Lincoln University Digital Dissertation

Understanding residential infill: A Christchurch case study of typologies and stakeholders

_____

A Dissertation

submitted in partial fulfilment

of the requirements for the Degree of

Master of Planning

at

Lincoln University

by

Brittany Bradley-Cane

_____

Lincoln University

2016

Abstract of a Dissertation submitted in partial fulfilment of the
requirements for the Degree of Master of Planning.

Understanding residential infill: A Christchurch case study of typologies and
stakeholders

by

Brittany Bradley-Cane

Advocates for Compact City, Smart Growth and New Urbanism claim intensification of land use as a
means to achieve sustainability imperatives, manage urbanisation and curb peripheral sprawl. It
appears policy makers and planners have taken this perspective into consideration over the last two
decades as intensification appears more prevalent in policy and planning. Literature points to
residential infill as a method of providing for housing development within city limits. While
residential infill is recognised in literature, little is known about what it consists of and the different
stakeholders involved. This study will document different types of infill, identify various stakeholders
associated with the different types and how their roles align and conflict.

Acknowledgements

There are a number of people who have made a significant, and very much appreciated, contribution to this research. I am grateful for the guidance of Dr Suzanne Vallance as my supervisor. Her knowledge and expertise has been invaluable in shaping the development of this research and her willingness to meet regularly and provide feedback has been much appreciated. I would also like to thank my fellow Lincoln University students who have been a source of reassurance and encouragement throughout the year. Thanks also to the lecturers of Lincoln University who have supported my learning over the last two years in the Master of Planning courses.

I must express sincere gratitude to my respondents. I am grateful for their time, honesty and expertise. Their perspectives were essential to this dissertation.

I would also like to thank my family and friends for helping me through this research with advice and motivation.

Finally, I would like to thank my partner, Maciej Ratka, for his encouragement and support throughout this process.

Table of Contents

Table of Contents

List of Tables

List of Figures

Chapter 1

Introduction

1.1   International context: sprawl versus intensification

This research stems from an increasing interest in the context and development of urban form and the argument that intensification is a means to achieve sustainability imperatives, manage urbanisation and curb peripheral sprawl.

A well-known approach to accommodate urban growth is for "the government" to make land available for peripheral residential development (Montgomery, 2012; Gallagher, 2012). This is typically referred to as greenfield development and it is known for its tendency to promote "sprawl". "Scattered development is classic sprawl; it is inefficient from the standpoints of infrastructure and public service provision, personal travel requirements, and the like" (Bhatta, 2010, p. 13).

A different approach, which will be the focus of this study, is housing infill, in which land that is already being used for residential or brownfield purposes within current city limits is intensified to include more dwellings or units on an existing site.

> "Modern cities have grown predominantly by spreading out from the center with new low-density homes built at the urban fringe…Such a decentralization process, nevertheless, gives rise to common problems associated with urban sprawl such as traffic congestion, increased infrastructure costs, and loss of rural and resource land. Recognizing that such growth is not sustainable, some communities have adopted policies restricting the amount of land in the suburbs that can be used for development. Instead, infill developments that involve developing on vacant or under-used parcels within existing urban areas are encouraged." (Ooi & Le, 2013, p. 850).

There are various definitions used to conceptualise housing infill. Plew (2001) defines infill as development that "occurs when new development takes place within an existing suburb of older houses. It includes one or more townhouses built behind, in front of or beside an existing older house. It also includes developments of two or more townhouses where the original older house has been demolished. Infill townhouses are built on crosslease sections or small (subdivided) freehold sections" (Plew, 2001, p. 1). The Wellington Urban Development Strategy (2006) defines residential infill as "the establishment of new dwellings within an existing suburb, facilitated by the division of existing residential properties into smaller sections by way of cross-leasing, or subdivision into fee-simple or unit titles" (p. 14). Wilson et al. (2003) discuss that infill development usually occurs where

public facilities such as roads, water and sewer already exist. Infill policies can be defined as the promotion of development on vacant land in already built-up areas (Ellman, 1997).

Housing infill has been considered, especially at local government level, as benefitting cities by making good use of existing infrastructure and providing housing within existing neighbourhoods. Critics of housing infill question its ability to maintain existing neighbourhood character and argue it reduces the amenity of the area due to the lack of open space it typically leads to. While there is debate around the benefits of housing infill, it is increasingly being promoted through local level policy and planning.

1.2   Local context: residential infill, governance and earthquake recovery

Infill housing has been a part of suburban New Zealand since the 1970's as a result of local authorities' determination to curb peripheral expansion through intensifying the existing urban area (Urban Development Strategy Working Paper 6, 2006).

> *"Infill is a contentious subject in New Zealand, particularly in the Christchurch, Wellington and Auckland regions. It is promoted at a local authority level due to the broad scale benefits identified in international research. At a community level in New Zealand, however, many neighbours and residents of infill have been dissatisfied with their experiences" (Urban Development Strategy Working Paper 6, 2006, p. 5).*

Supporting residential infill development through policies is one method of achieving intensification (Urban Development Strategy Working Paper 6, 2006). In addition, it appears that the market has been influenced by consumer demand for affordable housing of a variety of house and site sizes (Urban Development Strategy Working Paper 6, 2006).

Residential infill in New Zealand involves various major stakeholders (Urban Development Strategy Working Paper 6, 2006). This includes, but is not limited to: central government and local authorities; property investors and developers; current inhabitants of suburbia; as well as current and future owners and tenants of infill properties (Urban Development Strategy Working Paper 6, 2006).

However, it appears that the differing stakeholder groups have different and sometimes opposing priorities and values (ibid). When there is an increase in demand for residential land, land in more desirable locations entices a price premium which results in developers having an incentive to build more dwellings on each unit of land (Kulish, Richards & Gillitzer, 2012). In terms of government involvement, land use regulation and the provision of land-based infrastructure in New Zealand is the responsibility of local authorities under the Resource Management Act 1991 (RMA) and the Local Government Act 2002 (LGA) (New Zealand Productivity Commission, 2015). Central government sets

the high-level policy direction and local government must ensure their local planning efforts are in line with this.

New Zealand's large cities are facing housing shortages as housing supply has not been keeping up with housing demand.

> "Housing supply in many cities has been sluggish in response to population growth and struggled to keep pace with increasing demand. This has manifested itself in the increased price of housing where housing is in short supply, and in the high proportion of disposable income spent on housing in New Zealand compared with many other OECD countries. Making sure a choice of housing types is available at different price points, to cater for a range of income levels, is critically important to the effective functioning of the housing market, the economy, and the wellbeing of New Zealanders" (New Zealand Productivity Commission, 2015, p. 1).

Housing issues are particularly complex in Christchurch as the city experiences its sixth year of recovery from the devastating earthquake sequence, which began on the 4th of September 2010, with the most prominent earthquake occurring on the 22nd of February 2011. The city experienced various changes as a result of the earthquake sequence, especially in terms of change to the built environment. It is considered that that the earthquakes have resulted in approximately 16,000 properties being severely damaged with over 9,000 becoming uninhabitable (Goodyear, 2014). More than 171,000 properties in greater Christchurch registered a dwelling claim to the Earthquake Commission which meant that over 90% of dwellings received some earthquake damage (Goodyear, 2014). Government intervention, at both national and local levels, has played a significant role in the city's recovery. In this context, many resource management and land use decisions are required. Given that urban form is currently at the forefront of policy and planning as the city focuses on long-term recovery, it is considered that Christchurch is the ideal location to explore and document different types of infill, identify various stakeholders associated with the different types and explore how their roles align and conflict.

1.3 Scope of this research

This research aims to document different types of infill, identify various stakeholders associated with different types and how their roles align and conflict. The overarching research questions this study aims to address are as follows:

Research question 1: What is residential infill and can it consist of more than one type of development?

Research question 2: Who are key stakeholders associated with residential infill development and what drivers and constraints do they face?

Research question 3: How do various stakeholders' roles align and conflict?

The scope of this research is limited to Christchurch, New Zealand

1.4   The structure of this dissertation

This dissertation begins with a literature review of the important theory and research relevant to sustainability, intensification and infill. Traditionally, central government has not been a particularly active stakeholder in infill housing development or regulation but there are indications in Christchurch, post-quake, that this may be changing. Consequently, the role of central and local government as stakeholders in land use regulation will also be explored. Chapter 3 outlines the qualitative research methods used for this study. Chapter 4 provides a background to this research, focusing on a brief history of urban development in New Zealand, highlighting the changing roles of local and central government, and provides an introduction to the city of Christchurch which forms the case study for this research. Chapters 5 and 6 outline the findings of this research, firstly providing legislative context to understand the complex dynamic of central and local government, then focusing on conceptualising residential infill including key drivers and constraints and finally establishing an understanding of the differing roles of and relationships between central and local government in regulating residential infill in Christchurch. Chapter 7 unifies some of the key ideas from the literature review together with the major findings, to reflect on the existing theory and practice. The conclusion in Chapter 8 then presents further questions which were raised by this research, and provides final conclusions on the conceptualisation of residential infill and the differing role of central and local government as key stakeholders.

Chapter 2

Literature review

2.1 'Compactionist' perspectives as justification for intensification

This section explores the role of emerging policy and planning theory in establishing justification for intensification of land use. It will be established that literature highlights residential infill as a key type of compact development and that there are a few gaps that ought to be addressed.

2.1.1 Sustainability and the compact city

Defining sustainability and compact city and its relevance to urban form

Various global issues, including climate change and population growth, have spiked multiple debates relating to an overarching concept of 'sustainability'. There are debates relating to both the conceptualisation of sustainability and whether sustainability is the right approach to addressing global and local environmental issues. "Sustainability [was] initially referred to [as] 'environmental sustainability' or 'ecological sustainability', that is, the longterm capability of the Earth to accommodate ever expanding human needs and wants, given their toll on the natural ecology" (Chiu, 2004, p. 65). Sustainable development is defined by the World Commission on Environment and Development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (1987, p. 23).

Sustainable development has often been assessed using a model called the three pillars of sustainability which use social, economic and environmental indicators (Wallis, Graymore & Richards, 2011). The indicators are seen as a means to communicate sustainability and to better inform decision making and policy formation through collecting and collating information about the sustainability of economic, social and biophysical systems (Wallis, Graymore & Richards, 2011). There is not much consensus among literature on which of the many sustainability models ought be promoted and there is no overarching agreement on how the concept of sustainability should be translated into practice (Wallis, Graymore & Richards, 2011). This issue has meant that sustainability is redefined to suit individual political agendas which may mean that sustainability models that have been developed reveal more about the social and political ideologies than about sustainability itself (Wallis, Graymore & Richards, 2011).

The spatial dimension of human settlements and the influence of urban morphology and location on resource and energy consumption is an important debate on the sustainability of housing (Rérat, 2012). Recent theories and practices have led to practitioners and decision makers being influenced

by a sustainability imperative to promote urban form in a manner that is sustainable (Ancell & Thompson-Fawcett, 2008). Housing is a key component of the built environment and sustainable housing development can be defined as "housing development that meets the housing needs and demands of the present generation without compromising the ability of future generations to meet their needs and demands" (Chiu, 2004, p. 65). Chui (2004) emphasises sustainable housing development as embracing environmental, social, cultural and economic considerations. Sustainability requires societies to consider the environmental, economic, social and cultural needs of their current and future generations (Ancell & Thompson-Fawcett, 2008). It is arguable that ensuring the effectiveness and feasibility of such an imperative would require a localised definition as part of a global end (Ancell & Thompson-Fawcett, 2008).

Compact city advocates pushing for intensification

Increasing the quality of life of city residents through managing the built and natural environment is a central concern of planning (Ancell & Thompson-Fawcett, 2008). Many countries promote the compact city model as an alternative to the highly criticised urban sprawl (Rérat, 2012). "The normative ethic of sustainability has been translated into ideals for urban form, such as the compact city, which aim to ensure sustainable places by selectively intensifying land uses and promoting the development of consolidated mixed use nodes, thus preventing imprudent urban sprawl" (Ancell & Thompson-Fawcett, 2008, p. 438). The overarching idea to take away from this concept is that it encourages cities to have stricter urban limits to promote efficient transportation, infrastructure use and proximity to basic necessities. Melia, Parkhurst & Barton (2011) highlight that a great body of literature on the relationships between the urban form and transport outcomes has had a substantial influence on the evolution of policy towards intensification. An analysis carried out by Rérat (2012) concludes that the compact city model appears beneficial and workable in the context of a growing population group where centrality and proximity are included in their residential aspirations.

According to Rérat (2012), two main issues have been addressed by debates on environmental sustainability. The first relates to technical aspects of housing which has led to a definition of construction guidelines with the aim of reducing the ecological footprint on housing (Rérat, 2012). The second involves the spatial dimensions of housing which concerns the impact of urban form and location on consumption of energy and resources (Rérat, 2012). A major focus of the spatial dimensions of housing relates to the compact city model as a regulator of urban sprawl by limiting resource and energy consumption through reducing the role of the automobile and increasing levels of active and public transport (Rérat, 2012). "Several planning principles underlie the compact city model, which is characterised by relatively high residential density and mixed land uses, the regeneration of brownfield sites, raising the height of existing buildings, functional mixing, the joint development of public transport systems and new settlements, etc. From a demographic point of

view, the compact city aims to increase the population of cities by building new dwellings on underdeveloped sites contained within the urban fabric" (Rérat, 2012, p. 116).

In many countries, debates on land use planning have increasingly focused on principles of the compact city model (Rérat, 2012). In the United States for instance, groups have been emerging since the 1990s campaigning for growth management and smart growth through the renewal of land regulation (Rérat, 2012). Rérat (2012) addresses the debates brought forward by Dubois and Van Criekingen which centre around the feasibility of the compact city, its social implications and its environmental consequences. The first debate argues there is potential for issues relating to both supply and demand (Rérat, 2012). For instance, it is arguable that the potential for intensification in urban areas may be too limited to adequately reduce urban sprawl while also not being backed up by demand as it runs counter to the desires of residents (Rérat, 2012). In regards to the social implications of densification critique, there is concern that the promotion of intensification will essentially lead to gentrification as cases have demonstrated cities with a high quality of life are financially inaccessible to many people which will create social inequalities (Rérat, 2012). The environmental consequences critique implies that the urban form resulting from the compact city model promotion may not be compatible with the requirements of sustainable development as it may result in the increase of pollution and traffic congestion as well as a decrease in the quality of life (Rérat, 2012).

While the compact city model has had increasing support from practitioners, it is contested in literature (Ancell & Thompson-Fawcett, 2008). For instance, one criticism is that the benefits of densification are negligible compared to the potential of alternative policies (Ancell, Thompson-Fawcett, 2008). A further argument is that when applying policies of consolidation and infill it is essential to obtain an understanding of the local social context (Ancell &Thompson-Fawcett, 2008)

Compact City ideals being pursued in policy and planning

It appears that leadership roles in pursuing sustainability are being undertaken by national, state and local governments in many countries around the world (Hecht, Fiksel, Fulton, Yosie, Hawkins, Leuenberger, Golden & Lovejoy, 2012). Population growth, which was once a cause for celebration, is now increasingly a cause for concern as "population growth, along with increasing affluence in developing nations, is seen as a primary driver of the growing, unsustainable global demand for energy and natural resources" (Hecht et. al, 2012, p. 63). It is claimed that protection of the environment, which is traditionally the responsibility of the government, has been the result of concerted public pressure to enact environmental laws and regulations (Hecht et. al, 2012). "Implementation of green economy and stewardship policies depends on effective national and subnational environmental governance" (Hecht et. Al, 2012, p. 69).

2.1.2 Smart growth

Defining Smart Growth and the pursuit to curb sprawl

It is arguable that several urban planning systems have a very specific focus on what makes a city "good" (Ancell & Thompson-Fawcett, 2008; Moroni, 2010). A significant example of this is the promotion of 'smart growth'. It entails an overarching set of principles with underlying goals including limiting greenfield developments and sprawl through urban growth boundaries, promoting a mix of land uses and increasing residential density, and encouraging the provision for public transport as well as the development of neighbourhoods which encourage active transport (Durand et al., 2010). Smart growth objectives have been used in the planning systems of several cities and has sparked criticism both in favour and in opposition to its adoption (New Zealand Productivity Commission, 2015).

Smart Growth is promoted as a framework for helping communities achieve a better, more affordable and more equitable built environment (Edwards & Haines, 2007). In general, it encapsulates a broad agenda of policies to enable more efficient use of land and to promote better planning (Edwards & Haines, 2007). "A variety of principles, goals, and policies are promoted under the smart growth label, but as these principles have proliferated among organizations and within state and local planning documents, it has become apparent that smart growth is defined in different ways, sometimes depending on the organizational mission" (Edwards & Haines, 2007, p. 51)." Smart growth advocates call for the coordination of infrastructure and development investments and for development characterized by walkable and compact communities that offer a variety of housing and transportation choices. It is preferable for new housing to be located near jobs to reduce commuting time and related traffic and air pollution problems" (Edwards & Haines, 2007, p. 55).

A further argument supporting smart growth is its association with reducing sprawl (Danielsen, Lang, & Fulton, 1999). Additionally, Advocates of Smart Growth emphasise the importance of achieving greater housing affordability and diversity (Addison, Zhang & Coomes, 2013).

Smart Growth hindering the market and reducing private property rights

On the other hand, critics of smart growth argue that it is a method for planners to enforce particular values on communities by requiring compliance to strict rules and regulations and that smart growth contradicts market demand (Litman, 2015). Danielsen, Lang, & Fulton acknowledge that "land uses, design practices, and financial incentives that improve the costs and marketability of more densely built housing are key to balancing the competing pressures inherent in smart growth." (1999, p. 515).

Smart growth is criticised for negative consequences of densification and compaction, such as curbing land development and it posing significant challenges to promoting housing affordability (Addison, Zhang & Coomes, 2013). "Housing markets can be affected by smart growth-related planning practices, ranging from growth management policies to various urban design tools such as transit-oriented development and urban infill" (Addison, Zhang & Coomes, 2013, p. 215). It is considered that sustainable development is the overarching goal of smart growth practices and environmental, economic and equity considerations are fundamental in achieving a smart growth development pattern (Addison, Zhang & Coomes, 2013). While it is arguable that smart growth strategies are designed to alleviate housing affordability by providing diversified housing options, by increasing density and incorporating design that promotes a balanced distribution of work and residence smart growth strategies also reduce the supply of developable land and limit growth (Addison, Zhang & Coomes, 2013).

However, a central argument in favour of smart growth is that it promotes diversity of choices, especially with regards to housing, transportation, employment and amenities (American Planning Association, 2012). It is argued that this is possible due to the use of comprehensive planning to design, facilitate, manage, revitalise and build inclusive communities (American Planning Association, 2012).

