential construction (New Zealand Productivity Commission, 2012).

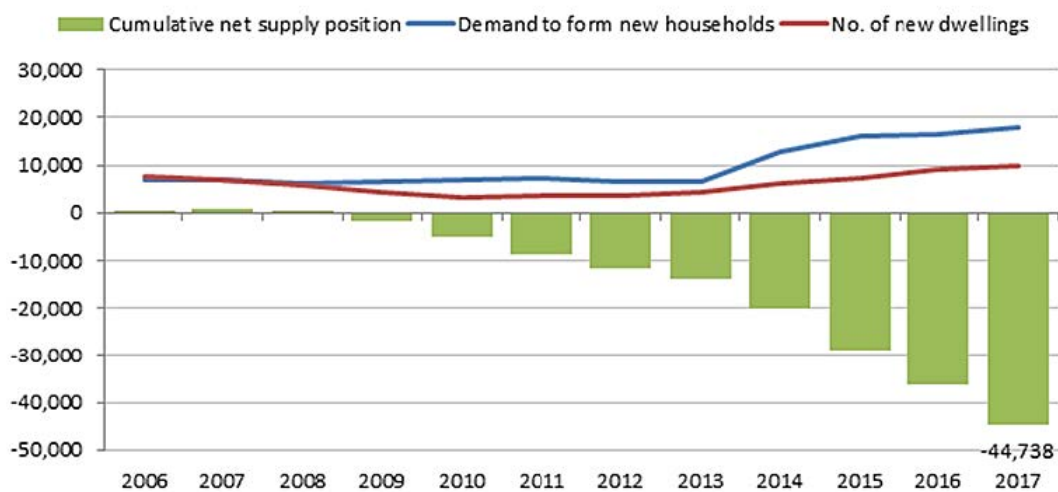
2. Research purpose

This section outlines the purpose of this research. It starts by defining the specific problem that the research will address and from this, the research questions that will be answered. It also identifies the intended audience for this research, to assist in the dissemination of research findings.

2.1 Problem definition

Housing is an important component of the wellbeing of New Zealanders. At present, however, the performance of New Zealand's housing market is sub-optimal (MBIE, 2017). Not enough houses are being built to meet demand, particularly affordable houses in areas of strong population growth. As illustrated in Figure 2, this is particularly evident in Auckland, where an accumulated shortfall of around 45,000 houses by 2017 was calculated (MBIE, 2017).

Figure 2: Demand vs supply in Auckland (annual to June)



Source: MBIE, 2017

As outlined in Section 1 of this report, prefabricated housing has the potential to increase supply to meet the growing demand for quality, affordable housing in the locations across the country where it is most needed. One aspect of increasing supply is understanding the nature and scale of any barriers to the uptake of prefabricated housing (PrefabNZ, 2015).



The regulatory framework, particularly resource and building consent processes, has been identified as one such potential barrier to the uptake of prefabricated housing. While regulation may be appropriate to ensure that housing is safe, sustainable, and suitably located; it has been identified that territorial authorities should review their regulatory processes with the aim of providing simplified, speedier and less costly consent processes and formalities, to expedite the supply, and reduce the cost, of housing (New Zealand Productivity Commission, 2012). Similarly, a need to smooth complexity within consenting processes for prefabricated housing has also been identified (PrefabNZ, 2015).

This research therefore focuses on the planning system, to understand what, if any, planning or resource consent barriers exist for prefabricated housing in the current regulatory environment. If found to exist, this research then identifies what actions could be taken to overcome any such barriers.

If there is found to be no, or minimal, planning barriers for prefabricated housing, then this research will direct attention away from the planning system and towards any other areas that may impede the uptake of prefabricated housing to a greater degree.


If there is found to be widespread planning barriers for prefabricated housing, then this research will raise awareness and identify opportunities to improve planning processes; thereby increasing the ability of prefabricated housing to meet the growing demand for quality affordable housing nationwide.

2.2 Research questions

This research seeks to understand whether planning barriers exist for the uptake of prefabricated housing across New Zealand and if so, what they are and how they may be overcome.

It assesses whether prefabricated housing is treated differently to non-prefabricated housing in a selection of district plans, to identify whether planning barriers for prefabricated housing exist and if so, at what scale. It then outlines actions to address any such planning barriers, should they be found to exist.

District plans of the 25 territorial authorities within New Zealand's high and medium-growth urban areas (MFE, 2017) were reviewed to answer the following research questions:

- 
1. Is prefabricated housing treated differently to non-prefabricated housing in district plans?
 2. If yes, what are the specific differences or planning barriers?
 3. What actions could be taken to overcome any such planning barriers for prefabricated housing?

For the purposes of this research, a 'planning barrier' is considered to be any rule in a district plan that requires resource consent (and thereby incurs additional time and cost) for prefabricated housing, over and above any such requirements for non-prefabricated housing. Information regarding the time and cost of resource consents is further outlined in Sections 3.2.3 and 5.3.3 of this report.

2.3 Audience

The primary audience for this research is land use planners. Targeting this group will improve knowledge of the nature and benefits of prefabricated housing, and potentially avoid planning barriers both now and in the future. The primary audience also includes industry bodies such as the New Zealand Planning Institute and Resource Management Law Association, who have the ability to disseminate information to their members.

The secondary audience for this research is those organisations responsible for either monitoring land use planning functions or setting planning policy or legislation relevant to prefabricated housing. This includes Local Government New Zealand (LGNZ), the Ministry for the Environment (MFE), the Ministry for Business, Innovation and Employment (MBIE), and the Ministry of Housing and Urban Development (HUD).

Finally, the tertiary audience for this research is the prefabricated building industry; to increase awareness of the possible planning barriers they may encounter, and how to address them. This includes organisations such as PrefabNZ and the New Zealand Green Building Council.

This section has outlined the purpose of this research. The following section identifies the current context for prefabricated housing construction in New Zealand. This provides the background information against which to analyse and contextualise the research findings.



3. Current context

This section summarises the current context for housing provision in New Zealand as it relates to, or has the potential to impact on, planning barriers for prefabricated housing. It provides the background information necessary to consider the unique challenges and opportunities for prefabricated housing within current market conditions and regulatory settings. As well as outlining relevant government initiatives, this section briefly describes the applicable regulatory framework, current rates of supply of prefabricated housing, and identifies key stakeholders within the sector.

3.1 Government initiatives

Central government is an active participant in the housing sector. This sub-section identifies recent government initiatives that do, or may, impact the delivery of prefabricated housing across the country.

3.1.1 KiwiBuild

Launched in July 2018, the Government's KiwiBuild programme aims to deliver 100,000 quality, affordable homes for first home buyers over the next decade. KiwiBuild is a vehicle for the Government to address the current imbalance in demand and supply of affordable homes across the country (MBIE, 2018). The estimated regional distribution of KiwiBuild homes, as forecast by HUD, is included in Table 1.

The opportunities presented by KiwiBuild for the prefabricated building industry are significant (PrefabNZ, 2018). The Minister of Housing and Urban Development has stated that prefabricated housing may make up more than half of the 100,000 KiwiBuild target, given the potential for off-site manufacturing (prefabrication) to deliver quality houses faster and cheaper than conventional on-site building methods (Walters, 2018).

To facilitate the involvement of the prefabricated building industry in KiwiBuild, the Government invited companies to express their interest in establishing or expanding off-site (prefabricated) manufacturing factories to make KiwiBuild houses (Minister of Housing and Urban Development, 2018a). As at November 2018, over 100 prefabricated building companies had responded to this invitation (Harris, 2018).

This research is therefore timely and will assist in understanding what planning barriers, if any, exist for prefabricated housing. Understanding barriers is the first step to resolving them, and ensuring that the optimal regulatory settings are in place to achieve both the purpose of the relevant legislation and facilitate the realisation of KiwiBuild targets.

Table 1: Estimated regional distribution of KiwiBuild homes

Area	New housing shortfall 2006–2017	Possible no. of KiwiBuild homes	Lower quartile sale price (\$)
Auckland	44,738 (62%)	61,339	650,000
Wellington	9,312 (13%)	12,975	425,000
Hamilton	5,908 (8%)	8,232	435,000
Napier–Hastings	1,777 (2%)	2,476	335,000
Queenstown–Lakes	1,600 (2%)	2,229	690,000
Tauranga	1,473 (2%)	2,053	515,000
Whangarei	1,412 (2%)	1,967	375,000
Nelson–Tasman	1,180 (2%)	1,644	413,000
Palmerston North	1,083 (2%)	1,509	307,000
Rotorua	1,012 (1%)	1,411	308,500
New Plymouth	936 (1%)	1,305	336,500
Gisborne	725 (1%)	1,010	221,000
Dunedin	611 (1%)	851	300,000
Christchurch	0 (0%)	1,000	367,000
TOTAL	71,766 (100%)	100,000	–

Source: (Office of the Minister of Housing and Urban Development, 2018)



3.1.2 Housing and Urban Development Authority

In November 2018 the Government announced the creation of a Housing and Urban Development Authority ('the authority') to act as the Government's lead developer and deliver KiwiBuild. The authority will bring together Housing New Zealand, its subsidiary HLC, and KiwiBuild; all of whom currently build houses (Minister of Housing and Urban Development, 2018b).