Rationalising compact urban form: good use of existing infrastructure and means of revitalization for communities

"Consequences of suburban sprawl have challenged traditional suburban developments in terms of sustainability and quality of life. As an alternative approach, the smart growth movement emphasizes the reuse of existing resources in already urbanized areas in a metropolitan area" (Lee & Leigh, 2005b, p. 330). Lee and Leigh (2005b) argue that when considering metropolitan smart growth strategies, policy makers and planners should not only focus on central cities but on the revitalization of inner ring suburbs. Lee and Leigh (2005b) place emphasis on the role of the evolution of transportation systems in the emergence of suburban rings and the diversity of urban areas. It is argued that the desirability of moving back into the city has been significantly increased due to the negative impacts of sprawl negating the amenities of suburban living (Lee and Leigh, 2005b). Lee and Leigh (2005b) state that "the common emphases of the smart growth are revitalization of existing communities, reuse of existing infrastructure, infill development, mixed-use development, open space preservation, sense of community, and housing affordability" (p. 338).

Smart Growth encouraging residential infill

A majority of literature is essentially in agreement that the focus of smart growth relates to revitalising urbanised areas through methods such as infill development to protect open space at the

city fringe (Lee and Leigh, 2005b). "The smart growth movement of the 1990s has seen many development and planning associations, state and local governments … encourage significant infill development to control sprawl and promote revitalization." (Farris, 2001, p. 1). Farris (2001) argues that selectively choosing the relatively limited infill opportunities which can vary by market whilst also encouraging higher density better quality development at the metropolitan edge and exurbia should be the main goal of smart growth advocates.

A study carried out by Phan, Peterson, & Chandra (2009) demonstrates that existing sprawling suburbs can be transformed whereby methods such as infill can result in cities becoming more compact. They argued that intensification should especially be provided in close proximity to public transport, community facilities and other key services.

2.1.3 New Urbanism

Defining New Urbanism: a design based approach for urban development

New urbanism is similar to smart growth, although it has a few subtle differences (Wear, 2016). In response to an emerging trend of urban decline, in 1993 a coalition of planners, urban designers, developers, architects, and engineers coalesced to create New Urbanism, a movement for reinvestment in design, community, and place (Leccese, & McCormick, 2000). Articulated in the Charter of the New Urbanism were their values and core principles of their work. With the influence of this wide array of professionals, New Urbanism has more of a focus on physical form which is believed to be a significant precondition necessary for social, economic and environmental change (Wear, 2016).

City congestion and urban sprawl are the inevitable development trend resulting from economic growth (Wey & Hsu, 2014). "The rise of New urbanism brings new energy and new ideas to communities that commit to manage growth" (Wey & Hsu, 2014, p. 164). "The rise of the automobile of the 1920s led to urban sprawl and leapfrog development, which in turn caused traffic congestion and environmental concerns" (Wey & Hsu, 2014, p. 165). In the late 1980s private developers and public officials were beginning to be influenced by New Urbanists to provide alternatives to the current sprawling development approach (Wey & Hsu, 2014). Central to new urbanism is the promotion of design-based strategies enabling the building and re-building of neighbourhoods, towns and cities in favour of an alternate approach to sprawl (Wey & Hsu, 2014). Wey & Hsu (2014) conducted a study which found that an adjustment to the scale of local conditions if required in order for effective adoption of new Urbanist and Smart Growth approaches. They argue that Smart Growth focuses more on land use planning.

New Urbanism pushing for policy reform to achieve ideals including intensification

The New Urbanist movement advocates restructuring of public policy and development practices to support principles which focus on diversifying neighbourhoods and transport modes, the shaping of cities around accessible public spaces and community institutions and celebrating local history, building practice, climate and ecology through architecture and landscape design framing urban places (Leccese, & McCormick, 2000).

New urbanism is an urban design movement that is highly discussed and critiqued (Trudeau & Malloy, 2011). "Proponents champion the movement as a viable way to correct negatively perceived characteristics of modern cities, including sprawl, destruction of natural environments, segregation, and deterioration of the public realm. The movement prescribes changes at a variety of spatial scales, yet its construction of mixeduse, pedestrian-oriented neighborhoods is arguably its most well-known and influential product" (Trudeau & Malloy, 2011, p. 424). Two major critiques of New Urbanism is that it contributes to sprawl and also that it generates socially exclusive communities (Trudeau & Malloy, 2011).

Intensification through urban design

New urbanism emphasises that cities can change for the better by promoting developments that are compact, pedestrian-friendly, and mixed use (Fosterr, Hooper, Knuiman, Bull & Giles-Corti, 2015). Incorporating New Urbanism principles is argued to enable positive outcomes including sense of community, minimise car dependence, enhanced safety from crime and livelier streets (Fosterr, Hooper, Knuiman, Bull & Giles-Corti, 2015).

2.1.4 Achieving intensification through residential infill

There is now a growing body of research focusing on use of intensification of land use to achieve sustainability imperatives, manage urbanization, and curb peripheral sprawl. Medium density development, inner ring suburb revitalisation and residential infill are key intensification approaches highlighted by literature.

Lee and Leigh (2005b) argue that investment in housing redevelopment in inner ring suburbs is an efficient use of both established social infrastructures and established physical infrastructures. Figure 1 below demonstrates how suburbs can be categorised into outer ring suburbs and inner ring suburbs.

Figure 1 The Emergence of Suburban Rings and Subcentres within Metropolitan Areas. (Lee and Leigh, 2005a).

Infill development can be defined as a general intensification of buildings in unoccupied space in an existing area (Howdle, 2012). Suburban infill can be defined as the construction of buildings on vacant or underdeveloped land in an existing suburb (Howdle, 2012). The meaning of infill has somewhat changed over time.

> *"Infill means different things. It has traditionally meant the development of vacant, cleared, or abandoned parcels. More recently, the term has expanded to include land reuse and recycling— that is, the redevelopment of developed parcels that are physically or economically underutilized." (Sandoval & Landis, 2000, p. 1).*

In terms of drivers, Farris (2001) argues that the rationale for infill development partially relates to changing demographics whereby growing demographic groups, including empty nesters, smaller families and singles, are seeking housing that fits with their lifestyle. Farris (2001) also argues that the infill housing market is often contained to areas where there is good accessibility to key facilities, jobs and transport. Sandoval & Landis (2000) argue that infill development rests on four basic arguments: infill development preserves open space on the urban fringe and resource lands; infill can enable increased use of existing infrastructure including transit which can increase efficiency; infill has potential for reducing income and racial segregation; and lastly infill promotes a 24-hour city and a compact integrated mix of land uses.

 A significant critique of intensification of land use relates to an association with increased traffic and congestion. However, Melia, Parkhurst & Barton (2011) argue that there are various ways to deal with traffic increases due to intensification.

> *At this level policymakers face two choices: accept the local consequences as the price of wider progress, or take more radical measures to constrain traffic growth in intensified areas. These measures may include closing*

roads to through traffic, reducing residential parking and, where feasible, car free development. (Melia, Parkhurst & Barton, 2011, p. 52)

In terms of possible constraints, additional critique of intensification and infill relates to the potential extensive cost to redevelop the land (including removal of potential contamination on brownfield sites), availability of vacant land, and the need for existing infrastructure to be upgraded (Farris, 2001). Amenity impacts on neighbours are also a considerable critique as changes to the character of an area are generally met with opposition of residents (Ooi & Le, 2013).

Newton & Glackin's(2014) study explores two types of infill: brownfields and greyfields. They argue that brownfields typically consist of abandoned or under-used commercial or industrial sites associated with an earlier era of economic activity. This can include formerly viable retail sites, sections of railway land or outdated commercial high-rise buildings (Newton & Glackin, 2014). Greyfields on the other hand predominantly lie between the central business district, the inner city housing market and more recently developed greenfield suburbs (Newton & Glackin, 2014). This infill type provides greater access to public transport, employment and services than brownfield development (Newton & Glackin, 2014).

Newton & Glackin (2014) additionaly emphasise that brownfield and greyfield infil development differ with regards to developers and stakeholders.

> *"Brownfields…are typically owned by a single party, usually government or industry; of a scale which is closer to that provided by greenfield sites for development; contaminated to some degree, depending upon the nature of prior use; and unoccupied, obviating the need for community engagement at a level required of greyfields. Greyfields, unlike brownfields, usually have no need for site remediation and comprise large tracts of under-capitalised real estate assets that are individually owned and occupied, not in consolidated blocks representative of brownfields." (Newton & Glackin, 2014, p. 124-125).*

Further research is needed to gather a more detailed understanding of how to conceptualise infill development including whether there are different types of infill and what its key drivers and constraints consist of. Literature also raises the question of who the key stakeholders are if there are indeed different types of infill.

2.2 Stakeholder relationships: neoliberal reform challenging local and central government interrelations

In recognising that both local and central government can be considered key stakeholders in residential infill development, this section focuses on how neoliberal reform has influenced the dynamic relationship between local and central government. The relevance of this to residential infill will also be explored.

2.2.1 Neoliberalist influence on governance and land use

It appears that Neoliberalism and the role of government have changed over time. Peck and Tickell (2002) discuss that there has been a shift from 'rollback' Neoliberalism, which involved deregulation and dismantling of the state, to 'rollout' Neoliberalism, which is arguably more proactive and aggressive involving implementation of regulation that supports neoliberal reforms.

In the late 1980s and early 1990s New Zealand was experiencing a radical reform process centred on a neoliberal agenda which encouraged greater individual responsibility and required a reduction of the overt role of government bureaucracy (Perkins & Thorn, 2000). In 1991 New Zealand's planning system was radically restructured as a result of the introduction of the Resource Management Act and significant amendments to the Local Government Act 1974 (Perkins & Thorns, 2000). These changes were desirable in order to emphasise the sustainable management of the biophysical environment and also to "dramatically to limit local government's involvement in urban and social planning…Ironically, the strategic planning provisions of the amended Local Government Act gave local government contradictory powers." (Perkins & Thorn, 2000, p. 639). The new statute was brought into existence out of the radical agenda of the 1984 third Labour government and was shaped by the wider set of reforms for the state sector (Perkins & Thorn, 2000). The reforms focused on increasing the role of the private market, privileging the individual consumer and extending choice (Perkins & Thorn). "Planning in pre-1991 terms was thus seen as a bureaucratic process which intruded too extensively into the marketplace and increased the cost of development through delays as applications went through the local government system." (Perkins & Thorn, 2000, p. 641).

The role of the state, as viewed by neoliberalists, is to create and preserve an institutional framework that is appropriate to private property rights, individual liberty, unencumbered markets and free trade (Harvey, 2007). Neoliberalism arose with the idea that state interventions are inefficient and reducing the role of the state and deregulation is an effective way to alleviate economic problems (Chang, 2003). Neoliberalism is a significant form of free-market economic theory which is used as justification for government reform (Peck and Tickell, 2002). Peck and Tickell (2002) highlight that Neoliberalism was an ideology that became implemented and politicised by Thatcher in the United Kingdom, Reagan in the United States, as well as Roger Douglas in New Zealand during the 1980s.

Spicker (2000) sets out that government are made up of formal structures that are used to undertake various activities. The different branches of government consist of legislative, which relates to the formation of rules, judicial, which involves arbitration, and lastly executive, which involves the implementation of policy (Spicker, 2000). Literature has drawn a distinction between the concepts of the state and government.

> *"More broadly, government tends to be identified with 'the state', a general term for the institutions and activities undertaken by governments. In so far as there is a distinction, states should be seen as institutions, rather than groups of people; they consist of a complex combination of agencies and procedures which together form the organisational means through which policy can be effected." (Spicker, 2000, p. 107).*

Spicker (2000) argues that while it is considered that government is part of society, it is important to recognise that a government can have the ability to change a society as states and governments are agents of maintenance and change. "Maintenance and change are two sides of the same coin: patterns of social behaviour and relationships are in a constant state of flux, and both maintenance and change involve an understanding of the dynamics of change." (Spicker, 2000, p. 112).

Mintrom (2012) argues that the role of government as a centralised organisation is needed in order to achieve outcomes that could not be achieved through a society consisting of smaller decentralised groups. Spicker (2000) argues that the justification for the attempt of modern governments to stabilise the economy stems from the belief that it is socially acceptable for government to provide stability and cohesion. Spicker (2000) additionally argues that the authority exercised by governments over other agencies is what distinguishes the government and the state from other forms of association.

> *"Authority makes it possible to govern - to establish a framework of rules, and so to establish the conditions under which other associations work. It also makes it possible to coerce people, and that is fundamental to achieving some of the outcomes which states achieve; powers of coercion lie behind the imposition of minimum standards which are basic to welfare provision. The primacy of government is sanctioned because the exercise of authority is seen as legitimate." (Spicker, 2000, p. 113).*

2.2.2   Differing roles of local and central government over land use regulation

Moore (2012) argues that the built environment can be understood as the end result of a 'tug-o-war' between local government planners and private sector developers in the normative pursuit of public good. "Public sector bodies are often characterised as being concerned with longer-term, socially oriented development aims, whereas private sector interests are seen as short-termist and focused only on profit margins." (Moore, 2012, p. 578).

Moore (2012) additionally argues that emerging policy on the built environment may not achieve the desired outcomes as the existing built environment and policy context can be considerably influenced by long-term effects of existing or previous land use policy.

Neoliberalism arguably has exerted influence over land use regulation. It appears that urban policy has been somewhat hindered by Neoliberalism.

> *"Despite its language of innovation, learning, and openness, neoliberalism is associated with an extremely narrow urban policy repertoire based on capital subsidies, place promotion, supply-side intervention, central-city makeovers, and local boosterism. The very familiarity of this cocktail is a reflection both of the coercive pressures on cities to keep up with—or get a step ahead of—the competition and of the limited scope for genuinely novel local development under a neoliberalized environment."* (Peck and Tickell, 2002, p. 394-395).

In focusing on the role of the state in land use planning, the complexity of cities is highlighted in the literature. "Urban areas are dynamic, complex places. Land uses and neighbourhoods can change dramatically in response to economic, technological and demographic forces" (New Zealand Productivity Commission, 2015, p. 1). A significant criticism relating to urban planning is that cities, as self-organising systems, are too diverse, are unpredictable and uncontrollable and are therefore unplannable (Batty, 2005; Portugali, 2009). It is arguable that determining the optimal degree and the desirable areas of state intervention can only be determined in analysing and taking into account the institutional, historical and geographical context (Chang, 2003).

It is argued that planning systems can be understood as a set of institutional arrangements intended to achieve a balance between the rights of property owners to make use of and manage their land and the concerns or interests that others have in that land (New Zealand Productivity Commission, 2015). This balance includes the community's interest in environmental outcomes (ibid). Similarly, there is a significant property rights debate which separates into two contrasting perspectives. One school of thought argues that it is inherently the land owner's responsibility to take appropriate environmental protection measures and therefore the costs of environmental protection ought to be internalised (Joseph, 2015). The opposing school of thought gives weight to the idea that property rights of landowners are constitutional in character and it is a public responsibility to regulate and protect the environment (Joseph, 2015). Advocates for this school of thought promote the right to compensation where rights of property ownership are impaired by environmental controls (Joseph, 2015).

There is additionally the question of how much control national government should have over land use planning. Alterman (2001) highlights that national level spatial planning can classified into two schematic types. The first is comprehensive planning which focuses on taking an integrated and multi-sectorial view and seeks to guide land use for all types of needs in a coordinated manor. Sectorial planning, on the other hand, focuses on a single sector, such as housing, transportation or health. Alterman (2001) argues that every day planning, at any level, should be classified somewhere between comprehensive and sectorial planning. In her study, she found that countries significantly differed on the degree of institutionalisation of national level planning. For example, Israel was found to have a high degree while the USA has a significantly lower degree of institutionalisation. She,

however, emphasises that it is not possible to predict the emergence of national planning based on high population densities and argues that adopting national-level planning is rather a choice by decision-makers and voters. She also highlights that many of her sample countries had the desire to reduce inter-regional inequalities within the country as a shared goal which has helped trigger national-level planning. An additional factor that has helped maintain national-level planning is the rising support for environmental values as well as the search for environmentally friendly infrastructure policies. Goodin, Moran & Rein (2006) argue that top-down governance can lead to interpretation and implementation issues where the desired outcomes of policy and regulation are not achieved. While there is potential for governance without states, Eckersley (2002) argues that this would bring about certain dangers and democratic deficits in making governance and responsibilities more privatised.

The idea that local government exists as a vehicle for self-government is widely acknowledged and it makes participation in political decision-making possible for significantly more people than is true for central government (Cheyne, 2002). There are several reasons why public participation is of importance, including its tendency to promote well-informed decisions, the inclusion of more expertise, better relations between the public and the government as well as consideration of communities' overarching values (Bulkeley & Mol, 2003). Flyvbjerg and Richardson (2002) argue that the more democratic a society, the more it allows people and groups to define their own specific ways of life as well as makes legitimate the conflicts of interest that inevitably arise between them.

It is arguable that the role of local government in land use planning has been questioned by central government in New Zealand following significant reforms relating to the Resource Management Act and the Local Government Act. "Central government expected these statutory changes to control local authorities and limit their functions, particularly in social and economic policy." (Perkins & Thorn, 2000, p. 651).

Perkins and Thorn (2000) discuss that Christchurch City took a different approach which appeared to conflict with the neoliberal agenda.

> *"Its councillors and staff saw the annual and ten-year strategic planning approach as being an opportunity to elaborate more clearly a strong social and economic policy agenda which conflicted quite markedly with the neoliberal policies of central government. Having passed the legislation which, inadvertently, allowed Christchurch (and some other city councils) to pursue policies which contradicted its neoliberal agenda, central government and its allies were then reduced to name-calling in a vain attempt to undermine those policies" (Perkins & Thorn, 2000, p. 651).*

Land use regulation has a variety of ways of achieving strategic outcomes.

> *"Planning has a range of means to try to achieve desired ends: direct provision of developments; indirectly 'persuading, encouraging and incentivising the private sector' to deliver desired developments; using or making available public land; controlling development; subsidies; providing infrastructure; providing financial incentives or taxes; regulation of land use within zones in plans; negotiating tradeoffs; or providing information and education." (Rydin, 2011, p. 12).*

Rydin (2012) argues that each of these land use regulation approaches have the potential to generate opposition as they generally use public funds and also limit property rights and developments much be financially viable if the private sector is expected to undertake these developments.

A common approach to land use planning overseas is referred to as activities-based planning whereby land zoning is dictated by compatibility of different activities. New Zealand central government has moved away from this approach in favour of a more localised, case by case approach.

> *"Reform of the planning system in New Zealand demonstrates the contradictions in attempts to manage environmental externalities whilst simultaneously promoting the unfettered use of land… through the adoption of effects-based management, the act eschews the spatial regulation of activities, thereby debasing the historical charter of planning as a discipline which separates incompatible land uses" (Coombes, 2003, p. 205).*

Under the Resource Management Act 1991 (RMA) regional councils have responsibility over the integrated management of natural and physical resources as well as have the role of regulating land use effects upon soil, water, and natural hazards (Jackson & Dixon, 2007). City and District Councils have the role of regulating the management of subdivision and other land use effects (Jackson & Dixon, 2007). The overshadowing aim of the RMA was to allow for greater flexibility for land owners to use and develop land and resources in response to the market, whilst the management of the environmental effects of their decisions would become the focus of public interest (Jackson & Dixon, 2007).

Literature suggests that local and central government are likely to both be stakeholders in infill development however, further research is needed to confirm this. Additionally, considering that literature suggests there are conflicts resulting from complex relationships between central and local government, whether this is true of infill development ought to be explored.

Chapter 3

Research methods

The overall aim of this research was to document different types of infill, identify various stakeholders associated with different types and explore how their roles align and conflict.

3.1 Research objectives

A large body of literature focuses on the idea that cities should become more compact to address urbanization trends and sustainability imperatives. Infill is widely mentioned in the literature as a means for cities to intensify land use, however there appears to be a gap in the research over what infill actually consists of. Research question 1 seeks to address this gap and help determine key characteristics of infill including whether it can be categorised into different types.

Research question 1: What is residential infill and can it consist of more than one type of development?

Chapter 2 points to a potential gap in the literature whereby little is known about who they key stakeholders are in infill development and what are the key drivers and constraints that they face.

Research question 2: Who are the key stakeholders associated with residential infill development and what drivers and constraints do they face?

Findings from Chapter 2 suggest that stakeholders can have complex relationships and their ideals and agendas might not necessarily be well aligned. Research Question 3 will address this dynamic and explore the impact it has on infill development.

Research question 3: How do various stakeholders' roles align and conflict?

3.2 Methodology

This research is explorative in nature and will use a qualitative approach to undertaking research. This research aims to draw together information which is currently fragmented and widely distributed through a range of various sources. The value in qualitative data relates to gaining explanations of facts and also the relationships between variables (Flick, 2006). A comparison can be made between positivist and interpretive approaches whereby positivist approaches are concerned with observable phenomena and natural sciences whereas interpretive approaches consider the constructed, evolving and dynamic nature of social reality (Travers, 2001). Interpretivists take into account people's perspectives at face value and can appreciate the contrast of differing perspectives

as opposed to the positivist view that this information could not be considered as complete (Travers, 2001). This research also aims to gain insights from interviewing people in their professional capacity. To ensure research is comprehensive and accounts for complexity, it is important to continually move between existing knowledge and theory and what was observed in the research (Flick, 2006).

To address each question, a combination of research methods will be used including a literature review, secondary data, and interviews to gather primary data. Firstly, a literature review will be carried out to allow for a holistic understanding of previous research and theories. Then, secondary data will be analysed to examine who are key stakeholders associated with residential infill development and how the various stakeholders' roles align and conflict. Interviews with government officials and private sector professionals will be carried out in order to gain a deeper understanding of residential infill typologies, drivers and constraints and the interactions of stakeholders.

> *"Qualitative data are not simply those data that are non-numerical. Rather…data may be qualitative in part by virtue of the rich contextual detail they provide about social and material situations. Ethnographic interviews, for instance, tend to elicit responses from interviewees that describe conditions, relationships, and processes in detail…The interviewees' responses are qualitative data because each narrative likely communicates rich descriptive detail about these shifting social and material conditions and processes" (Elwood & Cope, 2009, p. 6).*

Because this research is concerned with an exploring of the role of local and central government and how they enable or restrict housing infill supply, qualitative methods are considered appropriate to examine the relationship between those groups of actors and their actions.

> *"Analytical techniques such as grounded theory, discourse analysis, or content analysis, for example, work with qualitative forms of evidence to tease out their negotiated meanings and situated knowledges" (Elwood & Cope, 2009, p. 6).*

The results of this research using secondary data sources made a valuable contribution to the context in which the results of the primary research should be evaluated and understood.

3.3   Research methods

A combination of research methods was used for this dissertation including a literature review, secondary data, and interviews to gather primary data.

3.3.1 Literature review

Planning theory can be understood as running alongside planning practice, prescribing what should be done, or considering something once it has occurred (Campbell & Fainstein, 2003). I have used existing research and literature in the areas of planning, sustainability, compact city, smart growth,

new urbanism, local government, and political science to define the overall aim of the research, identify research questions, and to survey existing knowledge of intensification and role of government. Chapter 2 has outlined important concepts from theory of sustainability, intensification, the state, local government, and planning. This literature influenced the overall aim of this research and the specific research questions have been identified to help address the aim. The literature and research will then be used to understand and assess whether residential infill can contribute to compact urban form and how local and central government influence this. Campbell & Fainstein (2003) argue that while ideals can be put forward by planning theorists and literature there can be discrepancies whereby planners can be limited in achieving those ideals due to context.

3.3.2 Planning documents

Comprehensive research ought to involve conceptualising documents as a means to contextualize information as opposed to conceptualising them as simply holding information (Flick, 2006). In order to answer the research questions, especially relating to the role of local and central government, I have used planning documents to understand the complex nature of government involvement. I have focused on documents relating to Christchurch such as the Christchurch Replacement District Plan under the Resource Management Act 1991. Other documents, including case law and Independent Hearings Panel decisions have been used to holistically answer the research questions.

3.3.3 Interviews

In addition to planning documents, interviews added more depth to understanding the role of government, and provided primary data. Interviews were the key method used to understand the different types of infill development and the drivers and constraints of these developments. While similar questions were asked of interviewees, the interviews differed according to each participant's expertise. Flick (2006) emphasises that semi-structured interviews are a more flexible and openly designed than formal interviews or questionnaires. Considering that this study is explorative in nature, semi-structured interviews were the most appropriate approach. Each interview was semi-structured and began with a list of questions and supplementary questions were asked during the interview.

Interviewees

Interviewees were contacted based on their professional capacity. A word of mouth approach was used for this study. All interviews gave permission to use their names and job titles in this study. A range of interviews were chosen including local government officials and planning consultants and academic university staff. The interviewees quoted in this dissertation are as follows:

Vil Vabulis, Subdivision Advisory Manager at Christchurch City Council

Dr Jean Drage, Adjunct Senior Lecturer at Lincoln University

Sarah Oliver, Principle Advisor Planning at Christchurch City Council

Anne Babbage, Development Contributions Assessor at Christchurch City Council

Andrew Willis, Managing Director at Planning Matters

Keith Tallentire, Urban Development Strategy Implementation Manager

Matt McLachlan, Planning Manager at Davis Ogilvie

Interpreting qualitative data

To answer the three research questions of this dissertation literature was considered in conjunction with the primary and secondary data. Software was not used to analyse the seven interviews. Both primary and secondary data provided a considerable quantity of information, raising the question of what to include and exclude from the dissertation. Focusing on the research questions was the main method of ensuring the scope of this study remained intact.

3.3.4 Ethics in research

While no formal ethics approval was required as this research involved interviewing people in their professional capacity, ethical considerations were still fundamental to communication with interviewees and the use of all primary data obtained.

Consent forms were used to explain the research project as well as give the interviewees options for and their required level of anonymity. Permission was sought from each participant to record interviews, and participation in this research was voluntary.

Chapter 4

Background

4.1 Brief history of urban development in New Zealand

4.1.1 Master planned intentions stemming from overseas ideals

Beginning from the 1840s, In the very early days of colonisation in New Zealand, town planning was the result of legislative measures of local and central government, private corporations' initiatives and commercial imperatives (Productivity Commission, 2015). Wellington, Nelson, Christchurch and Dunedin were founded by the New Zealand Company through Wakefield's approach to systematic planned settlement (Productivity Commission, 2015). The layout of New Zealand's colonial towns was influenced by other nations, especially Australia and the United States. The predetermined grid layout was desirable for various reasons. These included: it was simple to survey and lay out it; imposed order on the landscape; it would allow air to move freely and thus reduce cases of disease; and it would be able to be extended and enabled sub-division in the future (Productivity Commission, 2015). However, while the intention was for well-planned town form, the realities of settler life and commercial imperatives shaped the outcome of the town plans (Productivity Commission, 2015).

4.1.2 The importance of geographical context

Literature highlights that New Zealand colonial towns developed in ways that reflected the geographical context. "In some cities… growth and expansion was shaped by biophysical features, and the original town belt is still retained as public open space" (Swaffield, 2012, p. 407). As an Island nation, development demonstrated that the economy was highly export dependent, with most towns being located in proximity to the sea. The majority of New Zealand cities have their development linked with the "rural hinterland, with all cities with the exception of Palmerston North and Hamilton located on the coastal fringe… reflecting their roles in an export dependent economy" (Miller, 2015, p. 5).

4.1.3 Short lived master plan and haphazard development

It is arguable that the slow development of the governance structures resulted in towns developing in a haphazard manner where many were subdivided from the outset with houses being separated by many vacant sections (Miller, 2015). After the New Zealand settlements began developing, the original master planned layouts were typically not adhered to as the needs of the settlers at the time outwaited the arguable long term gains for the future (Productivity Commission, 2015). Patterns of settlement were influenced by speculators, absentee land owners and eclecticism (Productivity

Commission, 2015). It is argued that the process of land sale and subdivision had a significant influence on urban form, especially the relationships between urban and rural areas (Swaffield, 2012).

4.1.4   Responsibilities of local and central government

Infrastructure was mainly provided by central government which established a process of central government funding and organising major infrastructural projects, leaving local government with a limited mandate determined by central government" (Miller, 2015, p6). It appears that early issues with settlement patterns prompted heavier government involvement (Productivity Commission, 2015). English and Australian examples were key influences on early New Zealand local body legislation (Productivity Commission, 2015). "By 1866 all local authorities had some form of municipal corporation acts. In 1867 the central government passed the Municipal Corporations Act which covered matters such as the width and protection of streets, sewerage, lighting, water supply, markets, community buildings, and reserves. 1876 saw the first town planning legislation in the form of the Plans for Towns Regulation Act 1875" (Productivity Commission, 2015, p. 3). This Act arguably had a limited focus and was concerned with the layout and width of new streets, providing rubbish disposal areas, the construction of towns in waste lands, gravel pits and reserves (Productivity Commission, 2015).

 The creation of bylaws to promote health and safety as well as the creation of bylaws to regulate building was the responsibility of territorial councils (Productivity Commission, 2015). "Local government now was community driven through the direct election of councillors, on a property owning franchise, who were given the power and responsibility to control the potential problems that arise when people live in close proximity in urban areas" (Miller, 2015, p. 7). Local boards of health led the public health movement which resulted in cities exercising powers to reduce health issues through planning interventions (Productivity Commission, 2015).

4.1.5   Master planning with legislative weight

At the turn of the twentieth century New Zealand encountered widespread debate over town planning. The "City Beautiful" and "Garden City" movements were promoted as a way to improve the life of individuals and public life (Productivity Commission, 2015). "The Town-Planning Act 1926 enacted the first comprehensive power to regulate and limit the use of land for a particular activity…A feature of the 1926 Act was centralised control over planning. Local authorities were accorded power to prepare planning schemes, but the central government retained ultimate authority to approve the schemes and consider requests for subsequent changes" (Productivity Commission, 2015, p. 4). The Act introduced New Zealand towns and cities to zoning as a planning

tool (Productivity Commission, 2015). "The period from 1900 to 1930 was in effect a time of change in urban governance. That change that would see councils move from being reluctant participants in the provision of city infrastructure and services to providing them in a more integrated and efficient manner (Miller, 2015, p. 8). It appears that there was a shift from town planning focusing on the planned layout of new towns and suburbs to it becoming a statutory instrument to control how land would be developed and used (Miller, 2015).

An important requirement of the Act was for city and borough councils to prepare planning schemes with specific time limits if they had a population of 1000 or more people (Productivity Commission, 2015). "The act required; planning of infrastructural elements such as roads and sewerage systems, the location, density and design and appearance of buildings, the reservation of land for open space and recreational purposes and provided for zoning to separate incompatible activities" (Miller, 2015, p. 11).

The effectiveness of the Act was limited in that the town planning scheme was vague and uncertain and arbitrary in practice (Productivity Commission, 2015). "The Town-planning Act 1926 had lofty aims given there were only three trained town planners to produce these new town plans by statutory deadline of 1930"(Miller, 2015, p. 11). An additional issue was the failure of many councils to prepare the planning schemes in the first place while central government was unable or unwilling to force the councils to prepare them (Productivity Commission, 2015). Minor amendments to the principal Act were made which introduced regional planning schemes allowing for a group of local authorities to cover a much bigger area in a regional planning scheme than what could be covered in a town planning scheme (Productivity Commission, 2015).

4.1.6 Post second world war town planning revival

The urban expansion resulting from the end of the Second World War prompted a revival of interest in town planning (Productivity Commission, 2015). "From late 1940s there was growing concern among planners and architects that New Zealand cities were facing significant problems as they dealt with the accelerating population and urban growth and the rural–urban drift" (Miller, 2015, p. 12). A Standard Code of Clauses for Town Planning was issued by the New Zealand Standards Institute in 1941 (Productivity Commission, 2015). Despite that it was only intended as a guide it was often used as a rigid standard by councils (Productivity Commission, 2015). Cities and towns were also influenced by the Housing Improvement Act 1945 which made specific provision for clearance of slums and redevelopment of the cleared area (Productivity Commission, 2015). Rural development was under control of the Minister of Lands which was brought about by the 1946 the Land Subdivision in Counties Act which regulated the subdivision of lands outside boroughs and thus enabling suburban development (Productivity Commission, 2015).

Leading up to the Town and Country Planning Act 1953, it was widely accepted that a planning system was desirable and necessary (Productivity Commission, 2015). The Act abolished the Town-planning board and transferred the Board's power to local authorities while the Board itself was replaced by a new authority called the Town and Country Planning Appeal Board (Productivity Commission, 2015). "The Act required every city, borough, and town board to provide and maintain a district planning scheme… There was still significant central government involvement however, as councils had to submit their prepared scheme to the Minister of Works for checking" (Productivity Commission, 2015, p. 7). A review of the Act was published in 1973 which led to the enactment of the Town and Country Planning Act 1977 (Productivity Commission, 2015). The Town and Country Review Committee concluded changes were long overdue including environmental considerations should be brought directly into the planning process, third party rights needed further extending, the Act needed to be simplified and have a more logical order and planning at local, regional and national levels needed more effective links (Productivity Commission, 2015). New provisions to provide more flexibility included, "Giving councils the power to issue discretionary ordinances which dispensed with or waived certain requirements as to the design and external appearance of buildings, landscaping, and amenity protection; [and] consolidation of councils' powers to permit an exemption from the scheme" (Productivity Commission, 2015, p. 9).

4.1.7 The beginnings of the Resource Management Act

In 1986, a review of New Zealand's town and country planning legislation was required by central government (Productivity Commission, 2015). "There was little attempt in the 1953 or 1977 acts to institute any design controls beyond the most basic building siting requirements" (Miller, 2015, p. 13). The review of the 1977 Act resulted in the Resource Management Law Reform process. This led to the passing of the Resource Management Act 1991 (Productivity Commission, 2015). "The Act was part of the third Labour government's broad reforms of the state sector which were based on increasing the role of the private market, extending choice, and privileging the individual consumer" (Productivity Commission, 2015, p. 10). New Zealand's planning system was radically restructured by the Resource Management Act (Productivity Commission, 2015). "The RMA consolidated environmental legislation, repealing more than fifty statutes with overlapping jurisdictions together with their associated boards. The Planning Tribunal (now renamed the Environment Court) was retained as the judicial body that hears appeals and applies enforcement orders and abatement notices in respect of decisions on policy statements, plans, and resource consents" (Jackson & Dixon, 2007, p. 108). The Act replaced zoning of land with an effects-based system enabling any activity provided that it would not undermine the sustainable management of natural and physical resources (Productivity Commission, 2015). "The overarching intention of the legislation was greater flexibility for land owners to utilize land and resources in response to the market, whilst the public interest

focused upon managing the environmental effects of their decisions" (Swaffield, 2012, p. 408). The Act has been criticised for many reasons, include its limited focus on urban and social planning as it has a huge focus on the biophysical environment (Productivity Commission, 2015). The Act has reshaped and restricted the ability of councils to control activities which has resulted in some councils having difficulty dealing with the shift from zoning to an effect based management system (Productivity Commission, 2015).

4.2   The low density city of Christchurch

This section will give a brief outline of the city of Christchurch as well as a brief discussion about the Christchurch earthquake sequence.

Christchurch is New Zealand's second largest city, with approximately 341,469 people living in the city at the time of the 2013 census (Statistics NZ). Christchurch is located on the east coast of the South Island of New Zealand. The city is situated on the edge of the Canterbury Plans and is bordered by hills and the Pacific Ocean. The city centre is located approximately 10km inland from the coast and its suburbs span 20kms to the west and about 15kms to the north and south.

The city of Christchurch was founded in 1850 by the Canterbury Association and has been an exception to the typical experience of 20th century planning due to the way the green belt concept has shaped peri-urban land use (Swaffield, 2012). The "quarter-acre section" is of great cultural significance to Christchurch residents, and stems from the city's early colonial history.

> *"The prevalence of home ownership and the quarter-acre section is attributed to the Canterbury Association in the 1840's. Edward Wakefield and John Godley planned the layout and social makeup of the city from England…A further influence was from the Romantic Movement which abandoned the city to worship nature. In the new colony of New Zealand, the contrast between city and country could be reconciled if the country could be incorporated into the town and hence the popularity of the residential quarter-acre section. These early views have influenced the urban form of Christchurch where the idea of the "Garden City" has come to represent Christchurch as a whole." (Williams, 2014, p. 4).*

Williams (2014) highlights that there was a boom in infill development in the late 1980s to early 1990s as a result of the introduction of the Resource Management Act 1991 which limited development of greenfield land and initiated new subdivision rules. Despite this, demand for larger sections continued and cultural objections for housing infill led to the rezoning of rural land for residential development on Christchurch's periphery (Williams, 2014). Thus, land use trends from the late 1990s have centred around "large amounts of peripheral subdivisions and lifestyle blocks being developed while infilling continues to decrease". (Williams, 2014, p. 5).

A significant influence on Christchurch's urban form was from the earthquake sequence that struck in 2010 and 2011; which had considerable impacts on both the layout and growth of the city. Christchurch was struck by a magnitude 7.1 earthquake on 4th September 2010 which caused extensive damage, especially in residential areas in the east of the city. A magnitude 6.3 earthquake was to follow on 22nd February 2011. This caused additional damage to residential areas and also substantial damage to the city centre. Multiple areas of the city have since been classified as "red zone" which "means that the land has been so badly damaged by the earthquakes it is unlikely that it can be rebuilt on for a prolonged period." (Department of the Prime Minister and Cabinet, 2016).

Chapter 5

Overview of legislative framework and key planning documents

This section will give a brief overview of the legislative framework regulating land use in Christchurch, New Zealand. It will provide a timeline and hierarchy of key documents governing land use in Christchurch before and after the earthquake sequence. It is arguable that a key means to understanding the relationships between central and government, as key stakeholders in infill development, is by considering the complex legislative frameworks in which they operate.

5.1 Overview of activities under the Resource Management Act

The Resource Management Act 1991 (RMA) is New Zealand's fundamental piece of legislation that sets out how the environment should be managed. It came into force in October 1991 and replaced or amended over 50 town planning and resource management laws (MFE, 2016). The RMA attempted to replace rules that had become overlapping, fragmented, inconsistent and complicated with a more coherent, structured and integrated scheme (Environmental Defence Society v King Salmon). A significant element of the RMA framework is the hierarchy of planning documents whereby the Act itself sits atop the framework with part 2 and section 5 at its core (Milne, 2016). Part 2 contains the governing principles that are referred to throughout the framework and provides the purpose of the Act in section 5, with the rest of part 2 elaborating on the definition of sustainable management and provided more specific direction (Milne, 2016).