The authority will work across the housing and urban development system to build healthy, secure and affordable homes (Minister of Housing and Urban Development, 2018c). It will have two key roles, including:

- leading small and large-scale urban development projects; and
- being a world class public landlord.

The authority differs from HUD as it is delivery-focussed. HUD, itself a new agency, has complementary responsibilities for policy, monitoring and advising the government on strategic direction in the housing and urban development sector (Minister of Housing and Urban Development, 2018c).

At this point in time the authority is so new it is unclear exactly what impact it will have on the prefabricated housing sector, apart from the delivery of KiwiBuild. Both planners and prefabricated building companies will need to stay up to date with the formation of the authority as the implications of its role become more defined. It is anticipated that the authority will be created by 2020.

3.2 Regulatory framework

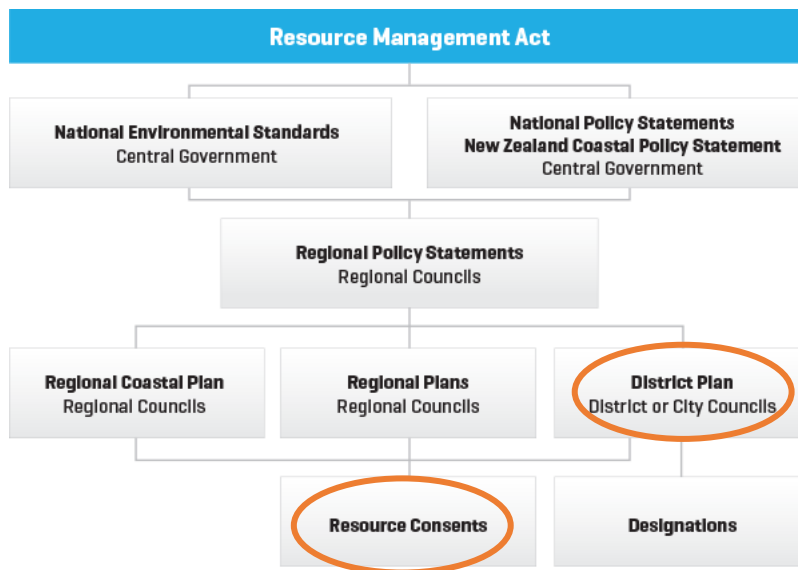
The construction of housing in New Zealand is subject to regulatory compliance with the Resource Management Act (RMA), Building Act, and Building Code; and subsequent documents prepared under this legislation, such as district plans.

This regulatory framework has numerous implications for the uptake of prefabricated housing; including the cost and time taken to obtain any resource and building consents required. Although the focus of this research report is planning-related, a short summary of building legislation and regulations is also provided here for completeness.

3.2.1 Planning

New Zealand's planning framework is governed by the RMA, the purpose of which is to promote the sustainable management of natural and physical resources (Resource Management Act 1991). To do this, the RMA establishes a hierarchy of nationally and locally-applicable planning instruments, as identified in Figure 3.

Figure 3: NZ planning framework




Source: MDH.org.nz, 2018a

Of particular relevance to this research are district plans and resource consents. Under the RMA, territorial authorities are required to develop and administer district plans for the use and subdivision of land within their jurisdictions. This is typically achieved through a suite of objectives and policies, which are implemented via a mix of rules, land use zoning, and non-regulatory measures (Duncan and Brunsdon, 2017).

Within district plans across the country, housing can usually be built in residential zones as a permitted activity (without the need for resource consent), as long as certain performance criteria are met. Performance criteria may include maximum height, minimum setbacks from boundaries, and car parking requirements etc.

If housing is not a permitted activity in the zone within which it is located, or if it does not meet the specified performance criteria, then resource consent is required. Aside from permitted activities, there are five categories of resource consent, only one of



which will be applicable to any particular resource consent application. These include the following:

- Controlled activities; which must be granted, but can have conditions imposed.
- Restricted discretionary activities; which can be granted or refused and have conditions imposed, although a consent authority can only consider matters to which it has restricted its discretion.
- Discretionary activities; which can be granted or refused and have conditions imposed, and over which the consent authority is able to exercise its full discretion.
- Non-complying activities; which can be granted or refused and have conditions imposed, over which the consent authority is able to exercise its full discretion, and additional threshold tests apply.
- Prohibited activities; for which no resource consent can be sought or granted (Environmentguide.org.nz, 2018).

Costs for obtaining resource consent vary across the country and generally depend on the degree of compliance of an application with the district plan. Once a resource consent application is lodged, it must be processed within 20 working days for a non-notified application and 130 days for a notified application; although there are provisions to 'stop the clock' if further information is required (MFE.govt.nz, 2018a).

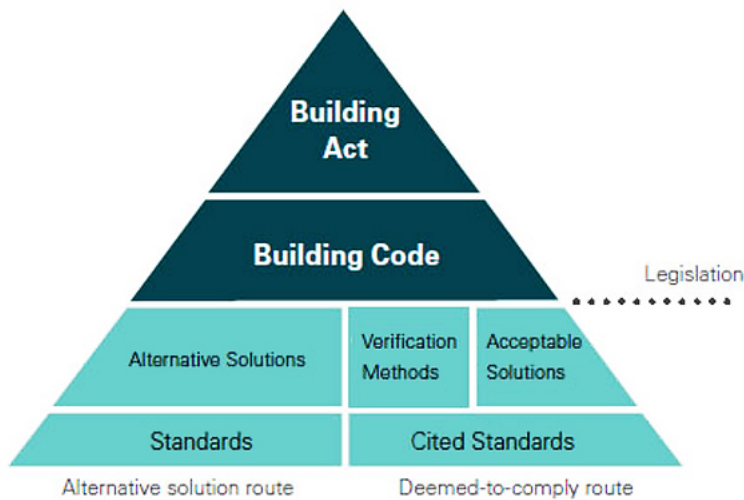
3.2.2 Building

New Zealand's building framework is governed by the Building Act and the Building Code, which are largely implemented through a series of building regulations and the building consent process (Building Performance, 2018a).

The Building Act is the primary legislation governing building in New Zealand. It aims to improve control of, and encourage better practices in, building design and construction; and to provide greater assurance to consumers. It also seeks to ensure sustainable development and the safety and wellbeing of people who use buildings (Building Performance, 2018a).

The Building Code is the primary driver of the building consent process. It prescribes functional requirements and performance criteria that buildings must achieve in relation to their intended use (MDH.org.nz, 2018b). Figure 4 illustrates the building regulatory system, and the relationship between its various components.

Figure 4: NZ building regulatory system



Source: *Building Performance, 2018b*

Building consent is typically required for new houses (prefabricated and non-prefabricated), irrespective of the need for resource consent. Similarly to resource consents, costs for obtaining building consent vary across the country and depend on the degree of complexity, or value, of a building project. Building consent applications must be processed within 20 working days; however, can be suspended if a request for information letter is issued (Building Performance, 2018c).

Of relevance to this research is MBIE's National Multiple-Use Approvals, known as Multiproofs. Multiproofs were introduced in February 2010 and provide national multiple-use approval for buildings of a standardised design (such as prefabricated housing) that are built at least 10 times in a two-year period.

Although separate building consent must still be sought even with Multiproof approval, the process is intended to be quicker and easier than applying for full, individual building consents for standard designs. For example, the timeframe for processing building consent applications with Multiproof approval is 10 working days, instead of 20 (Building Performance, 2018d).

Multiproofs, in theory, should be a useful tool for prefabricated housing, given the standardised nature of prefabricated design. MBIE advised that between February 2010 and November 2018, a total of 151 Multiproof certificates were issued (Usmar, 2018). This includes a mixture of prefabricated and non-prefabricated buildings, and

at an average rate of less than 1.5 approvals per month, does not represent a significant level of uptake. Additional research to understand why the Multiproof path is not being utilised by prefabricated housing manufacturers would be useful, if not already in progress.