The RMA provides a hierarchy of documents, with district documents sitting under regional documents which sit under national documents.

> *"Under the RMA, there is a three tiered management system – national, regional and district. A "hierarchy" of planning documents is established. Those planning documents deal, variously, with objectives, policies, methods and rules. Broadly speaking, policies implement objectives and methods and rules implement policies. It is important to note that the word "rule" has a specialised meaning in the RMA , being defined to mean "a district rule or a regional rule". (Environmental Defence Society v King Salmon, paragraph 10).*

With regards to this hierarchy, first are the national environmental standards, national policy statements and the New Zealand Coastal Policy Statement which are the responsibility of central government (Environmental Defence Society v King Salmon). There is no obligation to prepare national environmental standards and national policy statements although there must be at least one New Zealand coastal policy statement. Lower order planning documents must give effect to the objectives and policies in these documents. Second in the hierarchy are the regional policy

statements and regional plans which are the responsibility of regional councils (Environmental Defence Society v King Salmon). Each region must have at least one regional policy statement (RPS) which must achieve the purpose of the RMA, and while a regional council is not always required to prepare an RPS it is obligated to prepare a regional coastal plan (Environmental Defence Society v King Salmon). RPS must give effect to national policy statements and enable regional councils to provide a framework and broad direction for resource management within the region (MFE, 2016). Third in the hierarchy are district plans which are the responsibility of territorial authorities (Environmental Defence Society v King Salmon). The RMA requires district plans to state the "objectives for the district, the policies to implement the objectives and the rules (if any) to implement the policies." (Environmental Defence Society v King Salmon, paragraph 10c). District plans must not be inconsistent with regional plans and must give effect to national policy statements and regional policy statements (MFE, 2016).

> *The Canterbury Regional Policy Statement (CRPS) "provides an overview of the resource management issues in the Canterbury region, and the objectives, policies and methods to achieve integrated management of natural and physical resources. The methods include directions for provisions in district and regional plans." (ECan, 2016). Following the 22 February 2011 earthquake, the 1998 CRPS was amended in October 2011. The proposed changes were inserted into the CRPS in the new Chapter 12A to reflect the vision, strategic directions and policies of the Urban Development Strategy (UDS) Plan. Within this chapter it identified: "areas available for urban development; specified residential densities; made provision for business and industrial development; required local authorities to sequence development; and provided for development and enable integrated management" (Greater Christchurch, 2016).*

The most recent CRPS became operative on 15 January 2013 (ECan, 2016). This CPRS was modified through the Land Use Recovery Plan (LURP). The LURP is a statutory document that directed Environment Canterbury to make certain changes to the latest CRPS. This included inserting Chapter 6, "Recovery and Rebuilding of Greater Christchurch" and the relevant glossary definitions into the CRPS (ECan, 2016).

Regional and district councils process and make decisions on resource consents. The five types of resource consent are land-use consent, subdivision consent, water permit, discharge permit, and coastal permit. Each resource consent is considered on a case-by-case basis and the level of discretion the respective council has on the proposal depends on what is established in the regional or district plan. The RMA sets out the different levels of discretion.

> *"In relation to resource consents, the RMA creates six categories of activity, from least to most restricted. The least restricted category is permitted activities, which do not require a resource consent provided they are compliant with any relevant terms of the RMA, any regulations and any plan*

or proposed plan. Controlled activities, restricted discretionary activities, discretionary and noncomplying activities require resource consents, the difference between them being the extent of the consenting authority's power to withhold consent. The final category is prohibited activities. These are forbidden and no consent may be granted for them." ((Environmental Defence Society v King Salmon, paragraph 16).

The Christchurch City Council's City Plan and Banks Peninsula District Plan (the District Plans) regulated the use and development of land. The District Plans were developed in the mid 1990's, and have been amended in an incremental manner many times since (CERA, 2014). The 2014 Order in Council required the Christchurch City Council to undertake a fast-tracked District Plan Review process.

"Christchurch City Council (CCC) is in the process of developing its City Plan under the truncated process provided for in the 7 July 2014 Order in Council (OIC) made under the provisions of the Canterbury Earthquake Recovery Act 2011. The OIC sets out a more streamlined approach than the normal Schedule 1 process under the Resource Management Act 1992 (RMA), with final decisions being made by an Independent Hearings Panel (IHP) rather than the Council. The OIC outlines a Statement of Expectations that the replacement Plan must have regard to (while it must also be not inconsistent with the Greater Christchurch Land Use Recovery Plan). The OIC also sets out a timetable for the review, including a requirement to complete hearings and decision-making by 9 March 2016." (Winder & Perrott, 2015, p. 3).

The fast-tracked process undertaken as a result of the devastating earthquake sequence is considerably different to the process undertaken in normal circumstances. Of particular significance is the change in timeframes.

"Any District Plan review is a complex and substantial undertaking. Most local authorities now undertake rolling reviews of parts of their District Plans in order to avoid the cost, uncertainty and enormous workload associated with a complete review. A council conducting a complete review of a District Plan under the normal RMA processes would expect it to take between 5 and 10 years from commencement to the plan becoming fully operative and all appeals having been resolved." (Winder & Perrott, 2015, p. 8).

Additionally, the role of local and central government has shifted whereby central government has more control than usual over the district plan review. Under the ordinary process it would be the council who has final decision over its district plan review. The Order in Council allowed for central government to have direct involvement with the district plan review through the Independent Hearings Panel (IHP).

"Ultimately the quality of the proposed plan will be judged by the IHP [Independent Hearings Panel]. Once it has weighed all of the evidence and the statutory requirements under which it operates it will make the

decisions that shape the final operative plan." (Winder & Perrott, 2015, p. 4).

"While it was clear that a streamlined process would be implemented through an Order In Council (OIC) process there were a number of aspects of the proposed process that CCC did not support. The CCC saw the review of the District Plan as a full, council-driven review of the plan under the RMA. The way in which the OIC process shifted decision-making and control away from the council caused significant concern for both staff and elected representatives of CCC." (Winder & Perrott, 2015, p. 9-10).

It appears that the Council were stuck between ensuring the voice of communities were taken into account and responding to the direction the Independent Hearings Panel were pushing for. The central government appointed Independent Hearings Panel directed the Council to identify opportunities for land where townhouses and apartments could be constructed on smaller sections utilizing the fast-tracked replacement district plan process (Stylianou & Law, 2016).

"In its submission to the IHP, the council said in light of residents' opinions and expert evidence, some areas should not be rezoned because of flooding risk and loss of character. The council supported rezoning land in Papanui north, but not in Papanui southwest and southeast because of the 'high character and amenity of those areas.'" (Stylianou & Law, 2016).

The fast-tracked district plan review arose largely because the City Plan would not enable effective recovery from the Christchurch earthquake sequence. Various documents arising from different legislation has had an influence, whether direct or indirect, on the district plan review, such as the LURP and the UDS. These documents are discussed in further detail below.

5.2   Overview of activities under the Local Government Act 2002

The Local Government Act 2002 (LGA) provides the general framework and powers under which the 78 democratically elected and accountable local authorities operate (Local Councils, 2011). The LGA is designed to provide democratic and effective local government that recognises the diversity of New Zealand communities (Local Councils, 2011). The LGA provides a framework and powers for local authorities to decide which activities they undertake as well as the manner in which they will undertake them (Local Councils, 2011). Part 6 of the LGA requires local authorities to prepare a ten-year Long Term Plan (LTP) which requires reviewing every 3 years. The LTP is intended to integrate decision-making, provide information on local authority's policies as well as describe linkages between activities and how they will be funded (Local Councils, 2011). The Annual Plan sets out what local authorities will do over the next year, how much it will cost and where the funding will come from.

With regards to land use, Part 8 of the LGA provides a specific power for territorial authorities to require development contributions of land or money from developers where the effect of

development requires additional or new assets, or assets of increased capacity. As a result, the territorial authority "incurs capital expenditure to provide appropriate reserves, network infrastructure or community infrastructure" (Local Councils, 2011).

> *"Development Contributions (DCs) are looked at on a case by case basis…every subdivision requires a development contribution… DCs are carried out by council. Each council has their own policy. At CCC they have a policy team who finalise the policy and works closely with the DC team who also have some input." (Anne Babbage, Development Contributions Assessor).*

The LGA was amended in November 2010 by the Local Government Act 2002 Amendment Act 2010 with the intent of improving the transparency, accountability and financial management of local government (Local Councils, 2011).

> *"The LGA was reviewed and changed in 2002 the new Act said that Councils had responsibilities for social, economic, environmental and cultural wellbeing and also with the power of due competence Councils could do pretty much whatever they like as long as it is within the law…[Due to the 2010 amendment the] wellbeing's were taken out of LGA [which] makes it more difficult for local govt to say to central govt about funding issues they do not have a lot of argument due to a change in the role of local govt. Local govt gets caught between local communities wanting them to do certain things but they do not get the support from central govt." (Jean Drage, Adjunct Senior Lecturer).*

Under the LGA an important local document was produced which was concerned with growth and land use in Greater Christchurch. The Urban Development Strategy (UDS) was a non-statutory document which aimed to provide a basis for managing growth in the region in a proactive, integrated and sustainable manner and was comprehensively prepared by various stakeholders (MfE, 2016). It was a broad-scale, long-term land use strategy for the greater Christchurch area prepared under the Local Government Act 2002. The UDS area of Greater Christchurch consists of eastern parts of the Waimakariri and Selwyn districts as well as the urban and some rural areas of Christchurch City, including the Lyttelton Harbour Basin (MfE, 2016).

> *"In the period 2007 to mid 2010 CCC worked with Environment Canterbury, Selwyn District Council, Waimakariri District Council, the New Zealand Transport Agency (NZTA) and Te Rūnanga o Ngāi Tahu to develop and refine the Greater Christchurch Urban Development Strategy (UDS). This collaborative, non-statutory strategy provided the strategic plan for managing Christchurch's growth." (Winder & Perrott, 2015, p. 7).*

As the UDS was non-statutory, it required a different method to ensure that key documents, including the Regional Policy Statement and the Christchurch City Plan, were required to give effect to it.

> *"The UDS clearly intended a series of plan changes or reviews that would give effect to the strategy and its principles through both the Regional Policy Statement and District Plans under the Resource Management Act (RMA). Several plan changes were initiated to give effect to the UDS. The UDS was a sound piece of work and presented a comprehensive strategy for the long-term development of Christchurch. However, the thinking and analysis that underpins the UDS all pre-dates the earthquakes." (Winder & Perrott, 2015, p. 7).*

Following the Christchurch earthquake sequence the UDS included a new partner, Christchurch Earthquake Recovery Authority (CERA).

> *"The Canterbury Earthquake Recovery Authority (CERA) was a partner from 2011 to 2016. Following the disestablishment of CERA, its partnership role with the UDSIC has been filled by the Greater Christchurch Group within the Department of the Prime Minister and Cabinet." (MFE, 2016).*

This demonstrates that Central Government has increasingly exerted its influence on local matters.

5.3   Overview of activities under the Christchurch Earthquake Recovery Act 2011

The Canterbury Earthquake Recovery Act 2011 (CER Act) received Royal Assent and was passed by parliament on 18 April 2011. The overarching purpose of the CER Act was to govern the recovery efforts in the Canterbury Region following the 22 February 2011 earthquake in Canterbury (Buddle Findlay, 2011). The CER Act replaced the Canterbury Earthquake Response and Recovery Act 2010 which was passed after the 4 September 2011 earthquake (Buddle Findlay, 2011).

The CER Act established the Canterbury Earthquake Recovery Authority (CERA). CERA was led by a Chief Executive and the purpose of CERA was to coordinate the recovery.

Under the CER Act the Chief Executive was required to develop a recovery strategy. Once the strategy was development it was considered by the Canterbury Earthquake Recovery Minister. The Canterbury Earthquake Recovery Minister "may direct 1 or more responsible entities to develop a Recovery Plan for all or part of greater Christchurch for his or her approval" (Canterbury Earthquake Recovery Act 2011, s16).

> *"The Canterbury Earthquake Recovery Act (CER Act) requires the development of a Recovery Strategy for Greater Christchurch (the Recovery Strategy) and gives the Minister for Canterbury Earthquake Recovery the ability to establish recovery plans to provide statutory direction and a basis for decision making to give effect to the Recovery Strategy." (Canterbury Earthquake Recovery Act 2011).*

The Recovery Strategy (later termed the Land Use Recovery Plan) had statutory power that meant it had considerable weight on how land use was regulated in Greater Christchurch.

> *"Those with existing powers and functions under the RMA must not make decisions that are inconsistent with the Recovery Plan. These functions and powers include decisions on resource consents, and reviewing or changing a district plan. The Recovery Plan can also require that specific objectives, policies and methods are included in or removed from a district plan. If there is an inconsistency, the Recovery Plan prevails." (CERA, 2014, p. 2).*

In early 2014, the Minister for Canterbury Earthquake Recovery considered a draft Recovery Plan – the Land Use Recovery Plan (LURP), to address land use planning and related transport and infrastructure issues for the greater Christchurch area (CERA, 2014). The LURP proposed a number of immediate actions to be implemented through a change or review of the Christchurch City Council (CCC) District Plans. It additionally proposed a further review of the District Plans with the intension of this review being carried out under a significantly shortened process that the normal RMA reviews (CERA, 2014).

> *"The LURP establishes a framework for addressing … tensions, and goals for the recovery. It sets out a range of actions that are required to implement it. The LURP recognises that the planning provisions and rules in plans under the RMA that affect land use and the location of activities are critical to the rebuild of greater Christchurch. They establish the climate for investment and the framework under which re-development will take place. Their provisions will guide many billions of dollars of investment and the re-building of a city. It is vital that the relevant plans governing greater Christchurch are effective and fit for this purpose. Accordingly, the LURP requires Environment Canterbury to make significant changes to the Regional Policy Statement, and Selwyn and Waimakariri District Councils and CCC to make changes to their District Plans. The LURP requires these changes to be completed by April 2016." (Winder & Perrott, 2015, p. 8).*

Despite the LURP intended to make changes to the District Plans, it was too constrained in what it could achieve which would not enable a comprehensive review of the plans. "The overlapping plans and governance arrangements introduced a new level of complexity to the context for developing the Replacement District Plan." (Winder & Perrott, 2015, p7). A Regulatory Impact Statement was carried out under CERA with the Ministry for the Environment (MfE), which recommended use of an Order in Council under the CER Act as it appeared the most appropriate mechanism to carry out the District Plan Review (CERA, 2014).

5.4 Overview of the Canterbury Earthquake (Christchurch Replacement District Plan) Order 2014

The Christchurch District Plans were never designed to cope with the amount of repair and rebuild needed to recover from the earthquakes and, without amendment, the District Plans would considerably hamper the rebuild and risking development activity being pushed out of Christchurch City (CERA, 2014). Through conducting a Regulatory Impact Assessment, an Order in Council was identified as the most appropriate way to require a review of the District Plans.

The Order in Council further strengthened the authority of the CER Act, whilst also confirming that actions under the Order in Council must be carried out before the end of the CER Act.

> *"The CER Act also provides powers, via Order in Council, to require a local authority to take any action necessary or to stop taking any action contrary to achieving the purpose of the CER Act and the Minister for Canterbury Earthquake Authority can 'call up' and exercise any functions, rights or responsibilities of any local authority when this is considered necessary to achieve the purpose of the CER Act. The CER Act expires on 18 April 2016. Any actions initiated under the CER Act, such an Order in Council, must be executed by this date. Any appeals of process to the Court can however still be outstanding." (CERA, 2014, p. 2).*

However, the timeframes required by the LURP complicated matters, and meant that the Christchurch City Council had to begin work on the District Plans before the Order in Council was finalised.

> *"During 2013 there was discussion between CCC, CERA and the Ministry for the Environment (MfE) over the potential for a fast-track planning process modelled on the approach to the Auckland Unitary Plan. In order to meet the April 2016 deadline the CCC needed to commence work before any fast-track process could be agreed. Whilst there was a high level of shared understanding of what the fast-track process would involve there was always a risk that work done by CCC before the process was finalised would need to be reviewed or changed." (Winder & Perrott, 2015, p. 10).*

In addition, the progress on the district plan review did not overlap well with the 'Statement of Expectations' which was inserted by the government after the district plan review process and the Order in Council process had already progresses to some extent.

> *"Quite late in the development of the OIC the government included provision for a 'Statement of Expectations' by Ministers. This presented a new overlay of expectations that was to have statutory effect. By the time the final form of the Statement of Expectations was completed CCC staff were well advanced in the development of the first wave of chapters for the replacement plan." (Winder & Perrott, 2015, p. 10).*

The was disagreement between the Council and the Independent Hearings Panel in terms of weighting given to the Order in Council Statement of Expectations.

> *"We also reject the Council's initial submission that the OIC Statement of Expectations is "near the bottom of the hierarchy", in the sense that our obligation is to have "particular regard" to it. We find that submission difficult to reconcile with the Council's own interpretation of "particular regard" as requiring a decision-maker to recognise the matter as "something important to the particular decision and therefore to be considered and carefully weighed in coming to a conclusion". In that sense, the phrase gives more direction to us than "take into account", as it touches*

> *on our responsibility in weighing competing mandatory considerations."*
> *(Hansen, Hassan, Mitchell & Dawson, 2015, p. 19).*

Whilst there were a few complications that meant the Order in Council was not seamless, it enabled the legislative weight to be given to the fast-tracked district plan review to set the path for long term recovery of the city.

> *"The issue for councils how planning process has become litigious – instead of councils developing plans and things being opposed in Environment court – central government has set up independent hearing panels where people are appointed rather than through a democratic process. Once the councils develop a plan all submissions go to a independent hearing panel and then that comes back for the council to sign off. Issues there around the fact that unelected group and becomes very court like – these people are making significant decisions about the future of communities and housing, the future of transport. Nick Smith saying if council doesn't agree we will step in. Does not agenda great relationships between local and central govt."*
> *(Jean Drage, Adjunct Senior Lecturer)*

This demonstrates the means by which central and local government work together is not without issue or conflict.

Miley & Read (2013) argue that while Christchurch City Council manages the rebuilding of the city, national government and other interests intrude on this management. They discuss the 'complicated' nature of Christchurch's earthquake recovery being split between CERA and Christchurch City Council.

> *"Both CERA and Christchurch City Council are responsible for governance of the recovery programme. The Council is responsible for decisions concerning the recovery programme but these decisions are subject to CERA approval and CERA can override the Council. The Council must submit its recovery strategy, policies and plans to CERA for approval prior to commencing any recovery work. However, the Council can spend from its Mayoral Fund without seeking CERA approval."* *(Miley & Read, 2013, p. 455).*

5.5   Overview of the Christchurch Housing Accord

Another means by which central and local government have attempted to work together is the CHCH HA. The Christchurch Housing Accord was established under the Housing Accords and Special Housing Areas Act 2013 and is a ''joint'' effort between the Christchurch City Council and central government. The overarching purpose for the Act is to enhance housing affordability through facilitating an increase in land and housing supply in districts or regions identified as having housing affordability or supply issues (Environment Guide, 2015). Housing Accords are provided for under the Act which are agreements between territorial authorities and central government and specifies how they will work together to achieve the purpose of the Act (Environment Guide, 2015).

> *"Within Special Housing Areas "Qualifying Developments" are provided with a more streamlined consenting process. To be considered a Qualifying Development, the development must be predominately residential, the dwellings must not be higher than 6 storeys or 27 metres, the development must contain at least the prescribed minimum number of dwellings and at least the prescribed percentage of affordable dwellings." (Environment Guide, 2015).*

Under the Christchurch Housing Accord the Council and central government agree to undertaking certain actions to achieve the purpose of the Act. For instance, they will collaboratively remove regulatory impediments to residential development through actions including monitoring resource and building consents processes to ensure they are efficient and do not cause unnecessarily delays as well as monitor housing related actions in the LURP (Christchurch City Council, 2014).

> *"Central government has set up some housing accords – and Christchurch is very into the housing accord. Intent on behalf of some local authorities who can afford it – the big urban areas that can – even they struggle to afford it – they sit in this environment where political ideologies of central govt influences how much support they get for doing what they do. Too early to tell is housing accord has influences housing infill supply – still early days. It is being headed by enthusiastic people." (Jean Drage, Adjunct Senior Lecturer).*

Critiques have emerged relating to the power given to central government through the Housing Accords and the Act.

> *"The HASHAA provides the Minister of Housing the power to override local government planning regulations and to directly grant planning permission for residential developments and thus represents a challenge to the nature of local planning." (Murphy, 2015)*

5.6   Conclusion

Land use regulation in the post-earthquake recovery environment in Christchurch was complicated and involved a significant change to the business as usual approach to land use planning in terms of both specific plans and actual means of housing development and provision. The role of central government changed to be increasingly more involved in local matters. The Order in Council attempted to reduce the complicated legislative frameworks at play whilst also providing the city with a means for faster recovery. The implications of this on the role of local and central government in regulating residential infill supply will be explored in the remaining chapters. A key question centres on the ways in which central and local govt policies, plans and mechanisms have influenced (different forms of) infill housing development.

Chapter 6

Understanding residential infill: typologies; drivers and constraints; and aligning or conflicting ideologies of central and local government

As outlined in Chapters 1 and 3 this research has three overarching questions:

Research question 1: What is residential infill and can it consist of more than one type of development? Research question 2: Who are key stakeholders associated with residential infill development and what drivers and constraints do they face? Research question 3: How do various stakeholders' roles align and conflict?

Chapters 1 and 2 established that infill is a key type of land use intensification and alluded to the idea that there could be multiple types of infill and different stakeholders as well as a variety of drivers and constraints. This section will present the findings on this subject.

Chapter 6 outlined that local and central government, which this study considers key stakeholders in infill development, have a dynamic relationship that is not free of conflict. This section will explore interviewees perspectives on this matter and further add to this finding.

6.1   Conceptualising residential infill

In carrying out this study, it appears that there are a wide variety of infill types in Christchurch. This chapter will demonstrate that there is essentially a "spectrum" of infill typologies ranging from the construction of a house in the backyard of a site where there is an existing house, to the amalgamation of many sites to establish several residential units. Depending on the type of infill, different characteristics are apparent, including location and the level of government involvement.

6.2   Conceptualising 'backyard' suburban infill development

6.2.1   Low density development

Principal Advisor Planning at Christchurch City Council, Sarah Oliver, describes 'backyard' infill as typically occurring in low density suburban areas. In agreement, Subdivision Advisory Manager at Christchurch City Council, Vil Vabulis, discusses that a major type of infill is 'backyard' infill which occurs in older suburban areas. He emphasises that this type typically involves an existing house remaining on the site and a new house is developed in the backyard area. Vabulis highlights that this type of infill usually involves subdividing one site into two sites.

In addition, Vabulis discusses that the opportunity for 'backyard' infill has come about through twentieth century subdivisions. Older subdivisions resulted in creation of large site sizes, such as 900m^2, and this has enabled 'backyard' infill development.

6.2.2   Two main types of 'backyard' infill

The two key types of 'backyard' infill in Christchurch involve sites where there was an existing house and another house is developed on the site. The distinguishing factor between the two types is that one type involves the existing house remaining on the site with a new house developed, usually in the backyard, and the other type involves the replacement of the existing dwelling with two new dwellings.

Managing Director at Planning Matters, Andrew Willis discusses a possible third type of 'backyard' infill known as converting one house into two houses. While this has not been mentioned by other interviewees it is certainly provided for in the new planning rules. In the Christchurch Replacement District Plan conversion of one residential unit into two residential units is a permitted activity provided it meets built form standards. As this permitted activity is very new it may become more popular as people realise they can convert their existing dwelling without the need to build an additional unit on the site.

As demonstrated by Figure 2 one type of 'backyard' infill involves keeping the existing dwelling on the site while the other involves demolition of the existing dwelling.
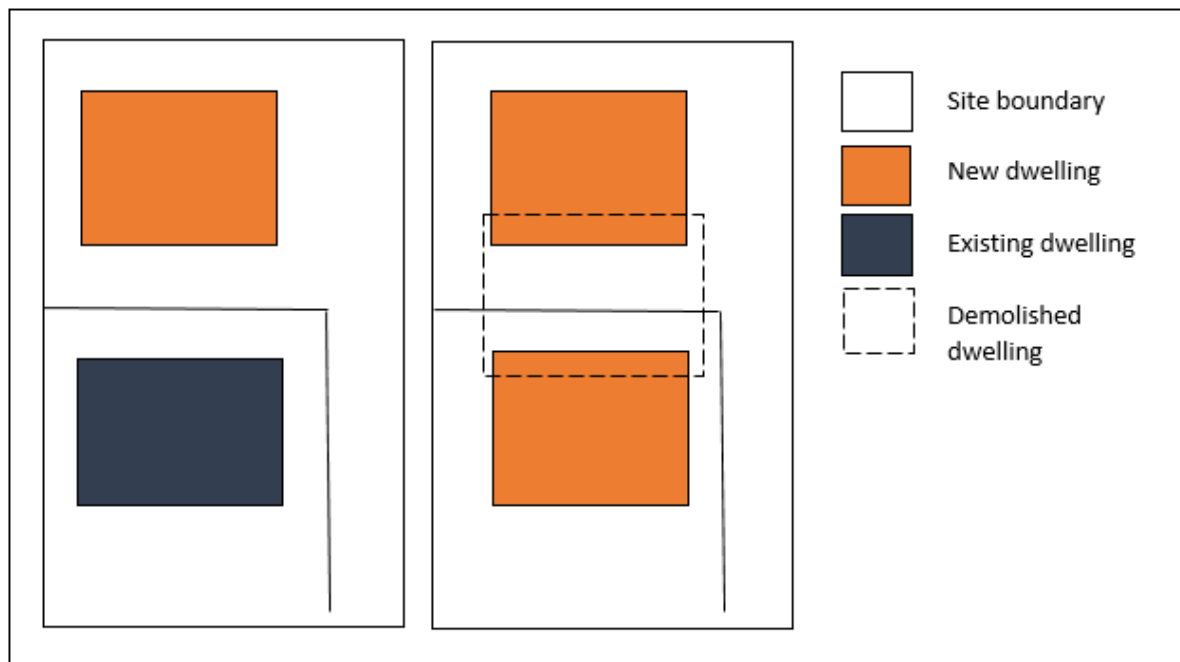
Figure 2 Different types of 'backyard' infill

Figure 3 portrays two sites whereby the existing house has remained and a new house has been established in the back yard. The site in between the two infill sites demonstrates that some site sizes and housing positions are not suitable for infill where the existing house can be kept. It is appears that it is common for 'backyard' infill to have a shared driveway with the existing house.

Figure 3 'Backyard' infill in the low-density suburb of Ilam

With regards to the 'backyard' infill scenarios where one dwelling is replaced with two dwellings there are two distinct ways of it being developed. Vabulis highlights that before the Christchurch earthquake sequence, especially in higher socio economic suburbs such as Ilam and St Albans, land owners would decide to demolish the old house and replace it with two new dwellings. Vabulis argues that land owners would often consider it economical to demolish the old house, due to maintenance costs, and construct two town houses that could be rented out. The replacement with two units would have to comply with planning rules, such as minimum site size, site coverage and outdoor living space, in order to not require land use resource consent. Following the Christchurch earthquake sequence CERA provided a mechanism through the LURP to allow for one earthquake damaged dwelling to be replaced by two dwellings without a minimum site size requirement.

6.2.3   Landowner driven development

Based on a google earth analysis, it appears that 'backyard' infill is where a new dwelling is established with the existing house remaining on site is very common in parts of Christchurch, particularly in the inner city and around the suburban centres. This type of development allows for land owners to undertake infilling their site while leaving the existing house as it is. Planning Manager at Davis Ogilvie, Matt McLachlan described many cases where people look at building the backyard dwelling themselves, as opposed to simply subdividing the land and selling the undeveloped site. He emphasises that this type of infill, which is quite small scale, is very common and through his role he often has many enquiries a week from landowners wanting to subdivide their large sites.

 It is important to distinguish these cases, whereby the long-term landowners undertake the subdivision upon themselves, from cases where people undertake subdivision as a profession. This

study refers to the former as 'mum and dad developers' and the latter simply as 'developers'. This study also uses the term 'small building companies'.

It appears that 'backyard' infill is often a viable option for 'mum and dad' developers and small building companies. Many respondents have emphasised 'backyard' infill as a 'one-off' development and these opportunities are mainly taken up by land-owners.

Vabulis highlights that 'backyard' infill is often also carried out by small building companies. 'Mum and dad developers' can be put off by the complexity of the different consenting process, such as building consent, land use resource consent and subdivision resource consent. Building companies on the other hand are capable of navigating these processes and often have more money at their disposal to provide for the up-front costs.

6.2.4 Overarching drivers of 'backyard' infill as relatively uncomplicated, economic gain and family circumstances

Through conducting interviews, it is arguable that 'backyard' infill development has a few major drivers.

The first relates to this type of development being relatively uncomplicated, especially for development where the existing house will remain on the site.

> *"Backyard infill is always popular because that was a one-off commitment. Some developers got into that type quite heavily. Quite often this would be due to the current land owner realising they could subdivide the site as it is." (Subdivision Advisory Manager at Christchurch City Council, Vil Vabulis).*

Large low density residential sites present opportunities for long term land owners who have the option of keeping their existing house and building a new dwelling in the front, back or side of the existing house.

The second key driver is economic gain. Profit can be made from subdividing and selling the vacant section, or building the new dwelling and renting it (or the existing house) out or selling the new dwelling (or the existing house).

> *"A lot of people look at building the house themselves, what they do is they've got a bit of land they subdivide their house at the front and build a new house. They either sell the house at the front or rent it out. (Planning Manager at Davis Ogilvie, Matt McLachlan).*

Provided the land owner has a good enough financial situation to provide for some up-front costs, 'backyard' infill appears to be a good financial investment. Usually developing a new house would

involve paying for the cost of a new section of land, however in the case of infill, the cost of land only relates to the existing site and existing dwelling.

Another significant driver relates to family circumstances. Housing affordability for family members can incentivise 'mum and dad' developers to infill their site. Additionally, elderly persons with too much land can be driven to subdivide their site to make it more manageable.

> *You'll find in some cases; people are subdividing and getting their children into the market as first home buyers letting them have the house in front. Housing affordability is a big thing here especially for first home buyers. House prices go up; everything goes up but wages stay the same… People with large sections downsize to help pay for retirement – helping out family or don't want the land anymore." (Planning Manager at Davis Ogilvie, Matt McLachlan).*

'Backyard' infill presents opportunities for retirement funds, rental investment and helping family members. Changing demographic trends in Christchurch include the aging population and smaller family sizes. Smaller houses on smaller subdivided sections can allow for these demographics to be suitably housed.

6.2.5 Key constraints of 'backyard' infill as financial cost, lack of vacant sites and demand

While financial factors can be drivers they can also be deterrents of residential infill. Vabulis highlights the costs relating to infill subdivisions and that they can put some people off this type of development.

> *"There are two aspects of the [subdivision] cost: professional cost fees paid to Council, surveyors, legal fees; and utilities costs and construction of the access. Access construction is needed if over 4 or so allotments are to be created one access will not be sufficient. Development costs can be quite expensive. People can be quite shocked after getting surveyor quote for backyard infill as the cost can be significant. Weighing up what is the return and what are the motivations for the subdivision such as for investment or for use of the site themselves/personal position etc. Section prices in Christchurch have been climbing steadily." (Subdivision Advisory Manager at Christchurch City Council, Vil Vabulis).*

Vabulis also emphasises that the opportunities for 'backyard' infill in Christchurch is limited as the number of vacant sections declines. Many of the older suburban sections in the city have already been subdivided. Furthermore, the new greenfield developments have section sizes too small to allow for future infill development in these areas.

Another constraint on 'backyard' infill development identified by interviewees is demand. Willis highlights that just because an infill development is constructed does not mean that people will want to buy it. There is a risk in undertaking developments that might only meet a small market niche.

> *"Residential Suburban areas themselves provide that housing choice and still that market for low density housing…there is still strong desirability for … open space and family homes and [there will] will always be a market. [the council] can zone things and provide for it but largely the market will pick up on areas." (Principal Advisor Planning at Christchurch City Council, Sarah Oliver).*

6.2.6   Local and central government enabling 'backyard' infill

Through conducting interviews, it appears that respondents overwhelmingly highlight the significant weight local and central government are putting on providing for housing and intensification of residential land use. With regards to infill, interviewees maintain that central government is mostly concerned with providing for a quantum of housing while local government decide what type of housing goes where. This section will focus on understanding the push for intensification and how this relates to 'backyard' infill as well as whether there have been emerging conflicts or collaborations between local and central government as key stakeholders.

Even before the Christchurch earthquake sequence urban consolidation had been an important focus. For instance, with regards to local government, Objective 6.1 in the City Plan is "to accommodate urban growth with a primary emphasis on consolidation" and Policy 6.1.2 in the City Plan is "to promote development of vacant land, and redevelopment and more intensive use of the urban area as a whole, in a manner consistent with maintaining and improving the character and amenity values of neighbourhoods, and the quality of the built environment." (City of Christchurch, 1995, 1999). The reasoning behind this relates to urban consolidation having the most sustainable urban growth potential.

> *"[Intensification] could be an element of control as an effort to stop the spread of sprawl or [to increase] housing affordability. It could also be limited by capabilities of local government relating to costs or budget." (Adjunct Senior Lecturer, Jean Drage).*

Enabling consolidation can allow for efficient use of existing infrastructure.

> *"Broadly CCC have to plan where growth goes because it's all to do with the infrastructure. They have to spend rate payer's money carefully and concentrate them back into areas and get the patronage and simple logistics of say operating a sewer system. If you keep expanding it out everywhere it costs a lot of money to continually maintain whereas if you were using your existing system, it's much more cost effective and efficient. That's mainly why council do growth strategies. Make it function as well as*

trying to achieve better outcomes." (Principal Advisor Planning at
Christchurch City Council, Sarah Oliver).

With regards to central government's position on intensification, infill, and housing affordability, it can change over time depending on which party is in power.

> *"Labour has tended to use land use planning to directly provide affordable housing- bought in statutory urban planning as a positive tool that enables things like any type of housing including infill. National/ right leading governments have a very different view of that and we have seen that in the earthquake aftermath they see the market as having a strong role – they believe in opening up land and having faster planning processes is the way to do it- they see strong planning or convoluted planning as an impediment to the market." (Adjunct Senior Lecturer, Jean Drage).*

While it is arguable that the National party has encouraged greenfield development through the LURP, it also appears that there is also encouragement for intensification in order to achieve housing targets to meet demand. The housing targets for Christchurch City Council require strategic planning in order to achieve these targets.

> *"Housing supply and demand is quite an ongoing matter – you constantly have to review it and monitor it. Right now, they have some targets and when they work towards these targets they look at how you do that – they look at different approaches and options and opportunities and are there any constraints. As far as influence their first influence is a strategic one. Whereby they look at where it's most appropriate and most achieved. The influence is first and foremost setting that high direction. And that comes substantially through trying to integrate land use and infrastructure and that's where council's main role is. That in turn will influence the market. Where the council has invested in areas the market will naturally pick up on that and generally tends to follow." (Principal Advisor Planning at Christchurch City Council, Sarah Oliver).*

McLachlan emphasises that central government are most concerned with providing housing in general. He highlights that central governments influence has significantly changed after the Christchurch earthquake sequence.

> *"Definitely less central [government] involvement before the earthquake. Local [government] pretty much controlled it. In terms of central [government] they look at the bigger picture, not focusing on infill – looking at zoning of land to get more housing and providing infrastructure – [such as the] recent infrastructure fund." (Planning Manager at Davis Ogilvie, Matt McLachlan).*

Further to this, Tallentire discusses that while 'backyard' infill is not a focus of central government, it is definitely part of the equation of meeting the required housing numbers in the city.

> *"Central government are less bothered about the where and the what just the quantum: so, get houses. And so, that's been quite a lot of their focus.*

Special housing legislation and the national policy statement are all just largely about meeting the level. They've gradually been more accepting of intensification as a good thing. Still their policy leavers could assist local government in achieving that haven't been pulled. They're not ambivalent to infill – they just want the numbers." (UDS Implementation Manager, Keith Tallentire).

It appears that both local and central government have had a role to play in the provision of intensification in Christchurch. Willis, emphasises that the Christchurch earthquake sequence has resulted in more central government and local government interest in intensification and infill and this has led to policies for the encouragement of brownfield development. Vabulis also stresses the Christchurch earthquake sequence as an opportunity for intensification and infill due to displaced people and the possibility of upgrading housing stock.

"Especially after the earthquakes, [there has been] policy set up by central government demanding zoning [which] allows for more intensive development. Displaced people needed to be rehoused. Central government considers potential locations for housing. [For example] elderly persons housing went from requiring an encumbrance and now [there is] no requirement for this. The Council tries their best to house people. At the moment, anyone that has been displaced due to the earthquake has been well settled. The market is looking at replacement and upgrades of properties. [There is] not much pressure now on Council to deal with rehousing of people." (Subdivision Advisory Manager at Christchurch City Council, Vil Vabulis).

In terms of enabling infill supply, it appears that the pressure is on local government to provide for greater intensification and residential infill. In order to provide for this Christchurch City Council have relaxed planning rules to allow for more 'backyard' infill and 'multi-unit' infill.

"Local government (Christchurch City Council in particular) have always been pretty strict on their infill development. [The] new district plan is different but if you focus on, for instance, the old Living 1 zoning they are always strict on site size same as Living 2 and Living 3 zones. Local government has not constrained development [and] they definitely influence or direct development into specific locations. They allow for backyard subdivision. Through the Replacement District Plan they have relaxed some of those provisions. Policy directions are pretty direct. Council especially, have changed their ways from what they used to be – their district plans and policy directions do direct where infill should happen. Some suburbs still want to maintain their character and amenity – they don't want to ruin it by putting a 6-unit development around something that does not fit." (Planning Manager at Davis Ogilvie, Matt McLachlan).

As discussed in Chapter 5, there are various key documents that help shape housing infill supply in Christchurch.