It should be noted that no such fast-track process for standardised building designs is currently in place for resource consents, most likely because district plans and resource consent requirements differ between territorial authorities.

3.2.3 Nationwide consent data

Within the planning and building regulatory framework it is useful to quantify the volume, timeframes and cost of resource consents as compared to building consents across the country. This provides context for the later analysis section of this report (Section 5). Knowing which territorial authorities process the highest number of resource consents, for example, compared to how prefabricated housing is treated in their district plans, will highlight the scale and extent of any planning barriers for prefabricated housing within the wider regulatory landscape.

Table 2 includes key statistics on resource and building consents for the 2016/17 year (1 July 2016 to 30 June 2017). This timeframe has been selected as although there is more recent building consent data available, it is the most recent resource consent data presently available at a national level.

Resource consent data was sourced from MFE’s National Monitoring Survey 2016/17, and building consent data from Statistics NZ for the 2016/17 year.

Table 2: Comparison of high-level resource & building consent data for 2016/17

	Resource consents	Building consents
Total no. consent decisions issued	36,070 (land use & subdivision)	72,046 (all construction types)
Highest no. of consent decisions issued by territorial authority	9,142 by Auckland Council	19,544 by Auckland Council
Least no. of consent decisions issued by territorial authority	0 by Chatham Islands Council	12 by Chatham Islands Council
% consent decisions issued within regulatory timeframe	91%	Not available



	Resource consents	Building consents
Average cost of consent applications across NZ	Just over \$2,000	Not available

Source: Statistics NZ, 2018 and MFE.govt.nz, 2018b

3.3 Prefabricated housing supply

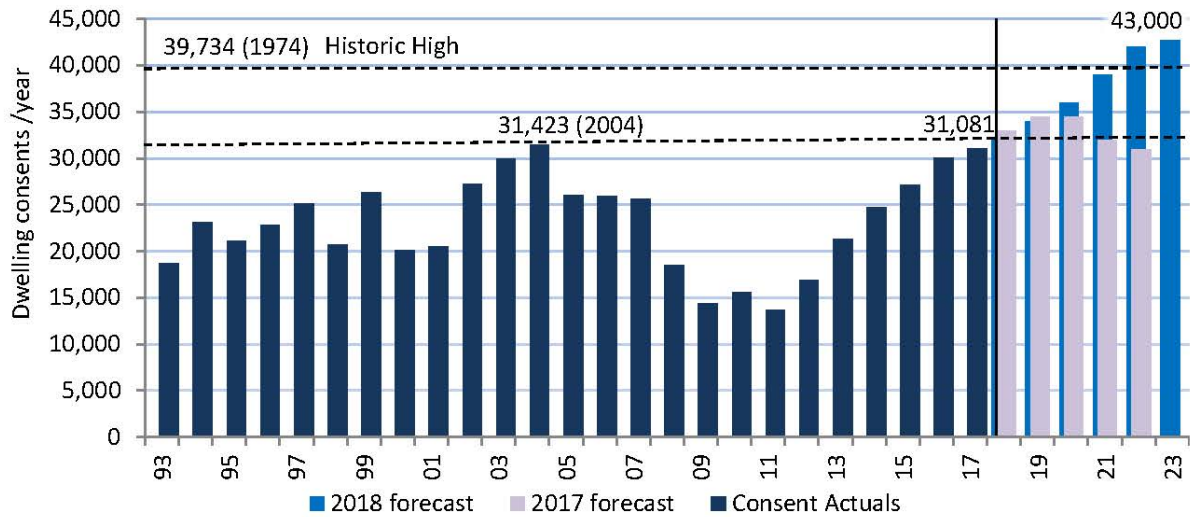
The PrefabNZ Capacity and Capability Report 2018 surveyed 36 companies involved in off-site (prefabricated) construction, representing 2% of total construction GDP in New Zealand as at September 2016 (PrefabNZ, 2018). Of the companies surveyed, over half reported that they built on and off-site. Currently, an average of 64% of the revenue of these companies was reported to come from off-site (prefabricated) construction, however this was forecast to increase to 75% in the next three years, and as high as 80% over the same timeframe due to KiwiBuild (PrefabNZ, 2018).

PrefabNZ estimate that the entire complete building manufacture industry in New Zealand can currently build 3,000 to 4,000 houses per year (PrefabNZ, 2018). It is further estimated that a total of 7,000 complete prefabricated homes could be delivered each year from 2020 if the wider prefabricated industry scales up over the next three years, as survey respondents indicated that they will do (PrefabNZ, 2018).

This 7,000 complete prefabricated homes per year represents 19.4% of the total number of forecast building consents for houses (approximately 36,000) required in 2020; and 16.3% of the forecast high of 43,000 required in 2023, as identified in Figure 5 (MBIE, 2018).

This represents a sizeable proportion of new houses in New Zealand per year over the next five-year period. Note that it does not include houses which are partially prefabricated (i.e. have pre-made components). Including houses that are partially prefabricated would increase the proportion of prefabricated houses in New Zealand substantially.

Figure 5: Dwelling units consented nationally, 2017 & 2018 comparison forecasts



Source: BRANZ/Statistics New Zealand

Source: National Construction Pipeline Report 2018 (MBIE, 2018)

Overall, given the potential ability of the country’s prefabricated building industry to supply approximately 19% of required housing from 2020, it is timely to understand any barriers to the delivery of prefabricated housing and enable its supply.

3.4 Stakeholders

There are a number of stakeholders currently active in New Zealand’s prefabricated housing industry. Of these, key stakeholders are identified in Table 3, along with their roles and responsibilities with regard to the delivery or regulation of prefabricated housing.

Table 3: Key stakeholders in New Zealand’s prefabricated housing industry

Stakeholder	Role/responsibility
Building Control Authorities (BCAs)	Responsible for issuing building consents, notices to fix, code compliance certificates, compliance schedules; and inspecting building work for approved building consents. BCAs may be territorial authorities or private organisations. Territorial authority BCAs have additional responsibilities, including issuing project information memoranda and certificates of acceptance etc (Building Performance, 2018e). This applies to all building, including prefabricated housing.



Stakeholder	Role/responsibility
Building Research Association of NZ (BRANZ)	BRANZ is an independent research organisation providing impartial evidence-based advice on critical issues in building and construction in New Zealand to industry and government. BRANZ provides testing and consultancy services that drive better performance. BRANZ undertakes and invests in research by its own science teams as well as external research agencies to unlock new knowledge, addressing current and emerging challenges of our built environment.
Housing and Urban Development Authority ('the authority')	Expected to be created by 2020, the authority will merge the Government's housing delivery organisations. It will have two key roles: leading small and large-scale urban development projects; and being a world class public landlord (Minister of Housing and Urban Development, 2018c). The authority is likely to engage with the prefabricated housing industry to deliver on KiwiBuild and any other government housing targets.
Ministry for the Environment (MFE)	Responsible for the RMA and other planning instruments such as the proposed National Planning Standards, which create planning requirements for all development (including prefabricated housing).
Ministry of Business, Innovation & Employment (MBIE)	Responsible for the Building Act as well as building policy, information, advice, and education applicable to the building and construction industry, including prefabricated housing (Building and Construction, 2018).
Ministry of Housing and Urban Development (HUD)	HUD is a relatively new agency, operational since October 2018. It has responsibility for housing and urban development-related policy and monitoring; and for advising the government on strategic direction (Minister of Housing and Urban Development, 2018c). Any policy developed by HUD will impact the housing sector, including prefabricated housing.
Territorial authorities	Includes the 67 city and district councils and unitary authorities listed in Schedule 2, Part 2 of the Local Government Act 2002. Responsible for BCA functions (see above), district plans and resource consents. Any proposed prefabricated housing must obtain building consent and depending on compliance with



Stakeholder	Role/responsibility
	district plan requirements, may also require resource consent from the relevant territorial authority.
PrefabNZ	PrefabNZ is a non-profit membership organisation that informs, educates and advocates for innovation and excellence in offsite (prefabricated) design and construction in New Zealand. PrefabNZ has over 350 members from the prefabricated building industry both within NZ and overseas (PrefabNZ.com, 2018a).

This section has summarised the current context for housing provision in New Zealand as it relates to, or has the potential to impact on, planning barriers for prefabricated housing. The following section outlines the methodology undertaken to complete this research.



4. Methodology

This section outlines the methodology undertaken to complete this research and answer the research questions outlined in Section 2.2 of this report. Predominantly qualitative research techniques were used, including a desktop review of district plans and completion of 25 semi-structured telephone interviews with territorial authority planners. A copy of the interview questions and list of interview participants is included in Attachment 1 of this report.

4.1 Desktop review of district plans

To gain an understanding of the planning regulations applicable to prefabricated housing, a desktop review of the 25 district plans covering New Zealand's high and medium-growth urban areas (MFE, 2017) was undertaken. This included the district plans of the 25 territorial authorities identified in Table 4. This sample of 25 represents just over one third of the total number of district plans across the country¹.

Table 4: Councils within high and medium-growth urban areas

High growth urban area	Medium growth urban area
Auckland Council	Dunedin City Council
Christchurch City Council	Gisborne District Council
Waimakariri District Council	Kāpiti Coast District Council
Selwyn District Council	Marlborough District Council
Hamilton City Council	Napier City Council
Waipa District Council	Hastings District Council
New Plymouth District Council	Nelson City Council
Tauranga City Council	Tasman District Council
Western Bay of Plenty District Council	Palmerston North City Council
Queenstown Lakes District Council	Rotorua Lakes District Council
Whangarei District Council	Wellington City Council

¹ New Zealand's 67 territorial authorities have a total of 65 district plans between them (Carterton, Masterton, and South Wairarapa District Councils share a combined District Plan).



High growth urban area	Medium growth urban area
-	Porirua City Council
-	Hutt City Council
-	Upper Hutt City Council

Source: MFE, 2017

The district plans of the territorial authorities included in Table 4 were reviewed to identify if prefabricated housing was treated differently to non-prefabricated housing in district-wide and residential zone rules and definitions. That is, whether these district plans included rules that required resource consent for prefabricated housing over and above any resource consent requirements for non-prefabricated housing. For the purposes of the desktop review:

- The 25 district plans were downloaded in electronic format.
- An electronic search for the terms ‘prefab’, ‘relocat’, and ‘transportable’ was undertaken.
- District-wide and residential zone objectives, policies, rules and related definitions were reviewed. The provisions of other zones were not reviewed (i.e. rural, industrial or commercial zones).
- Rules relating to the primary house on a site were reviewed. Rules relating to secondary or minor household units were not reviewed.
- Rules that applied equally to both prefabricated and non-prefabricated housing were not reviewed (such as bulk and location requirements).
- Rules regarding the relocation of a house onto a site were reviewed. Rules regarding the relocation of a house *off* a site were not reviewed, as this situation is not applicable to the research questions.

Where it was found that additional resource consent requirements existed for prefabricated housing, the relevant rules and definitions were noted and confirmed with planners at the relevant territorial authorities via semi-structured interviews.



4.2 Interviews with planners

Over the course of October and early November 2018, semi-structured telephone interviews were undertaken with planners from the 25 territorial authorities listed in Table 4. The purpose of the interviews was to:

1. Verify the findings of the desktop review of district plans;
2. Identify any other perceived barriers for prefabricated housing in the current planning system; and
3. Ascertain what actions could be taken to overcome planning barriers, should they be found to exist.

4.3 Case study

Further to the desktop review and interviews, one territorial authority was selected as a case study to illustrate the scale and nature of planning barriers for prefabricated housing.

The following criteria were used to select a case study:


- The district plan required resource consent for prefabricated housing, over and above any requirements for non-prefabricated housing; and
- The relevant territorial authority had issued more than five resource consents for prefabricated housing in the last year; and
- The relevant territorial authority had appropriate information management systems to allow it to provide the required resource consent information.

The only territorial authority to meet these criteria was the Palmerston North City Council (PNCC). PNCC was generously forthcoming with the provision of resource consent information. The case study of PNCC is included in Section 5.3 of this report.

4.4 Assumptions and limitations

Over the course of this study it was necessary to make several key assumptions to standardise the research. Minor limitations also exist due to the fact that the research provides a snapshot in time – after which district plans could be updated. These assumptions and limitations are listed below for transparency and clarity.

1. It was assumed that the need for resource consent constitutes a ‘planning barrier’. This is because the resource consent process adds additional time and



cost to a standard building process, that would not otherwise be incurred (refer to Table 2).

2. District plans were reviewed as at the date they were downloaded from council websites (2 October – 2 November 2018). As district plans are living documents, provisions may change between the date that plans were reviewed, and the date that this research is finalised.
3. In situations where there was an operative and a proposed district plan in force (i.e. both provisions legally apply), the more restrictive provisions were used for the purposes of this research.
4. This research reviewed district plans only. It did not include other planning documents, such as separate design guides.



5. Analysis

This section summarises and analyses the research findings. It is structured to answer each of the three research questions identified in Section 2.2. The research was undertaken following the methodology outlined in Section 4 of this report.

5.1 Research question 1

Is prefabricated housing treated differently to non-prefabricated housing in district plans?

This research question sought to ascertain if prefabricated housing is treated differently to non-prefabricated housing in a selection of district plans across the country. The research found that in 21 of the 25 district plans reviewed (or 84%), prefabricated housing is treated the same as, or similar to, non-prefabricated housing. This means that no additional resource consent is required for prefabricated housing in these district plans over and above that which may be required for non-prefabricated housing.

There are some instances, however, of new complete prefabricated housing (as defined in Section 1.1) being treated differently to other forms of prefabricated and non-prefabricated housing. That is, resource consent is required for complete prefabricated housing under relocated building rules, which is not required for other types of prefabricated or non-prefabricated housing. This occurs in four out of 25 (or 16%) of the district plans reviewed. (Relocated building rules are explained more fully in Section 5.2).

Breaking this down further, the 25 district plans reviewed tended to address prefabricated housing in one of three ways, as outlined in the following categories.

5.1.1 Category A

These district plans have the same rules for new housing in residential zones, whether it is prefabricated or non-prefabricated. There are no rules for relocated buildings that trigger the need for resource consent for complete prefabricated housing, over and above any resource consent requirements for non-prefabricated housing. This occurs in 10 out of 25, or 40%, of the district plans reviewed (refer to Figure 6). For the purposes of research question 1, these district plans do not treat prefabricated housing differently to non-prefabricated housing.



5.1.2 Category B

These district plans have rules for relocated buildings, however new complete prefabricated housing is excluded from the definitions or rules for relocated buildings in residential zones. Therefore the same rules apply to new housing, whether it is prefabricated or non-prefabricated. This occurs in 11 out of 25, or 44%, of the district plans reviewed (refer to Figure 6).

For the purposes of research question 1, although these district plans do treat prefabricated housing slightly differently to non-prefabricated housing in definitions and rules for relocated buildings, the outcome is that no additional resource consent is required for prefabricated housing over and above requirements applicable to non-prefabricated housing. Therefore no planning barriers exist, and Category A and B figures have been aggregated to determine that 21 out of 25, or 84%, of the district plans reviewed did not create planning barriers for prefabricated housing.

5.1.3 Category C

These district plans have rules for relocated buildings, that apply to complete prefabricated housing in residential zones and trigger the need for resource consent over and above resource consent requirements for other types of prefabricated and non-prefabricated housing. This occurs in four out of 25, or 16%, of the district plans reviewed (refer to Figure 6). In response to research question 1, these district plans *do* treat prefabricated housing differently to non-prefabricated housing.

The specific district plans that fall within each of these three categories is displayed in Figure 6.

Figure 6: Treatment of prefabricated housing in district plans by territorial authority

Category A District Plans	Category B District Plans	Category C District Plans
Auckland Dunedin Hutt City Porirua Rotorua Lakes Tauranga Waimakariri Wellington City Western BOP Whangarei	Christchurch Gisborne Hamilton Hastings Kāpiti Coast Marlborough New Plymouth Queenstown Lakes Selwyn Upper Hutt Waipa	Napier Nelson Palmerston North Tasman

5.2 Research question 2

If prefabricated housing is treated differently to non-prefabricated in district plans, what are the specific differences or planning barriers?

This research question sought to define what the specific differences are between prefabricated and non-prefabricated housing in some district plans, and whether such differences may create planning barriers.

The main difference, or planning barrier, for prefabricated housing encountered in the review of district plans was relocated building rules. These rules were particularly relevant to complete prefabricated housing, which is fully constructed off-site and transported on to a site (refer to Section 1.1).

Historically, relocated building rules were introduced to control adverse amenity effects on residential neighbourhoods when an older house was moved onto a section and not reinstated in a timely manner. The way that the definitions and rules for relocated buildings are drafted in some district plans means that these rules also apply to new complete prefabricated housing, whether this is the intention or not.