"The Council has looked at housing supply quite extensively since the UDS and continued on – more recently they've looked at meeting certain targets

– so the district plan takes the target from the LURP which is essentially a refined version of the UDS so not much is ever really drastically changed its just been reformed and reiterated as documents progress… The Council's biggest two documents here are strategic documents, such as the district plan [which] sets out our rules and what you can do with your land, and opportunities for development. And then annual plan [involving] investing into particular areas." (Principal Advisor Planning at Christchurch City Council, Sarah Oliver).

While the LURP encourages greenfield development on the fringe of the city, it also has a considerable focus on infill and intensification.

"The Land Use Recovery Plan puts in place a package of measures to promote infill and intensification…territorial authorities will review development contributions and other financial tools and regulatory incentives to ensure they actively encourage medium density development in existing urban areas, particularly to support redevelopment of the central city." (Canterbury Earthquake Recovery Authority, 2013, p. 18).

In the proposed Christchurch Replacement District Plan (pCRDP), there are LURP provisions which enable the construction of two dwellings on a site in replacement of one dwelling in the Residential Suburban and Residential Suburban Density Transition zones. In order for this to be a permitted activity various requirements must be met including that the site is not in a Flood Management Area and the insurer(s) of the existing dwelling must have determined that the residential unit was uneconomic to repair because of earthquake damage.

"[There has been a] change of infill after the earthquake. [This is] based through the LURP provisions that have been produced. Additional mechanisms – [for instance] if an existing house is deemed uneconomical to repair it can now be demolished and build two [units] on [the site] without much hassle." (Planning Manager at Davis Ogilvie, Matt McLachlan).

Table 1 below demonstrates the LURP targets for intensification in Christchurch. It is the role of Christchurch City Council to ensure these targets will be met by the required timeframes. In total, it is expected that 20,742 households have been provided within Christchurch's existing urban area by 2028.

Table 1 LURP intensification targets (Canterbury Earthquake Recovery Authority, 2013)

In terms of whether these targets are being met, Tallentire discusses that the level of infill currently being achieved is not as high as the LURP desires.

> *"Last year there was a monitoring report on [the LURP] and it showed what the target was and where we were in terms of levels of infill occurring and it was still below where they wanted it to be. Is it achieving it? Not as much as they would like. You go around the suburbs and you see a lot of infill occurring and to some extent the earthquakes have provided an opportunity because people have the decision of do we bowl the house and then do we rebuild what was there or do we intensify? It is occurring but not as much as they would like or as quickly as they would like."* (UDS Implementation Manager, Keith Tallentire).

6.2.7 Conclusion

'Backyard' infill consists of small incremental changes to existing low density suburbs. This type of infill includes developing a new dwelling on the same site as an existing dwelling, typically in the back yard. It also involves demolishing an existing dwelling and replacing it with two dwellings. 'Mum and dad' developers and small building companies typically undertake this type of development. Major drivers include that it is relatively uncomplicated, it provides economic gain and is flexible to family circumstances. Major constraints include the financial cost, a lack of vacant sites and demand for 'backyard' infill. It appears that local government, with direction from central government, have been enabling 'backyard' infill and relaxing relevant rules through the Replacement District Plan. While 'backyard' infill can help to achieve the housing targets provided though the UDS and the LURP, it will be established in the following section that this is not where central governments', and this local governments' main focus is. It appears that central and local government are somewhat aligned in that they will enable future infill developments.

6.3   Conceptualising 'multi-unit' higher density development

The second type of residential infill in Christchurch, for the purposes of this study, is referred to as 'multi-unit' infill.

6.3.1 Higher density development

Interviewees highlight that 'multi-unit' infill is a higher density housing option. This type of infill is more intense than 'backyard' infill, and has potential to increase the density of areas to a much greater extent. Oliver emphasises that this type of intensification is arguably a more efficient use of space as it allows more houses to be developed in an area than what can occur through 'backyard' infill.

6.3.2 Two key types of 'multi-unit' development

Two key types of 'multi-unit' infill involve the replacement of one or two dwellings with three or more units and the amalgamation of two or more sites to establish multiple units. In the Christchurch Replacement District Plan, multi-unit residential complex means "a group of two or more residential units where the group is either held under one title or unit titles under the Unit Titles Act 2010 with a body corporate" (Christchurch Replacement District Plan, 2015). Vabulis discusses 'multi-unit' infill as typically involving redevelopment of sites, even a block of sites, to contain three or more units. Oliver discusses the use of amalgamation of sites to provide for 'multi-unit' development.

Interviewees highlight that elderly persons housing and social housing often takes the form of 'multi-unit' infill. Social housing used to take the form of detached or attached dwellings on low density sections. This shift demonstrates that there is a push for intensification of land use.

Figure 4 demonstrates the two major types of 'multi-unit' redevelopment. It appears that these types generally involve the existing house being demolished and replaced by several units. Vabulis highlights that sometimes developers buy two adjoining sites and amalgamate them into one site which can considerably increase the density.
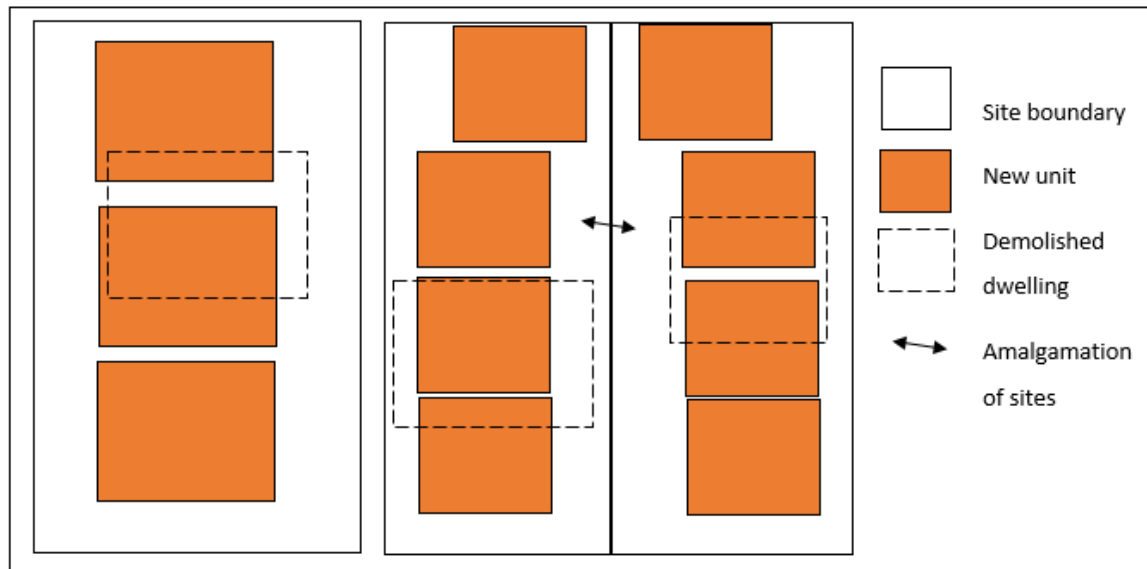
Figure 4 Different types of 'multi-unit' infill

Figure 5 portrays two examples of 'multi-unit' infill whereby the existing house has been demolished and replaced by multiple units. Compared with the surrounding area these units are small and have significantly less open space than the neighbouring properties. This allows for more houses to be located on the site.

Figure 5 'Multi-unit' infill in suburb of Papanui

6.3.3 'Multi-unit' as professional developer driven

The interviewees suggested that 'multi-unit' infill is mainly undertaken by professional developers as opposed to owner-occupiers.

Vabulis discusses that professional developers have become more interested in 'multi-unit' redevelopment following the Christchurch earthquake sequence.

> *"Since the earthquake … multi-unit has grown in popularity, it is what most developers are looking at. There are the mid density/ mid numbers – not the massive complexes" (Subdivision Advisory Manager at Christchurch City Council, Vil Vabulis).*

McLachlan emphasises that there are a variety of different types of professional developers who have an interest in 'multi-unit' infill.

> *"Infill developer types vary [and include] big greenfield developers who still keep an eye out for a big property that they can build ten or so lots on. [There are] builders and building companies that do infill. Especially big building companies do terraced housing. [This has happened in] St Albans, and Sherborne Street, [with] medium density zoning and quite big sites." (Planning Manager at Davis Ogilvie, Matt McLachlan).*

6.3.4 Overarching drivers of 'multi-unit' infill as economic gain, location and changing demographics

A few interviewees suggested that the financial gain for 'multi-unit' infill usually comes from the last few units. For instance, if five units are built on a site the profit will likely come from the last one or two units sold. The market has a large role to play in determining the price of developments.

> *"The market controls infill to a degree in what price people pay for land will determine what they actually sell the units for. So, if people buy a piece of land that is over inflated it will dictate what they will do with the land to get their money's worth. Recovering costs goes into the house – what they market it as – cost of building and consultants. What people are going to pay vs what their actual development costs are." (Planning Manager at Davis Ogilvie, Matt McLachlan).*

Interviewees also emphasised the importance of location in dictating where 'multi-unit' infill will occur.

> *"Key drivers of infill. Whole lot of things that go into that. Desirability of the area will largely dictate it. And generally, it comes down to when someone in the street does it and what's going on in suburban areas. Looks at St Albans, those places where there's been a lot of townhouse development. Starting to get some in Bishopdale… it will be driven by schools, that's a huge one. As soon as you've got something that's a key attractor that will drive housing infill. Always has done always will. Intensification trying to get that to happen. Don't have to worry about the areas with something attractive have to worry about the areas that do not have any. Hornby, Linwood. Some of those areas have large amounts of land which you could infill but it just won't because they don't make money – financial matter." (Principal Advisor Planning at Christchurch City Council, Sarah Oliver).*

A common driver mentioned by the majority of interviewees has been the change in demographics in Christchurch. The demand for smaller unit sizes and closer proximity to facilities highlights the occurrence of both an ageing population and a decrease in family size. 'Multi-unit' infill could be a suitable means to address the changing demographics by providing better diversification of housing stock. McLachlan and Adjunct Senior Lecturer, Jean Drage, both emphasise that a number of people do not want to have a large garden to maintain and thus seek low maintenance living accommodation. Further to this McLachlan also discussed how he has noticed that elderly persons do not want to have the hassle of a large site and dwelling and therefore want a smaller more manageable site and unit. Similarly, Drage, emphasises that peoples' needs vary, so while some people can argue for the need for open space and car parking in infill developments, others do not have the need for open space or car parking and actually want a house which is very low maintenance. Further to that, Managing Director at Planning Matters, Andrew Willis, highlights that there has been a trend of infill development providing less car parking for residents. Despite that

there is a market for housing infill, Oliver emphasises that there will always be strong desirability for open space and family homes.

6.3.5 Key constraints of 'multi-unit' infill as financial investment, planning rules, and NIMBY attitudes and demand

Interviewees have highlighted that 'multi-unit' infill is more complex to undertake than 'backyard' infill and involves significantly more investment which restricts this type of development to professional developers.

> *"[The] difference between infill and medium density is that mums and dads can do infill development. As soon as you start doing multi-unit with three or four [units] you need to start getting a much higher capital outlay – and have to get banks behind you …– there's significantly fewer players can do multi-unit development. That's the big difference – not a bad thing – it all comes down to risk. Obviously bigger financial market can do townhouse development." (Principal Advisor Planning at Christchurch City Council, Sarah Oliver).*

While McLachlan highlights that there are some big developers who get involved in infill, the real profit for big developers is in greenfield development.

> *"The biggest challenge [is that] the profit return on doing significant intensification or even infill in an existing urban area is lower than building a house out in greenfield. Because you have to demolish the building – [there is a] cost on that – and then have to rebuild – [therefore the] profit margin is less. It's much cheaper to do greenfield. That's why the big developers focus on greenfield [rather] than intensification. And you only get one offs – have to buy up a big block of land in existing area and can get lots of greenfield land for the same price." (Principal Advisor Planning at Christchurch City Council, Sarah Oliver).*

McLachlan highlights that planning rules restrict 'multi-unit' infill in certain ways. For instance if there will be three or more units developed it triggers an urban design assessment. While this can lead to improved design and better liveability outcomes it can be costly and time consuming to reach design solutions and it can lead to limited or public notification.

Urban design can also be viewed as a constraint in that it restricts development in order to achieve good urban design outcomes. McLachlan discusses that urban design is a big factor that councils will weigh up and there are often issues that arise between what the developer wants and what council wants. According to the Christchurch Replacement District Plan an urban design assessment is required when three or more units are proposed. While it might mean cutting costs for developers, Tallentire argues that when urban design is fast-tracked it can lead to bad liability outcomes. Basically, while urban design can be a constraint in term of it might put developers off developing 'multi-unit' infill, it can lead to better social outcomes which is something the council would desire.

McLachlan emphasises that surrounding land owners and 'not in my backyard' (NIMBY) attitudes can restrict some 'multi-unit' developments. Vabulis discusses that when a development does not comply with planning rules, in some cases neighbours may not give their approval to the increased density as it will detract from the character of the area. McLachlan highlights that while some neighbours will approve 'multi-unit' infill others will not and this can lead to consents becoming limited or publicly notified.

> "Biggest [constraint] is surrounding land owners – they have a lot of influence. Recently with the CCC identifying medium residential areas over and above what was initially identified in the RPD and so on has got land owners saying they do not want it in their area – do not want to wake up to an 11 storey development 1m away from boundary – that's what medium density is – sets a height limit and reduces bulk and location requirements – really making use of the site. Land owners do have a voice – if certain rules are breached can generally go down the notified path which involves surrounding neighbours – tricky to get all neighbours to sign – usually if three are required only two will give consent. Hearings coming up due to neighbour issues. Surrounding neighbours as key actor in allowing infill development." (Planning Manager at Davis Ogilvie, Matt McLachlan).

Tallentire discusses demand as an important factor in whether 'multi-unit' infill developments are feasible. Vabulis also emphasises that there is a risk in undertaking 'multi-unit' if there is only a small market for it. Tallentire suggests that some people would never consider living in this type of development, it all depends on people's preferences.

> "There is a chunk of the population who would either be quite keen to live in a more urban living environment or certainly wouldn't discount it. Sometime people are put off by body corporate issues sometimes they are put off by leaky buildings ... But if you ignore that and had a good product often there is a percentage that would – some would never do it but that's fine. The amount of people who would live in the central city those that would want to live there would probably never want to live in a greenfield area and vice versa – but in the middle ground – there's a market segmentation in terms of where people want to live. The key point is that potentially the market is undersupplying the product of an infill offer for a huge range of reasons." (UDS Implementation Manager, Keith Tallentire).

6.3.6 Differing local and central government position on higher density 'multi-unit' infill

Both central and local government have an interest in enabling medium density zoning and 'multi-unit' infill development. However central government wanted more medium density than local government as the community were pushing back on local government to conserve the existing character of certain residential areas. It was the role of the Independent Hearings Panel to mediate between the Crown and the Council to establish what they thought would be the best approach.

With regards to the Christchurch Replacement District Plan, within the Strategic Directions chapter it is pushing for "a well-integrated pattern of development and infrastructure, a consolidated urban form, and a high quality urban environment" (Christchurch City Council, 2015). This urban form must provide for urban activities only within existing urban areas and in greenfield land identified in the Regional Policy Statement. This urban form must increase "the housing development opportunities in the urban area to meet the intensification targets specified in the Canterbury Regional Policy Statement, Chapter 6, Objective 6.2.2 (1)" (Christchurch City Council, 2015).

The insertion of Chapter 6 Recovery and Rebuilding of Greater Christchurch into the Canterbury Regional Policy Statement (CRPS) "was directed by the Minister for Canterbury Earthquake Recovery in the Land Use Recovery Plan for Greater Christchurch and under section 27 of the Canterbury Earthquake Recovery Act 2011." (Environment Canterbury, 2013, p. 47). This has meant that significant focus has been placed on providing for residential development "in and around the Central City, Key Activity Centres (as identified in the Canterbury Regional Policy Statement), larger neighbourhood centres, and nodes of core public transport routes." (Christchurch City Council, 2015)

The pCRDP also allows for multi-unit residential complexes within the Residential Suburban Density Transition Zone provided certain requirements are met including that the maximum number of units is 4 units. In addition, the pCRDP provides a new permitted activity known as a 'minor residential unit'. This unit must be detached from the existing dwelling on a site and must meet other requirements such as a maximum floor area of 80m^2, both units must be accessed by the same vehicle access and the site must be at least 450m^2 and provide at least 90m^2 of outdoor living space with a minimum dimension of 6m. Additionally, a new mechanism called the Enhanced Development Mechanism has been included in the pCRDP which enables amalgamation of sites provided they are in close proximity to key facilities and infrastructure.

With regards to central government and the pCRDP, their influence has been quite significant. Before the Christchurch earthquake sequence the Christchurch City Council had their City Plan reviewed at a very local level. This has changed significantly with an appointed Independent Hearings Panel introduced by central government.

> *"[Central government] influence here is through the replacement district plan in the Independent Hearing Panel – the city council have come up with the rule package and have gone through the IHP hearings who have the final decision – we don't know what rules will come out what rules will change or stay. There is that influence from central govt there." (Planning Manager at Davis Ogilvie, Matt McLachlan).*

Through interviewing respondents, it appears that both central and local government have a significant interest in providing for infill in certain locations. These locations are focused around Key

Activity Centres which are contained within the LURP. There is also the change to the Residential Medium Density zoning which will allow for more 'multi-unit' infill in more areas around the city.

> *"Multi residential unit rules [have been] coming through the replacement district plan – Can allow four or so more units – more of these mechanisms [have been] allowed than in the past. The density provisions in the central city are a lot tighter - they want more dense or infill in central city to bring people back in – policy direction supports it. [For instance] there was one example of site with 15 titles [the developer] wanted to build seven exclusive homes – and had a problem with density and the Council had concerns and the application was withdrawn. [Additionally] Social housing areas [have been] identified now – Housing NZ – they demolish sites and replace units with dense infill [that are] two stories and 80m^2. [This] ties in with the Housing Accord – things have changed – there are more provisions now for infill." (Planning Manager at Davis Ogilvie, Matt McLachlan).*

It is arguable that the Council have not only been providing for higher density intensification, they have also been enforcing it. Oliver highlights that medium density zoning is a massive focus now for providing more housing to meet the housing targets.

> *"Medium density [zoning] around KAC is very much where CCC try to maximise the number of houses – trying to get the most yield. Infill is RS zone, that's been occurring for many many years and will continue to occur. Council is not particularly controlling in that area. The rules are a lot more permissive now – demolish a house and can build back two…Certainly RS zone has 450m^2 sites so actually probably [would] be able to get resource consent as long as you can prove access and open space and a number of things. CCC is not precluding and certainly providing for [infill]. Can even get multi-unit development in RS areas now as a discretionary activity – so need resource consent but need to demonstrate its going to sit within the character of the area. Possibility that might get a lot more infill. Could pretty much do something anywhere." (Principal Advisor Planning at Christchurch City Council, Sarah Oliver).*

Considering that there have been significant changes to the planning rules with regards to 'backyard' infill and 'multi-unit' infill, it appears that residents, especially in rezoned Residential Medium Density zones, have concerns.