As identified in Section 5.1 of this report, the 25 district plans reviewed tended to fall within one of three categories in terms of how they addressed prefabricated housing, particularly complete prefabricated housing. For the purposes of research question 2, this section outlines the specific differences between the way prefabricated housing is addressed in Category B and C district plans (refer to Figure 6). Note that Category A district plans are not included, as they did not differentiate between prefabricated and non-prefabricated housing.

5.2.1 Category B

11 of the 25 district plans reviewed fell within Category B. These district plans had slight differences between prefabricated and non-prefabricated housing, predominantly within the definitions and rules for relocated buildings. These district plans did not, however, require resource consent for prefabricated housing over and above requirements for non-prefabricated housing.

These slight differences between the treatment of prefabricated and non-prefabricated housing included the following:

- Six of the 11 Category B district plans excluded complete prefabricated housing from the definition of 'relocated building'. Of these:
 - Five out of six definitions excluded 'new buildings' (or similar terminology); and
 - One out of six used a time limit to effectively exclude complete prefabricated housing. This definition only applied to relocated buildings over two years old.
- Five out of 11 had relocated building rules but excluded their application to complete prefabricated housing through the wording of the relevant rules. For example:
 - Two out of five rules only applied to relocated buildings more than 10 years old;
 - One out of five rules only applied to 'previously used' houses;
 - One out of five rules specifically excluded 'newly pre-fabricated buildings'; and



- One out of five rules provided for all relocated buildings (new and old) as permitted activities, subject to compliance with heritage rules and Building Code requirements.

This indicates a wide range of methods by which complete prefabricated housing was excluded from relocated building rules; notwithstanding that the end result was the same (i.e. that resource consent was not required for prefabricated housing under relocated building rules).

5.2.2 Category C

Four of the 25 district plans reviewed fell within Category C. These district plans treated prefabricated and non-prefabricated housing differently, as complete prefabricated housing was considered to fall within the definitions and rules for relocated buildings. Therefore these district plans required resource consent for complete prefabricated housing over and above requirements for other types of prefabricated and non-prefabricated housing.

Further analysis indicated that of the four Category C district plans:


- One out of four contained a definition of 'relocated building'. This means that the remaining three out of four district plans did not include a definition of 'relocated building', even though they included rules for relocated buildings. This is an area that could be addressed to clarify resource consent requirements for relocated buildings i.e. whether such provisions apply to complete prefabricated housing or not.
- All of the four district plans provided for relocated buildings (any size or over 30m²) in residential zones as controlled activities, subject to compliance with performance standards in the relevant district plan. Performance standards may include minimum setbacks from boundaries and maximum height etc. As identified in Section 3.2 of this report, controlled activities must be approved, although conditions may be imposed. This provides certainty that resource consent will be approved, although the applicant incurs time and cost obtaining resource consent.
- Half of the four Category C territorial authority planners interviewed considered that the need for resource consent for complete prefabricated housing was not a planning barrier, given the controlled activity status of such consents. The additional time and cost to obtain such resource consent was not raised.



- All of the four district plans provided for the taking of performance bonds for relocated buildings, to encourage compliance with consent conditions. This means that a complete prefabricated homeowner could be liable to pay resource consent fees as well as a bond to undertake work specified by the territorial authority. Such work may include landscaping or fencing, to minimise any perceived adverse visual effects of the house on the surrounding neighbourhood. The bond is then reimbursed when the specified work is completed, or used to undertake the work if it is not completed within a certain timeframe (Qualityplanning.org.nz, 2018). No evidence was found to suggest that the extent of visual effects of a complete prefabricated house required such intervention. This is a question the four Category C territorial authorities may wish to consider.
- Half of the four Category C territorial authority planners interviewed indicated that their council typically processed less than five resource consent applications per year for complete prefabricated housing under relocated building rules; one out of four typically processed more than five; and one out of four was unsure. This indicates that a small number of resource consents for complete prefabricated housing (under relocated building rules) may be required per year. This is further quantified for one territorial authority in Section 5.3 of this report.
- All of the four territorial authority planners interviewed indicated that they *may* consider reviewing relocated building rules to exclude complete prefabricated housing. This is at the discretion of each territorial authority, unless the matter is addressed in MFE's upcoming National Planning Standards (refer to Section 5.4).

In summary and to answer research question 2, relocated building rules are the main planning barrier for prefabricated housing in the sample of 25 district plans reviewed (particularly for complete prefabricated housing).

While Category B district plans (44% of those reviewed) have refined the definitions and rules for relocated buildings to remove the need for complete prefabricated housing to obtain resource consent; the Category C district plans (16% of those reviewed) require resource consent for complete prefabricated housing under relocated building rules. This represents a large variation in how district plans



address prefabricated housing, and there may be opportunities to standardise this approach and achieve a degree of consistency across the country.

It is also not known what planning barriers for prefabricated housing may exist in the 40 district plans not included in the sample reviewed as part of this research. It is possible that there may be additional planning barriers to that identified in this report that may benefit from a standardised approach.

The following section uses resource consent data from one Category C territorial authority to quantify the scale and potential impact of relocated building rules on prefabricated housing.

5.3 Case study: Palmerston North City Council

Palmerston North City Council (PNCC) was the only territorial authority to meet the case study criteria outlined in Section 4.3 of this report. That is, it:

- requires resource consent for complete prefabricated housing in residential zones through relocated building rules;
- issued more than five resource consents for prefabricated housing in the last year; and
- has the information management systems in place to retrieve the required resource consent data.

This section outlines the specific requirements of the Palmerston North District Plan (PNDP) as they relate to prefabricated housing. It then uses resource consent data for a three-year period to identify how many resource consents were granted for relocated buildings; and what proportion of these were for complete prefabricated housing compared to the proportion for older, relocated housing. It also includes typical costs for processing resources consents for prefabricated housing.

5.3.1 Palmerston North District Plan

Table 5 identifies the relocated building provisions of the PNDP that are relevant to complete prefabricated housing, following the methodology outlined in Section 4.3 of this report (for example, only residential zone rules are included). It is interesting to note that although the PNDP includes rules regarding relocated houses, it does not include a definition of relocated houses.

Table 5: Palmerston North District Plan, provisions for relocated houses

Section	Provision
<p>5 Information requirements</p>	<p>(f) Special Information Requirements for Relocated Houses</p> <p>In addition to the information supplied for a Controlled Activity, consent to relocate a house must be accompanied by the following:</p> <ul style="list-style-type: none"> • A site plan at a 1:100 scale showing the house sited on the new site and its means of complying with the appropriate Residential Zone provisions. • Photographs of the house to be relocated. • A plan showing elevations of the house, its floor plan and the pile layout. • A building inspector’s report indicating the structural soundness of the building.
<p>10 Residential zone</p>	<p>R10.6.2.1 Relocated Houses, which comply with the following Performance Conditions, are Controlled Activities in Respect of:</p> <ul style="list-style-type: none"> • External Appearance. <p><u>Performance Standards</u></p> <p>a) Compliance with R10.6.1.1(a) to (j).</p> <p>In determining what conditions to impose, if any, Council will, in addition to the City View objectives in Section 2 and the Residential Zone objectives and policies, assess any application in terms of the following further assessment criteria:</p> <p><u>Assessment Criteria</u></p> <p>i. The extent to which the external appearance and structural soundness of the building is compatible with the existing amenity values and ambience of the surrounding area.</p> <p><u>Note to Plan users</u></p> <p>Also refer to the following rule: R10.6.1.3 Amberley Avenue, Escort Grove, Rangitane Park and Awapuni Racecourse Minimum Floor Level Areas.</p>



Section	Provision
	<p><u>Reinstatement Report</u> Applicants are required to submit a report identifying all reinstatement work required to the exterior of the dwelling.</p> <p><u>Bonds</u> Applicants for resource consent may have a condition of consent imposed pertaining to a financial contribution or bond to, for example, ensure that any exterior works are completed to an appropriate standard. This condition for a financial contribution or bond may be imposed in accordance with Section 108(1)(a) and 108(1)(b) of the Resource Management Act 1991.</p> <p><u>Completion of Works</u> Applicants will be required to complete permanent foundations and reinstatement works, in a timely manner.</p> <p><u>Explanation</u> <i>Relocated houses are an alternative housing option consistent with a sustainable management approach. It is important that the design, appearance and structural soundness of relocated dwellings is addressed at the outset. This avoids any adverse effects on the amenity of the surrounding neighbourhood and ensures that applicants for such consents are aware of the standard required and their long term obligations.</i></p>