> *"In terms of the location of infill the district plan allows for infill of most suburbs, it is still allowed in residential suburban, residential medium density [zones]– don't think you will get everyone agreeing on ideal place for infill – there will always be opposition. [There have been] articles recently [about the] residential medium zone CCC has proposed over and above the district plan – [in] Papanui, Linwood etc., [and have] already got people unhappy about it. [But] you will always get people with larger lots wanting to subdivide." (Planning Manager at Davis Ogilvie, Matt McLachlan).*

However, as Oliver emphasises, Christchurch City Council have intensification targets to meet and have taken a strategic, rather than ad hoc, approach to achieving these targets.

> *"Have we lost opportunities [due to 'backyard' infill in Residential Medium Density zone]? Probably yes. And that's what the council has tried to in a way not loose opportunities around KACs where there's lots of population. By its planning it is trying to avoid a lost opportunity of more units being attained in certain locations – doesn't really mind about the RS where it's the reverse thing – RS areas will do what they do but don't lose that ability to maximise housing yield range of house types in the locations they want it. That's why they've increased the med density zoning around some areas."* (Principal Advisor Planning at Christchurch City Council, Sarah Oliver).

Willis highlights that the role of local government involves listening to the community. He emphasises that the Christchurch City Council did not want a significant increase in medium density zoning as that is not what the community were wanting. However, the Independent Hearings Panel, which was established under the Order in Council, were pushing for more medium density areas to enable more intensification of housing stock.

The Council identified areas where potential upzoning to medium density zoning could achieve the desired intensification. This was highly criticised by the Crown.

> *The Council's planning witness, Mr Blair, explained the approach taken in the Notified Version to give effect to the CRPS and other Higher Order Documents on the matter of residential intensification…An initial analysis was done as to whether KACs and LNCs could provide supporting commercial and social infrastructure for intensification, and what areas would be within a 10-minute walking distance of KACs and LNCs. That initial exercise identified areas at Merivale, Hornby, Papanui, Shirley, Bishopdale, Riccarton, Church Corner, Barrington and Linwood as potential candidates for upzoning to RMD. Infrastructure capacity issues were tested, consultation with residents in the candidate areas was undertaken and, ultimately, matters were put to the Mayor and Councillors. Those processes resulted in areas being culled, including at Hornby, Eastgate (Linwood) and Papanui KACs and to the north of Riccarton Road. The Crown challenged both the soundness of the Council's methodology and the sufficiency of RMD zoning in the Notified Version for meeting intensification targets.* (Hansen, Mitchell, Niell & Huria, 2016, paragraphs 89-91).

Disagreement between the Council and Crown experts centred around how much intensification and infilling ought to occur.

> *How much intensification should be provided for is to be measured by reference to the intensification targets of the Higher Order Documents and Strategic Directions Objective 3.3.4. On this, the divergent positions of the Council and the Crown reflected the views of their respective experts, Dr Fairgray[36] and Mr Schellekens…One difference concerned the proportion of the Greater Christchurch intensification target that should be assigned to the city. Dr Fairgray assumed 79 per cent or 16,600 additional dwellings; Mr Schellekens assumed 90 per cent or 20,742 additional dwellings. .(Hansen, Mitchell, Niell & Huria, 2016, paragraphs 92-94).*

Additionally, the Independent Hearings Panel were concerned with the amount of upzoning to residential medium density was proposed by the Crown.

> *We observe that Mr Schellekens' recommendation would appear to have lost sight of an important dimension of the directions in the CRPS. That is in the sense that his recommendation would mean a large part of Christchurch would have to be zoned RMD. When this was pointed out by Panel questioning, Mr Radich QC responsibly accepted that, to give effect to the Higher Order Documents, intensification still needed to occur around KACs, LNCs and in proximity to public transport routes. We also observe that Mr Schellekens' input assumption that 90 per cent of the total Greater Christchurch intensification target be assigned to Christchurch City appears unrealistically high, for the reasons noted by Dr Fairgray. (Hansen, Mitchell, Niell & Huria, 2016, paragraph 97).*

6.3.7 Conclusion

'Multi-unit' infill consists of replacing one or more existing dwellings with multiple units. It also involves amalgamating sites to allow for many units to be established. There is consensus among interviewees that the majority of these type of infill development are undertaken by professional developers due to the inherent complexity of 'multi-unit' infill. Key drivers include economic gain, location and changing demographics. Key constraints include financial investment, planning rules, influence of surrounding neighbours and demand. It appears that central government has significant interest in medium density 'multi-unit' infill and this has somewhat conflicted with local governments interest in ensuring the community's views are taken into account. The Independent Hearings Panel has acted to an extent as a 'mediator' between the two views and has meant that local government has significantly less control over its District Plan Review and provision for 'multi-unit' infill than what is had before the earthquake sequence and the establishment of CERA.

6.4 Summary of key findings

Table 2 below simplifies the findings of this study. The overarching infill types established in this study are 'backyard' infill and 'multi-unit' redevelopment. 'Backyard' infill consists of cases where an existing house remains on the site and a new dwelling is built on the same site, typically in the backyard of the existing house. 'Backyard' infill also consists of cases where the existing dwelling on the site is replaced by two new dwellings. 'Multi-unit' redevelopment consists of cases where one or two existing dwellings are replaced by three of more new units on the site. 'Multi-unit' redevelopment also consists of cases where two or more sites are amalgamated into one and multiple units are established on the site. As demonstrated in Table 2 different characteristics are presumable for each type of residential infill in Christchurch. Stakeholder conflict and collaboration largely depend on the type of infill.

Residential infill is enabled and restricted in certain ways by the influence of local and central government as key stakeholders. It is arguable that central government have a focus on ensuring local government enables more housing stock within the city urban limits through intensification. While 'backyard' infill is not a significant focus planning rules have become more permissive enabling more of this type of development. The results suggest that the major focus of local government, due to central government direction, is on 'multi-unit' infill especially in medium density areas. There does not appear to be significant conflict between local and central government in terms of regulating 'backyard' infill, whereas there is a complex and differing perspectives for regulating and enabling 'multi-unit' infill especially with regards to the locations and extent of new medium density zones.

Table 2 Key characteristics of infill typologies

	'Backyard' infill		'Multi-unit' redevelopment	
Type of infill	**Existing house kept and new house established on backyard**	**Replace one dwelling with two dwellings**	**Replace one or two dwellings with three or more units**	**Amalgamation of two or more sites to establish multiple units**
Location	Suburban low density	Suburban low density	Mostly medium density	Medium density
Who undertakes the project	'Mum and Dad developers' Small building companies	'Mum and Dad developers', small building companies	Mostly professional developers	Professional developers
Key drivers	Relatively uncomplicated Economically feasible to some extent Family circumstances	Relatively uncomplicated (to an extent) Economically feasible to some extent Family circumstances	More profitable than 'Backyard infill' Desirability of area Changing demographics	More profitable than 'Backyard infill' Desirability of area Changing demographics
Key constraints	Requires some financial investment Lack of vacant sites Demand	Requires some financial investment Lack of vacant sites Demand	Requires significant financial investment Planning rules NIMBY attitudes Demand	Requires significant financial investment Planning rules NIMBY attitudes Demand
Role of central government	Housing targets Influence filtered down through documents such as LURP	Housing targets Influence filtered down through documents such as LURP	Housing targets Intensification Push via Independent Hearings Panel for more medium density Influence filtered down through	Housing targets Intensification Enhanced Development Mechanism Influence filtered down through documents such as LURP

			documents such as LURP	
Role of local government	Must achieve housing targets Replacement District Plan more permissive of low density infill	Must achieve housing targets Replacement District Plan more permissive of low density infill	Three or more units triggers need for urban design assessment Focus on good medium density outcomes – can be restrictive	Three or more units triggers need for urban design assessment Own set of rules for Enhanced Development Mechanism
Role of local government overlap:	Each type requires development contributions. Each type can involve subdivision consent. Each type requires building consent. Most could need land use resource consent.			

Chapter 7

Discussion

7.1 Revisiting literature gaps and restating the research questions

While a great body of work on Compact City, Smart Growth and New Urbanism emphasises the benefits of intensification, little research has been done on understanding infill development in terms of its conceptualisation, its drivers and constraints, and relationships between key stakeholders. Literature suggests that there are different types of infill development, however this has not been adequately elaborated on and raises questions over whether there are different characteristics drivers, constraints, and stakeholders for each type of infill.

Therefore, this research has sought to document different types of infill, identify various stakeholders associated with different types and explore conflicts and collaboration between them. The research questions that have been the overarching focus of this study are as follows:

Research question 1: What is residential infill and can it consist of more than one type of development?

Research question 2: Who are key stakeholders associated with residential infill development and what drivers and constraints do they face?

Research question 3: How do various stakeholders' roles align and conflict?

The following section will reiterate the arguments that have surfaced in literature and situate the findings of this study within the existing theory and practice.

7.2 Addressing research question 1: Spectrum of infill typologies and resulting density

7.2.1 Residential infill typologies

Literature in Chapter 2 highlights that there are multiple ways of defining infill development. The results suggest that infill can be looked at broadly as new residential development within existing urban areas. It also appears that infill can be understood in more specific ways and requires an understanding of how various types of development can be considered as "infill". Thus, viewing infill as a "spectrum" is considered the most appropriate method of conceptualising these developments.

Newton & Glackin's (2014) study holds its focus on two types of infill: brownfields and greyfields. Brownfields are located on land previously used for industrial and commercial purposes and involves site remediation. Greyfields are located in existing residential areas and span across the whole city. This study further adds to Newton and Glakin's (2014) work by demonstrating that infill can be further broken down into different types of development.

The findings of this study are in agreement with Newton and Gakin's (2014) suggestion that infill development can vary depending on the location. With regards to the current study, it appears that especially the 'backyard' infill typologies could be considered 'greyfield' infill whereby it occurs throughout the city, but especially in established suburbs. Results also suggest that some cases of 'multi-unit' infill could be considered as brownfields infill whereby the existing site could have had other previous (commercial or industrial) uses and site remediation could be needed.

The results demonstrate that the spectrum falls mainly within two overarching types of infill in Christchurch: 'backyard' infill and 'multi-unit' redevelopment. 'Backyard' infill occurs mainly in existing low density residential areas and does not significantly increase the density of these areas. 'Multi-unit' infill typically occurs in higher density areas and can significantly increase density by establishing multiple units on a site.

Within 'backyard' and 'multi-unit' infill the type of development varies from low density to higher density development. 'Backyard' infill consists of cases where an existing house remains on the site and a new dwelling is built on the same site, typically in the backyard of the existing house. 'Backyard' infill also consists of cases where the existing dwelling on the site is replaced by two new dwellings. 'Multi-unit' redevelopment consists of cases where one or two existing dwellings are replaced by three of more new units on the site. 'Multi-unit' redevelopment also consists of cases where two or more sites are amalgamated into one and multiple units are established on the site.

While infill typologies will likely vary depending on historical, legislative and geographical context, this study shows that there is a "spectrum of infill" as there are types that fit into low density suburbs and there are also types that fit into higher density areas. The results indicate that the different types of infill have likely spawned from the different planning rules in various zones. For instance, in areas closer to the central city, where higher density development is encouraged, these areas are more suitable for 'multi-unit' infill whereas 'backyard' infill is more common in low density established suburbs.

7.2.2 Compact urban form through residential infill

As established in Chapter 2, literature argues that sustainable development has taken on many different definitions depending on the context and is often defined to suit certain agendas (Wallis,

Graymore & Richards, 2011). However, there is a compelling argument for enabling cities to become more compact in form as populations become increasingly more urbanised (Rérat, 2012). Extending city limits creates significant costs for infrastructure and results in sporadic sprawling development and single use zoning. Literature on compact urban form suggests that residential infill is a key means to achieve intensification of land use.

The findings of this study suggest that there are different types and different paths to infill housing development. It appears that there is 'spectrum' of infill typologies ranging from the construction of a house in the backyard of a site where there is an existing house, to the amalgamation of many sites to establish several residential (and sometimes ''mixed use'') units.

Building new dwellings on underdeveloped sites contained within the urban fabric is inherent in infill development and thus it would meet the overarching aim of compact city, as argued by Rérat (2012). The findings of this study demonstrate that 'backyard' infill and 'multi-unit' infill are key ways to providing for more housing within existing city limits.

The findings from this study suggest that 'multi-unit' infill has more potential for enabling intensification than 'backyard' infill. Firstly, the interviews indicate that, in Christchurch, the potential for 'backyard' infill is decreasing. Many of the original large suburban sections have been subdivided leaving less potential for more infill. This is the case for Christchurch and it is likely that other cities within New Zealand and internationally could also be experiencing a similar situation.

It appears that sites where 'backyard' infill has been developed close to key facilities and services is viewed as a "lost opportunity" to develop higher density 'multi-unit' infill in these locations. An argument has been put forward by one of the interviewees that there is much greater potential for intensification through enabling 'multi-unit' developments over small scale incremental 'backyard' infill developments. Zoning that enables 'multi-unit' infill not only provides for a greater diversity of housing stock; it also allows for a significant increase in density and thus more housing stock can be developed within city limits.

The results are in line with the argument put forward by Phan, Peterson, & Chandra (2009) that intensification should especially be provided in close proximity to public transport, community facilities and other key services. There has been a significant push for enabling more 'multi-unit' infill within close proximity to these facilities and services.

The findings of this study are in agreement with the study done by Phan, Peterson, & Chandra (2009). It appears that existing sprawling suburbs can provide opportunities for increasing density by

accommodating 'backyard' infill. These opportunities can allow for good use of existing infrastructure, services and facilities.

The results are especially in line with literature that discusses that Compact City is seen as desirable by local government planning professionals but has less support from residents. It appears that that some types of infill are more sympathetic to the surrounds than others. While there is argument that suburban infill can somewhat reduce the low-density character of established suburbs, 'backyard' infill is a much lesser density change than that of 'multi-unit' developments appearing in suburbia. Thus, it is understandable that the Replacement District Plan makes it easier for 'backyard' infill to occur in the suburbs and 'multi-unit' infill to occur in higher density residential areas.

Focusing on medium density infill could arguably result in achieving Compact City ideals. Ancell & Thompson-Fawcett (2008) discuss compact city as selectively intensifying land uses and promoting the development of consolidated mixed use nodes, and therefore preventing urban sprawl. The Christchurch District Plan Review process has shown that there is significant focus on 'multi-unit' infill and medium density zoning. Enabling more housing within the existing urban area with a focus on existing and new medium density zones demonstrates that local and central government are being deliberately selective in not only the type of intensification but also the location.

7.3 Addressing research question 2: Key infill characteristics as drivers or constraints and identifying the role of key stakeholders

7.3.1 Residential infill drivers and constraints

Literature has hinted at there being different drivers and constraints of infill development. Farris (2001) emphasises that changing demographics, including smaller family sizes and an ageing population, form a demand for infill development. Farris (2001) also argues that the infill housing market is often contained to areas where there is good accessibility to key facilities, jobs and transport.

Additionally, Sandoval & Landis (2000) argue that infill development rests on four basic arguments: infill development preserves open space on the urban fringe and resource lands; infill can enable increased use of existing infrastructure including transit which can increase efficiency; infill has potential for reducing income and racial segregation; and lastly infill promotes a 24-hour city and a compact integrated mix of land uses.

The results of the current study suggest that on a broad level, drivers of infill could relate to the matters above. However, more specifically the drivers of infill are related to the type of infill development. For instance, interviewees highlight that changing demographics, location and

economic gain are key drivers for 'multi-unit' infill whereas they discuss that key drivers for 'backyard' infill appear to be quite different including relative lack of complexity and family circumstances.

In terms of possible deterrents, critique of intensification and infill relates to the potential extensive cost to redevelop the land (including removal of potential contamination on brownfield sites), availability of vacant land, and the need for existing infrastructure to be upgraded (Farris, 2001). Amenity impacts on neighbours are also a considerable critique as changes to the character of an area are generally met with opposition of residents (Ooi & Le, 2013).

Financial cost is a key deterrent identified by interviewees for both 'backyard' infill and 'multi-unit' infill. Both types of infill require a financial contribution however a considerably larger amount is required for 'multi-unit' infill which also therefore involves more risk, especially if demand for infill is not as high as anticipated. 'Multi-unit' infill is also more likely to require land remediation and can put more strain on existing infrastructure. Interviewees also highlight that multi-unit' development is more likely to encounter NIMBY issues (i.e. neighbours who do not support the development) as it can considerably alter the character of the area. The results also point out that neighbours might not be an issue depending if land use resource consent is needed and if it ends up being notified.

The results of this study are in agreement with the argument presented by Dubois and Van in Rérat's (2012) article. Lack of equilibrium between demand and supply as an important issue whereby intensification of areas can be constrained if there is a lack of demand. While different housing infill typologies have potential to enable cities to have a more compact form, demand for these typologies is an important issue to address. Interviewees highlighted that only a proportion of the market would consider living in these developments and there is considerable risk undertaking infill, especially 'multi-unit' infill which requires significant financial investment. While at this point actual demand for these developments is uncertain, changing demographics such as the aging population and decreasing family size are likely to provide the required demand in the near future.

Similarly, critics of Smart Growth claim that strict planning rules and market demand limit the effectiveness of Smart Growth (Danielsen, Lang, & Fulton, 1999; Litman, 2015). The findings of this study are in agreement with this issue as it appears that market demand has somewhat limited infill development and planning rules restrict infill development to certain locations and must meet certain requirements. For instance, 'multi-unit' infill is somewhat limited in location, it is mainly provided for in Residential Medium Density zones and would be more difficult to develop it in the suburbs. However, Smart Growth supporters, such as Lee & Leigh (2005) argue the importance of planners and policy makers not only focusing on central city sites but on revitalisation of inner ring

suburbs. The findings from this study demonstrate that there are governmental mechanisms that enable development of intensification in suburban and inner suburban zones.

In addition, an interviewee has highlighted that the greenfield subdivisions being constructed on the city's edge contain sites much smaller than what would be suitable for infill meaning that infill in new subdivisions is not an option. This finding demonstrates agreement with Moore's (2012) theory that past policies can have considerable influence on the existing built environment. Planning rules that set small minimum site sizes of between 450m^2 and 330m^2 demonstrate that this will reduce the possibility of sites being infilled at a later date. While this can be seen as restricting future infill potential, it demonstrates the governmental push for intensification where more dwellings are constructed with smaller section sizes. Essentially, it can be argued that local government are intensifying the city in a number of ways: especially by enabling infill and subdivision of existing sites into smaller sites, and enabling that new greenfield developments to provide considerably smaller section sizes than original section sizes of older suburbs.

7.3.2 Residential infill developers

The study by Newton & Glackin (2014) differentiates between stakeholders for Brownfields infill and Greyfields infill. They argue that Brownfields are generally owned by a single party, usually government or industry and that Greyfields are individually owned and occupied.