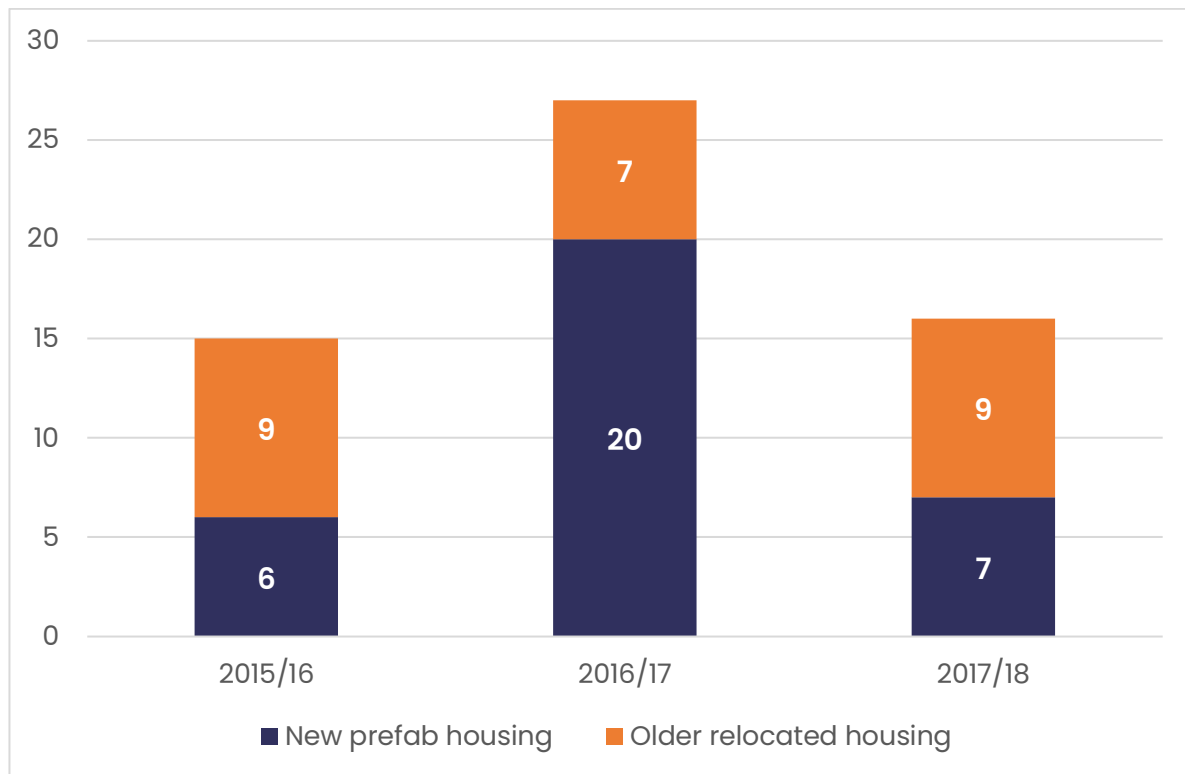
Source: Palmerston North District Plan, May 2018

5.3.2 Resource consent data

PNCC require resource consent for complete prefabricated housing in the residential zone under the relocated house rules outlined in Table 5. Figure 7 indicates the number of resource consents issued by PNCC for relocated houses over the three-year period from 1 July 2015 to 30 June 2018.



Figure 7: PNCC resource consents granted for relocated houses




Source: Mori, 2018

Figure 7 indicates that a total of 58 resource consents were granted for relocated houses over the three-year period identified. Of these, the majority (33/58 or 57%) were for complete prefabricated housing.

PNCC advised that the spike of 20 resource consents issued for complete prefabricated housing in the 2016/17 year was a result of a prefabricated housing development in Exeter Crescent. Therefore in a typical year, it can be surmised that slightly more resource consents were issued for older relocated housing than for new prefabricated housing, as observed in the 2015/16 and 2017/18 years.

To provide some context, the six resource consents issued for complete prefabricated housing in 2015/16 represented 3% of the total 199 land use resource consents² issued by PNCC that same year; and 10% of the 198 land use resource

² Being resource consents lodged under Section 88 of the RMA (i.e. not applications for changes or cancellation of conditions under Section 127 etc.)



consents² issued by PNCC in 2016/17 (MFE.govt.nz, 2018b). (Note that data is not yet available from MFE for the 2017/18 year).

5.3.3 Cost of resource consent

PNCC typically charge a deposit of \$750 for minor non-notified land use resource consents, including for relocated houses (and by default, for complete prefabricated houses) (Palmerston North City Council, 2019). PNCC also take a refundable bond for resource consents granted under relocated housing rules. A bond of \$3,000 to \$10,000 is taken for older relocated houses, and a bond of \$1,000 is taken for new prefabricated houses. Bonds are typically discharged in full (Mori, 2018) and resource consents must be processed within 20 working days.

Although not a significant sum of money, the process of obtaining resource consent may be a deterrent for some potential prefabricated housing owners, who would not have to face the same cost and time constraints if building a non-prefabricated house, or a prefabricated house within another council's jurisdiction.

5.3.4 Summary

This case study illustrates that a small amount of resource consents (58) were issued by PNCC for relocated houses over a three-year period, 33 of which were for complete prefabricated housing. This ranges from 3% to 10% of the total number of land use resource consents issued by PNCC for the 2015/16 and 2016/17 years (MFE.govt.nz, 2018b).

While this number is not substantial, it indicates that 33 homeowners incurred additional time and cost to obtain a complete prefabricated house due to resource consent requirements. Such time and cost would not have been incurred had they been located in other parts of the country with a more permissive approach to prefabricated housing (i.e. within 84% of the territorial authorities included in this research), or if they had built a non-prefabricated house.

It may therefore be timely for territorial authorities to consider and address any unintended planning barriers to prefabricated housing that may be evident in their district plans, through the actions outlined in the following section.



5.4 Research question 3

What actions could be taken to overcome any such planning barriers for prefabricated housing?

The final research question sought to identify what actions could be taken to overcome any planning barriers that may exist for prefabricated housing.

This research established that of New Zealand's high and medium-growth urban areas, planning barriers for prefabricated housing exist in the minority (16%) of district plans reviewed.

Within these district plans, the main planning barrier is rules requiring resource consent for relocated buildings (which by default include complete prefabricated housing). This need for resource consent, even as controlled activities, has the potential to be perceived as a barrier to the uptake of prefabricated housing due to the additional time and cost associated with obtaining resource consent, including the potential for additional bond payments (although bonds may be discharged once required work is completed).

Interviews conducted with territorial authority planners indicated that a suite of actions at the local and national level were available to potentially address this planning barrier. These included:

1. Streamlining resource consent processes to minimise time and cost requirements for applicants and territorial authorities when resource consent is required for prefabricated housing. This is a short term measure that could be instituted by the minority of territorial authorities who currently deem it appropriate to require resource consent for prefabricated housing. There may or may not be opportunities to follow the format of MBIE's national multiple-use approvals (Multiproofs) for building consents, as outlined in Section 3.2 of this report.
2. Revising district plans to:
 - ensure that rules for relocated buildings reflect the scale of the resource management issue they seek to address, and relate back to the objectives and policies of the relevant district plan. It is arguable that the same rules should apply to all new housing, irrespective of construction method (prefabricated or non-prefabricated).



- remove relocated building rules (as they apply to prefabricated housing) in residential zones. This may not be appropriate, however, in character or heritage areas, which may seek a specific type of building typology.

This is a medium term measure, and will depend on when territorial authorities next have a district plan review scheduled.

3. Awaiting the release of MFE's National Planning Standards (the planning standards). The purpose of the planning standards is to improve consistency in the structure, format and content of district plans across the country (MFE.govt.nz, 2018c). As part of the planning standards, MFE is developing standard definitions to be used by all territorial authorities. The first draft of the planning standards did not include a definition of 'relocated building'. This may or may not be included in the final planning standards to be released in April 2019 (MFE.govt.nz, 2018c). If a definition of 'relocated building' that excludes prefabricated housing is included in the planning standards, then this will be required to be used consistently in all district plans across the country. If not, the status quo will remain and territorial authorities will be able to exercise their own judgement on this matter.
4. Another action to overcome planning barriers for prefabricated housing (that was not identified in interviews) could be to increase knowledge and awareness within the planning profession regarding prefabricated housing. This may include explaining what prefabricated housing is, and identifying its advantages and disadvantages (as outlined in Section 1.1 of this report). In this way planners will be able to accurately assess any likely effects of prefabricated housing on the environment, and tailor district plan provisions and resource consent requirements according to the nature and scale of any such effects.

Although this research established that planning barriers for prefabricated housing exist in only a minority (16%) of the district plans reviewed, the actions outlined above may be useful in terms of ensuring a consistent and effective approach to prefabricated housing in district plans across the country, including those that were not reviewed as part of this research.



5.5 Other barriers for prefabricated housing

During interviews with planners, a number of other potential barriers affecting the potential uptake of prefabricated housing were identified. Although these additional barriers fall outside the resource consent process (and therefore outside the scope of this research), they are captured here to provide a wider picture of housing supply challenges.

5.5.1 Covenants

32% of the interviews conducted as part of this research identified covenants as a potential barrier to the uptake of prefabricated housing. Covenants are generally applied to residential subdivisions at the time land title is issued, and can preclude the use of prefabricated housing or impose constraints that make prefabricated housing unfeasible.


Covenants operate outside the RMA, as private legal instruments that run in parallel with planning processes. Because covenants apply to land in perpetuity, any restrictions on house type and size bind future, as well as initial, homeowners (Mead and Ryan, n.d.).

An example of covenants imposed on a residential subdivision in Carterton³ include the following restrictions, which may impact the ability to use prefabricated housing:

- *No dwelling house with a gross floor area of less than 150m² including an attached garage shall be erected or permitted to be erected on the lot;*
- *Any dwelling house (including carport and garage) erected upon the lot shall not be of a value of less than the sum of three hundred and fifty thousand dollars;*
- *Not to erect, construct or place on the land or allow to be erected constructed or placed on the lot any dwelling house which is not a new residential house nor place up the lot any portable or transportable building which is used as a dwelling house.*

Further research into the type and frequency of covenants applied to residential subdivisions would be useful to understand the nature and scale of any barriers they may present to housing supply. Historically such research has been problematic to

³ Easement instrument no. 10845752.8 (14.9.2017) on Certificate of Title 807252.



undertake over a wide geographic area due to the difficulty and expense incurred obtaining covenant documentation.

5.5.2 Building consent process

16% of the interviews conducted as part of this research identified the building consent process as a potential barrier to the uptake of prefabricated housing. This was in relation to the following aspects:


- The building consent process can be problematic if a prefabricated house is manufactured within the jurisdiction of one BCA and located within the jurisdiction of another BCA (dual building consents may be required).
- BCAs need to satisfy themselves that prefabricated housing (as with any building) complies with the Building Code. Audits therefore need to occur at the prefabricated building factory, so BCAs can assess the internal components of the building. This is problematic if prefabricated housing arrives pre-assembled in New Zealand from overseas, as it can be difficult to provide assurance to the BCA that the building complies with the Building Code.

MBIE advised that it is currently undertaking consultation on modern methods of construction, including prefabricated building and off-site manufacturing, to address some of these issues (Campbell, 2019). BRANZ has also funded research into manufactured buildings, to examine the challenges of compliance and assurance for prefabricated products and systems, and to develop new assurance and compliance prototypes (BRANZ, n.d.).

It will be interesting to see whether the outcome of these initiatives will remove and/or reduce building consent barriers for prefabricated housing, or whether this is an area that may benefit from further research.

5.5.3 Industry scale

8% of the interviews conducted as part of this research identified the current scale of the prefabricated housing industry as a potential barrier to the uptake of prefabricated housing. That is, greater scale is required to produce a sufficient amount of prefabricated housing to incentivise growth both within the industry (which can face high levels of upfront investment) and through the provision of a greater range of prefabricated housing products for future homeowners, consistently across all parts of the country.



PrefabNZ has identified that as many as 7,000 additional homes each year could be built through modular construction (prefabrication) methods from 2020 (Stuart and Bergin, 2018). The current scale of the prefabricated manufacturing industry therefore needs to be bigger to increase supply in a meaningful way.

5.5.4 Purchase options

8% of the interviews conducted as part of this research identified the prevalence of house and land packages as a potential barrier to the uptake of prefabricated housing. That is, in some local markets, residential land is only available to buy in a house and land package, which already includes a house design (typically non-prefabricated). This removes the opportunity for buyers to select a prefabricated housing solution.

This situation is strongly linked to land supply, and is unlikely to be addressed in some parts of the country until developers either change their product offering (to decouple house and land) or more land becomes available for direct purchase by future homeowners (without the need to purchase through a developer).

5.6 Opportunities

The desktop review of district plans and interviews with planners undertaken as part of this research also yielded some opportunities for prefabricated housing within the current planning system. That is, opportunities that may not be available to non-prefabricated housing. These included:

- Some district plans include requirements for the use of 'relocatable buildings' in coastal hazard zones, so that houses can be easily moved within, or off, a site in the event of sea level rise or inundation. Prefabricated housing was considered to be well placed to respond to demand in these areas given that complete prefabricated housing in particular, lends itself to being moved.
- Some planners reported that rules regarding minor household units in their district plans had been updated to be more enabling; meaning that a secondary house could be placed on a site if it met certain thresholds, including maximum size requirements (i.e. gross floor area of no more than 65m² to 80m², depending on the territorial authority). Prefabricated housing was considered to be a potential option in these instances, as a number of prefabricated houses currently available on the market meet these size requirements and may attract cost efficiencies in certain parts of the country



where they are available. For example, the typologies included in the PrefabNZ SNUG design competition for minor households included units 65m² or less in size (PrefabNZ.com, 2018b).

This section has addressed each of the three research questions identified in Section 2.2 of this report. These research findings, and the implications of them, are now summarised in the following section.



6. Summary

6.1 Findings

The majority of district plans reviewed did not contain planning barriers for prefabricated housing

Overall the research found that 21 out of 25 (or 84% of) district plans covering New Zealand's high and medium-growth urban areas did not contain planning barriers for prefabricated housing. These district plans either did not differentiate between prefabricated and non-prefabricated housing (40%); or tailored provisions to exclude all types of prefabricated housing, including complete prefabricated housing, from definitions and rules requiring resource consent for relocated buildings (44%).


However, the minority of district plans reviewed did contain planning barriers for prefabricated housing

The remaining 16% of district plans reviewed did treat prefabricated and non-prefabricated housing differently. The relocated building rules within these district plans triggered the need for resource consent for complete prefabricated housing in residential zones, over and above resource consent requirements for other types of prefabricated and non-prefabricated housing.

Despite the fact that resource consent was required as a controlled activity (meaning that resource consent must be granted), this requirement was considered to create a planning barrier to the uptake of complete prefabricated housing due to the additional time and cost involved in obtaining resource consent. As noted in Section 3.2 of this report, the average cost for resource consent across the country is approximately \$2,000 and the majority are issued within 20 working days.

A case study highlighted the nature and frequency of such planning barriers

A case study of one territorial authority (Palmerston North City Council) was completed, to better understand the nature and frequency of resource consents required for complete prefabricated housing under relocated building rules. The research indicated that a small amount of resource consents (58) were issued for relocated houses over a three-year period, 33 of which were for complete prefabricated housing. This ranged from 3% to 10% of the total number of land use




resource consents issued by that territorial authority for the 2015/16 and 2016/17 years (MFE.govt.nz, 2018b).

While this number is not substantial, it indicates that 33 homeowners in three years, or almost one per month, incurred additional time and cost to obtain a new, complete prefabricated house due to resource consent requirements. Such time and cost would not have been incurred had they been located in other parts of the country with a more permissive approach to prefabricated housing (i.e. within 84% of the territorial authorities included in this research).

A suite of actions are available to overcome planning barriers for prefabricated housing

To overcome any such planning barriers for prefabricated housing, the research indicated that a range of actions could be taken. These included:

- In the short term: streamlining resource consent processes to minimise time and cost requirements for applicants and territorial authorities when resource consent is required for prefabricated housing.
- In the medium-term:
 - awaiting the release of MFE’s National Planning Standards (anticipated in April 2019) to see whether a standardised approach to prefabricated housing is included (including, potentially, a standard definition for relocated buildings). If this occurs, all district plans across the country will be required to follow the approach included in the National Planning Standards. If not, how prefabricated housing is treated in district plans will remain at the discretion of individual territorial authorities.
 - increasing knowledge and awareness within the planning profession regarding prefabricated housing. This will enable planners to accurately assess any likely effects of prefabricated housing on the environment, and tailor district plan provisions and resource consent requirements according to the nature and scale of any such effects.
- In the medium to long-term: undertaking a review of district plans to ensure that rules for relocated buildings reflect the scale of the resource management issue they seek to address, and relate back to the objectives and policies of the relevant district plan. This is again at the discretion of individual territorial authorities.



If land use planning isn't creating barriers to the uptake of prefabricated housing, what is?

Although this research did not review all 65⁴ district, city or unitary plans across the country; analysis of the 25 district plans covering New Zealand's high and medium-growth urban areas indicated that planning barriers for prefabricated housing do not exist in the majority of district plans (84% of those reviewed). In terms of what *is* creating barriers to the uptake of prefabricated housing, the research indicated that this may include the following three factors:

- Private covenants, imposed on the subdivision of residential land outside the RMA process, can restrict the use of prefabricated housing or limit its feasibility due to restraints on house size and value.
- The building consent process can be problematic for prefabricated housing. Initiatives such as Multiproofs to speed up the time taken to process building consents for standardised designs are not being adopted at the expected rate. Barriers for prefabricated housing under the Building Act and Building Code is an area that may benefit from further research.
- The current available supply of prefabricated housing is limited, and not evenly distributed across the country. PrefabNZ estimate that the entire complete building manufacture industry in New Zealand can currently build 3,000 to 4,000 houses per year; potentially increasing to a total of 7,000 complete prefabricated homes per year from 2020 (PrefabNZ, 2018).
- The prevalence of house and land packages in some locations can remove the opportunity for buyers to select a prefabricated housing solution.

Overall the benefits of prefabricated housing and the Government's willingness to utilise prefabrication technology to enhance housing supply and affordability is well documented. However, enabling factors (such as those listed above) both inside and outside the current land use planning system are yet to be fully realised.

Notwithstanding, there remains a role for planners to ensure that district plans and resource consent processes are fit for purpose, efficient and effective so to enable the sustainable delivery of prefabricated housing in those parts of the country where it is most needed.

⁴ Carterton, Masterton, and South Wairarapa District Councils share a Combined District Plan.



6.2 Ongoing monitoring

This research represents a snapshot in time of the district plan requirements for prefabricated housing of 25 territorial authorities. It does not include all district plans in New Zealand, nor is it able to reflect future district plan policy settings. It would therefore be useful to implement an ongoing monitoring programme regarding planning barriers for prefabricated housing to understand the nature and scale of such barriers in the future. This would enable effective responses to be developed.

Moving forward, it would be beneficial to await the outcome of MFE's National Planning Standards in 2019. If a standardised approach to prefabricated housing (i.e. a common definition for relocated housing) is *not* included in the planning standards, then a monitoring plan could be developed that tracked:

- the number of district plans nationwide⁵ that require resource consent for prefabricated housing (over and above any requirements for non-prefabricated housing);
- the number of resource consents issued for prefabricated housing as a result of those district plans; and
- any trends over time (increasing or decreasing amount of resource consents issued for prefabricated housing).

This would facilitate an ongoing understanding of potential planning barriers for prefabricated housing and provide the evidence base to remove them, if appropriate.

If a standard approach to prefabricated housing (i.e. a common definition for relocated housing) *is* included in the National Planning Standards, then territorial authorities will be required to update their district plans accordingly and the issue of planning barriers for prefabricated housing would effectively be resolved.

Either way, this research has been timely in establishing that planning barriers for prefabricated housing exist in only a minority of district plans across the country. This highlights the need for consideration of other potential barriers to the uptake of prefabricated housing both inside and outside the regulatory framework, to facilitate the actions required to overcome them and realise the sustainable development potential of prefabricated housing nationwide.

⁵ not just the current sample size of 25 district plans.



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Attachment 1: Interview questions & participants


Interview questions

Category A territorial authorities (refer to Figure 6 of this report)

1. We have looked at the definitions in your district plan. There don't seem to be any definitions that differentiate by housing construction method (prefabricated or non-prefabricated), is that correct?
2. And you also don't have any definitions for relocated buildings, is that also correct?
3. So it would be fair to say that the same rules apply to new housing, no matter how it is constructed?
4. Has this approach worked well in your area? i.e. you have you had complaints about prefabricated housing, or received suggestions that prefabricated housing should require resource consent?
5. Apart from the relocated building rules that some councils have, do you see any other planning (or non-planning) barriers for prefabricated housing in your day-to-day work? If so, what are they?
6. In your opinion, how could these barriers be overcome?

Category B territorial authorities (refer to Figure 6 of this report)

1. Do any of the definitions in your district plan differentiate by housing construction method (prefabricated or non-prefabricated)?
2. Do you have any definitions for relocated buildings or relocated houses? If so, do they include or exclude prefabricated housing?
3. Do the rules for relocated buildings in the residential zones of your district plan apply to prefabricated housing?
4. If not, how did your council come to exclude prefabricated housing from this rule/s?
5. So it would be fair to say that the same rules apply to new housing in residential zones, no matter how it is constructed?

- 
6. Has this approach worked well in your area? i.e. you have you had complaints about prefabricated housing, or received suggestions that prefabricated housing should require resource consent?
 7. Apart from the relocated building rules, do you see any other planning (or non-planning) barriers for prefabricated housing in your day-to-day work? If so, what are they?
 8. In your opinion, how could these barriers be overcome?

Category C territorial authorities (refer to Figure 6 of this report)

1. Do any of the definitions in your district plan differentiate by housing construction method (prefabricated or non-prefabricated)?
2. Do you have any definitions for relocated buildings or relocated houses? If so, do they include or exclude prefabricated housing?
3. Do the rules for relocated buildings in the residential zones of your district plan apply to prefabricated housing?
4. Is that the intention of the plan? If so, why?
5. Do any objectives and policies specifically reference relocated buildings?
6. Is your council likely to update the plan so that new prefabricated housing isn't caught up in the relocated houses rules? If so, when is your next plan review scheduled?
7. Do you have any data available on the number of resource consents issued for relocated buildings; and how many were for new prefabricated vs. re-used relocated houses?
8. Do resource consents for relocated buildings require a bond? If so, how much and do you know how often such bonds are discharged in full?
9. Have you had any complaints or objections to resource consent being required for prefabricated housing? If so, who from?
10. Apart from the relocated building rules, do you see any other planning (or non-planning) barriers for prefabricated housing in your day-to-day work? If so, what are they?
11. In your opinion, how could these barriers be overcome?

Interview participants

Territorial authority	Name	Position	Date interviewed
Category A			
Auckland Council	Tony Reidy	Team Leader, Unitary Plan	07/11/2018
Dunedin City Council	Jacinda Baker	Policy Manager	05/11/2018
Hutt City Council	Andrew Cumming	Divisional Manager: District Plan	01/11/2018
Porirua City Council	Brendon Stone	Senior Resource Consents Planner	26/10/2018
Rotorua Lakes District Council	Kate Dahm	Team Lead Planning, RMA Policy	29/10/2018
Tauranga City Council	Andrew Mead	Manager: City & Infrastructure Planning	30/10/2018
Waimakariri District Council	Bev Bray	Principal Policy Planner	30/10/2018
Wellington City Council	Gerald Blunt	Design Manager	26/10/2018
Western Bay of Plenty District Council	Phillip Martelli	Resource Management Manager	29/10/2018
Whangarei District Council	Melissa McGrath	District Plan Manager	30/10/2018
Category B			
Christchurch City Council	Ivan Thomson	Principal Adviser – Planning	25/10/2018
Gisborne District Council	Jo Noble	Strategic Planning Manager	01/11/2018
Hamilton City Council	Paula Rolfe	Team Leader Implementation & Monitoring	25/10/2018



Territorial authority	Name	Position	Date interviewed
Hastings District Council	Rowan Wallis	Environmental Policy Manager	30/10/2018
Kapiti Coast District Council	Nicki Williams	Policy Planning Manager	02/11/2018
Marlborough District Council	Pere Hawes	Manager Environmental Policy	31/10/2018
New Plymouth District Council	Sarah Edwards	Senior Planning Adviser	01/11/2018
Queenstown Lakes District Council	Ian Bayliss	Planning Policy Manager	31/10/2018
Selwyn District Council	Ben Rhodes	Team Leader, Strategy & Policy	30/10/2018
Upper Hutt City Council	Angela Bell	Planning Policy Manager	25/10/2018
Waipa District Council	Rebecca Steenstra	Senior Planner	01/11/2018
Category C			
Napier City Council	Dean Moriarity	Team Leader Policy Planning	25/10/2018
Nelson City Council	Marijke Ransom	Planner	02/11/2018
Palmerston North City Council	Jono Ferguson-Pye	Acting Planning Manager	23/10/2018
	Simon Mori (email)	Head of Planning Services	25/10/2018
Tasman District Council	Barry Johnson	Environmental Policy Manager	29/10/2018