Similarly, the results of this study suggest that different types of infill attract different types of "developers". 'Backyard' infill is mostly land owner driven development whereby owners/occupiers realise there is the opportunity to construct a new dwelling in the backyard of their existing house, or that it is more economical to demolish their old house in need of maintenance and replace it with two new dwellings. 'Multi-unit' infill, according to interviewees, is mainly carried out by professional developers, especially due to the considerable financial cost and risk involved. The complexity of 'multi-unit' development appears to be another factor that keeps 'mum and dad' developers from undertaking this type of infill development. It appears that there are different types of "developers" who undertake infill development and they vary depending on the type of infill. In terms of 'multi-unit' infill, the majority of these types of infill development are undertaken by professional developers due to the inherent complexity of 'multi-unit' infill. 'Backyard' infill on the other hand, is mainly carried out by opportunist long term owners/occupiers.

7.3.3 Local and central government as key infill stakeholders

Additionally, local and central government appear as the key stakeholders in terms of "enabling" infill development. The findings are in agreement with what Melia, Parkhurst & Barton (2011) suggest: that there has been an evolution of policy towards intensification. The planning framework that has emerged after the Christchurch earthquake sequence has resulted in more relaxed planning rules which allow for more infill development. Local government's key role regarding infill is undertaking the District Plan Review which sets out the outcomes it hopes to see in terms of land use patterns and sets rules to achieve these outcomes. It appears that central government's role has significantly increase following the Christchurch earthquake sequence. This will be elaborated on in the following section.

The results suggest that there are differing levels of local and central government influence depending on the type of infill development. It appears that local and central government are both significant stakeholders in providing for 'multi-unit' infill and that their roles have considerably changed over time. Results suggest that local government, with direction from central government, have been enabling 'backyard' infill and relaxing relevant rules through the Replacement District Plan.

7.4 Addressing research question 3: Dynamic and complex relationship between stakeholders and resulting conflicts and collaboration

As highlighted in Chapters 2 and 4 it is clear that the nature of central and local governments relationship with regards to land use regulation has considerably changed over time. Their relationship is complex and was set out by key documents under legislation such as the Resource Management Act and the CER Act.

The results suggest that land use regulation in the post-earthquake recovery environment in Christchurch was complicated and involved a significant change to the business as usual approach to land use planning in terms of both specific plans and actual means of housing development and provision. The role of central government changed to be increasingly more involved in local matters.

The results indicate that central government has not traditionally played a role in housing infill however, it has started to be more active in this space and has led to a complex relationship with local government and resulting tensions.

The nature of Christchurch's land use regulation is top-down whereby outcomes desired by higher order documents filter down to lower down more specific documents. The Christchurch Replacement District Plan has been influenced by documents such as the Urban Development Strategy and the Land Use Recovery Plan. It has set out how land use will be regulated for the years to come.

The results of this study appear to be in line with what is suggested by literature: that neoliberalism results in government controlling the market in a way that it "enables" the market. While central government were significantly more involved in land use regulation after the Christchurch earthquake sequence it ultimately contributed to a relaxation of planning rules and enabling the market to provide more infill developments.

It appears that central government has a focus on ensuring local government provides for opportunities for more housing stock within existing areas through intensification. While the results suggest that 'backyard' infill is not a main focus, planning rules have become more permissive thus enabling more of this type of development. Interviewees argue that the major focus of local government, due to central government direction, is on 'multi-unit' infill especially in medium density areas. There does not appear to be significant conflict between local and central government in terms of regulating 'backyard' infill, whereas there is a complex and differing perspective for regulating and enabling 'multi-unit' infill and medium density zones.

While Moore (2012) argues that the built environment can be understood as the end result of a "tug-o-war" between local government planners and private sector developers in the normative pursuit of public good: the results suggest that it is equally arguable that the built environment can also be the end result of a "tug-o-war" between local and central government.

It appears that this is especially demonstrated through the District Plan Review hearings process, where the Independent Hearings Panel (which was appointed by central government) acted as a sort of "mediator" between what local and central government ideologies.

As discussed by (Cheyne, 2002), local government must take into account the views of its local communities. Results indicate that communities have put significant pressure on local government to protect the existing character of areas and restrict medium density zoning and thus restrict 'multi-unit' infill. Central government on the other hand appeared to be more concerned with ensuring there is enough housing for population growth and earthquake recovery. This points to the idea that central government is, as one might expect, somewhat distanced from local perspectives and values despite them having a significant role in the recovery effort and setting the direction for future land use supply in the city.

Chapter 8

Conclusion

This research focused on documenting different types of residential infill, identifying various stakeholders associated with the different types and exploring conflicts and collaboration between them. Results suggested that there is a "spectrum" of residential infill developments ranging from low density development to higher density development. Key drivers and deterrents for 'backyard' infill and 'multi-unit' infill were established and major stakeholders were identified. It appears that, while traditionally, central government has not been a particularly active stakeholder in infill development or regulation, there are indications that in Christchurch, post-quake, this has changed. This has resulted in a complex relationship between central and local government and has paved the way for both conflicts and collaboration relating to land use regulation and residential infill development.

8.1 Implications for theory

Literature on the topic of urban form emphasises the benefits of intensification without providing an understanding its various forms, stakeholders, constraints and drivers. This study demonstrates that there is a "spectrum" of residential infill developments and there are different drivers and constraints depending on the type of development. This study also suggests that there are different levels of government interest and involvement in particular types of infill, in this case 'multi-unit' infill is of considerable interest to local and central government.

8.2 Implications for practice

Planning and policy implications from this study especially relate to the changing role of central government in regulating land use. Local and central government as stakeholders in housing development are regularly under scrutiny as cities become more urbanised. The results from this study suggest that there can be (as Moore, 2012 might put it) a 'tug-o-war' between local and central government ideals which can impact how housing infill, and land use in general, will be developed. It appears that local government can be stuck between what communities' value and the policy outcomes directed from central government.

8.3 Areas of future study

From this research stems opportunities for future research. The findings from this study point to a potential rift between local and central government relations when central government attempts to

take local matters into its own hands. There could be a "threshold" where too much central government involvement impedes local governance and community values.

The findings of this study have highlighted various constraints to the different types of residential infill development. As there is considerable argument for intensification within cities, further research could focus on how constraints to residential infill development can be remedied or mitigated to encourage future infill development.

Appendix A

Interview consent form

The role of planning and land use regulation in restricting or enabling housing infill: a case study of the Christchurch earthquake sequence.

Project description
The aim of this study is to explore the role of local and national government in enabling or restricting housing infill supply in Christchurch.

Your rights as a participant:
I agree to participate in the project.

I agree/do not agree (delete one) to the audio recording of the interview with the understanding that only Brittany Bradley-Cane and her supervisor will have access to raw data including these sound files.

I understand that I have until August 30th 2016 to withdraw from the project, including withdrawal of any information I have provided.

I consent to publication of the results of the project (tick one):

a)   with the understanding that confidentiality **will be** preserved._____
b)   with the understanding that confidentiality **may not** be preserved_____
c)   with the understanding that **I will be named** as a participant_____

Name: _____Signed: _____ Date: _____

References

Addison, C., Zhang, S., & Coomes, B. (2013). Smart Growth and Housing Affordability A Review of Regulatory Mechanisms and Planning Practices.*Journal of Planning Literature*, *28*(3), 215-257.

Alterman, R. (2001), "National-Level Planning in Democratic Countries: A Comparative Perspective", in Alterman, R. (ed.) *National-Level Planning in Democratic Countries: An International Comparison of City and Regional Policy-Making*. Liverpool: Liverpool University Press, pp.1-42**.**

Ancell, S., & Thompson-Fawcett, M. (2008). The social sustainability of medium density housing: A conceptual model and Christchurch case study.*Housing Studies*, *23*(3), 423-442.

Batty, M. (2005). Cities and Complexity. Cambridge, MA, United States: MIT.

Bhatta, B. (2010). *Analysis of urban growth and sprawl from remote sensing data*. Springer Science & Business Media.

Buddle Findlay (2011). Summary and analysis of the Canterbury Earthquake Recovery Act 2011. https://www.buddlefindlay.com/insights/summary-and-analysis-of-the-canterbury-earthquake-recovery-act-2011/

Bulkeley, H., & Mol, A. P. (2003). Participation and environmental governance: consensus, ambivalence and debate. Environmental Values, 12(2), 143-154.

Campbell, S. & Fainstein, S. S. (2003). The structure and debates of planning theory. In S. Campbell & S. S. Fainstein (Eds.) *Readings in planning theory.* 2nd ed (pp. 1-16). Malden, MA: Blackwell Publishers

Canterbury Earthquake Recovery Authority (2013) Land Use Recovery Plan. Retrieved from http://ceraarchive.dpmc.govt.nz/sites/default/files/Documents/land-use-recovery-plan.pdf

Canterbury Earthquake Recovery Act (2011). Retrieved from http://legislation.govt.nz/act/public/2011/0012/latest/DLM3653522.html

CERA (2014). Regulatory Impact Statement: Streamlined process for the review of Christchurch City's District Plans.

Chang, H. J. (2003). *Globalization, economic development and the role of the state*. Zed Books.

Cheyne, C. (2002). Public involvement in local government in New Zealand: a new model for contemporary local-central relations? Commonwealth journal of local governance 1, 1-19.

Chiu, R. L. (2004). Socio-cultural sustainability of housing: a conceptual exploration. *Housing, Theory and Society*, *21*(2), 65-76.

Christchurch City Council (2014). Christchurch Housing Accord. Retrieved 01/08/16 from https://www.ccc.govt.nz/assets/Documents/Services/Social-Housing/Christchurch-Housing-Accord.pdf

Christchurch City Council (2015). Proposed Christchurch Replacement District Plan. Retrieved from http://districtplan.ccc.govt.nz/pages/plan/book.aspx?exhibit=DistrictPlan

City of Christchurch (1995). City Plan; Publicly notified 1995, Christchurch City Council.

City of Christchurch (1999). City Plan; Publicly notified 1999, Christchurch City Council.

Coombes, B. L. (2003). Ecospatial outcomes of neoliberal planning: habitat management in Auckland Region, New Zealand. *Environment and Planning B: Planning and Design*, *30*(2), 201-218.

Danielsen, K. A., Lang, R. E., & Fulton, W. (1999). Retracting suburbia: Smart growth and the future of housing.

Department of the Prime Minister and Cabinet (2016). Red zone information. Retrieved 09/11/16 from http://cera.govt.nz/land-information/red-zone

Durand, C., Andalib, M., Dunton, G., Wolch, J., & Pentz, A. (2011). A systemic review of built environment factors related to physical activity and obesity risk: Implications for smart growth urban planning. Obesity Reviews, 12, 173–182.

ECan (2016). Read the policy. http://ecan.govt.nz/our-responsibilities/regional-plans/rps/proposed-crps-2011/Pages/Default.aspx

Eckersley R. (2002) Green governance in the new millennium: towards the green democratic state. *Ecopolitics: thought and action.*

Edwards, M. M., & Haines, A. (2007). Evaluating smart growth implications for small communities. *Journal of Planning Education and Research*, *27*(1), 49-64.

Ellman, T. (1997). *Infill: The Cure for Sprawl? Arizona Issue Analysis, 146*. The Goldwater

Institute, Phoenix, AZ, p. 21.

Elwood, S., & Cope, M. (2009). 1 Introduction: Qualitative Gis: Forging Mixed Methods Through Representations, Analytical Innovations, and Conceptual Engagements. In M. Cope (Ed.), *Qualitative GIS.* (pp. 1-13). London, England: SAGE Publications Ltd. doi: http://dx.doi.org.ezproxy.lincoln.ac.nz/10.4135/9780857024541.d4

Environment Canterbury (2013). Canterbury Regional Policy Statement. Retrieved from http://ecan.govt.nz/our-responsibilities/regional-plans/rps/proposed-crps-2011/Pages/Default.aspx

Environment Guide (2015). Housing Accords and Special Housing Areas Act 2013. Retrieved 01/11/16 from http://www.environmentguide.org.nz/activities/subdivision/housing-accords-and-special-housing-areas/

Environmental Defence Society v King Salmon, SC 82/2013 [2014] NZSC 3817 April 2014

Farris, J. T. (2001). The barriers to using urban infill development to achieve smart growth.

Flick, U. (2006). *An introduction to qualitative research.* 3rd ed. London: SAGE Publications.

Flyvbjerg, B., & Richardson, T., (2002). Planning and Foucault: in search of the dark side of planning theory. Planning futures: new directions for planning theory, ed, 44-62.

Foster, S., Hooper, P., Knuiman, M., Bull, F., & Giles-Corti, B. (2015). Are liveable neighbourhoods safer neighbourhoods? Testing the rhetoric on new urbanism and safety from crime in Perth, Western Australia. *Social Science & Medicine*.

Goodin, R. E., Moran, M., & Rein, M. (Eds.). (2006). *The Oxford handbook of public policy* (pp. 3-35). Oxford: Oxford University Press.

Goodyear, R. (2014). Housing in greater Christchurch after the earthquakes: Trends in housing from the Census of Population and Dwellings 1991–2013. Statistics New Zealand. Available from www. stats. govt. nz.

Greater Christchurch (2016). Urban Development Strategy. http://www.greaterchristchurch.org.nz/assets/Documents/greaterchristchurch/UDSNewsletterMarch2012.pdf

Harvey, D. (2007). Neoliberalism as creative destruction. *The Annals of the American Academy of Political and Social Science*, *610*(1), 21-44.

Hansen, J., Hassan j., Mitchell, P. & Dawson, S. (2015). Independent Hearings Panel Decision 1 Strategic Directions and Strategic Outcomes. Retrieved 01/11/16 from http://www.chchplan.ihp.govt.nz/wp-content/uploads/2015/03/Strategic-Directions-and-Strategic-Outcomes-Decision.pdf

Hansen, J., Mitchell, P., Niell, A., Huria, J. (2016). Independent Hearings Panel Decision 10 Residential (Part). Retrieved 01/11/16 from http://www.chchplan.ihp.govt.nz/wp-content/uploads/2015/03/Residential-Stage-1-decision.pdf

Hecht, A. D., Fiksel, J., Fulton, S. C., Yosie, T. F., Hawkins, N. C., Leuenberger, H., Golden, J. S., & Lovejoy, T. E. (2012). Creating the future we want.*Sustainability: Science, Practice, & Policy*, *8*(2).

Howdle, N. (2012). Identity and architecture: the impact of urban intensification.

Jackson, T., & Dixon, J. (2007). The New Zealand Resource Management Act: an exercise in delivering sustainable development through an ecological modernisation agenda. *Environment and Planning B: Planning and Design*,*34*(1), 107-120.

Kulish, M., Richards, A., & Gillitzer, C. (2012). Urban structure and housing prices: Some evidence from Australian cities. The Economic Record, 88(282), 303–22.

Leccese, M., & McCormick, K. (2000). Charter of the new urbanism. McGraw-Hill Professional.

Lee, S., & Leigh, N. G (2005a). Philadelphia's space in between: Inner-ring suburb evolution. *Opolis*, *1*(1).

Lee, S., & Leigh, N. G. (2005b). The role of inner ring suburbs in metropolitan smart growth strategies. *Journal of Planning Literature*, *19*(3), 330-346.

Litman, P. (2015). Evaluating criticism of Smart Growth. Victoria Transport Policy Institute. Retrieved on 27 November 2015 from www.vtpi.org/sgcritics.pdf

Local Councils (2011). Local Government Act 2002. http://www.localcouncils.govt.nz/lgip.nsf/wpg_url/Policy-Local-Government-Legislation-Local-Government-Act-2002

Melia, S., Parkhurst, G., & Barton, H. (2011). The paradox of intensification. *Transport Policy*, *18*(1), 46-52.

Miley, F., & Read, A. (2013). After the quake: The complex dance of local government, national government and accounting. *Accounting history*, 1032373213505742.

Miller, C. (2015). The shared history of public health and planning in New Zealand: A different colonial experience. *Progress in Planning*.

Milne, E. (2016). Fishing for answers: The implications of Environmental Defence Society v King Salmon. *Victoria University of Wellington Legal Research Paper, Student/Alumni Paper*, (18).

Ministry for the Environment (MFE) (2016). About the RMA. http://www.mfe.govt.nz/rma/about-rma

Moroni, S. (2010). Rethinking the theory and practice of land-use regulation. Planning Theory, 9(2), 137–155.

Murphy, L. (2015). The politics of land supply and affordable housing: Auckland's Housing Accord and Special Housing Areas. *Urban Studies*, 0042098015594574.

Newton, P., & Glackin, S. (2014). Understanding Infill: Towards New Policy and Practice for Urban Regeneration in the Established Suburbs of Australia's Cities. *Urban Policy and Research*, *32*(2), 121-143.

New Zealand Productivity Commission (2015). A history of town planning. Retrieved 13/05/16 from http://www.productivity.govt.nz/sites/default/files/using-land-draft-report-research-note.pdf

New Zealand Productivity Commission. (2015). Using land for housing. Retrieved 29 March 2016 from http://www.productivity.govt.nz/sites/default/files/using-land-for-housing-final-report-full%2C%20PDF%2C%204511Kb.pdf

Ooi, J. T., & Le, T. T. (2013). The spillover effects of infill developments on local housing prices. *Regional Science and Urban Economics*, *43*(6), 850-861.

Plew, E. (2001). Townhouse Survey Report: A Survey of Households Living in Modern Infill Housing in Christchurch City. Christchurch: Christchurch City Council.

Portugali, J. (2009). Self-Organisation and the City. Berlin, Germany: Springer.

Rérat, P. (2012). Housing, the compact city and sustainable development: Some insights from recent urban trends in Switzerland. *International Journal of Housing Policy*, *12*(2), 115-136.

Resource Management Act (1991). Retrieved from
http://www.legislation.govt.nz/act/public/1991/0069/latest/DLM230265.html

Sandoval, J. O., & Landis, J. D. (2000). Estimating the housing infill capacity of the Bay Area.

Stylianou, G., & Law, T., (2016). Residents reject housing intensification plan for parts of Christchurch.
Retrieved 1/11/16 from http://www.stuff.co.nz/the-press/business/the-
rebuild/81760873/Residents-reject-housing-intensification-plan-for-parts-of-Christchurch

Swaffield, S. R. (2012). Reinventing spatial planning at the urban rural interface: a Christchurch, New
Zealand case study. *Planning Practice and Research*, *27*(4), 405-422.

Travers, M. (2001). *Qualitative research through case studies.* London, SAGE Publications

Trudeau, D., & Malloy, P. (2011). Suburbs in disguise? Examining the geographies of the New
Urbanism. *Urban Geography*, *32*(3), 424-447.

Urban Development Strategy Working Paper 6 (2006). The Social and Environmental Effects of
Residential Infill Development in New Zealand. Retrieved 29 March 2016 from
http://wellington.govt.nz/~/media/your-council/projects/files/infill-social.pdf

Wallis, A. M., Graymore, M. L., & Richards, A. J. (2011). Significance of environment in the
assessment of sustainable development: The case for south west Victoria. *Ecological
Economics*, *70*(4), 595-605.

Wear, A. (2016). Planning, Funding and Delivering Social Infrastructure in Australia's Outer Suburban
Growth Areas. *Urban Policy and Research*, 1-14.

Wey, W. M., & Hsu, J. (2014). New urbanism and smart growth: Toward achieving a smart National
Taipei University District. *Habitat International*,*42*, 164-174.

Williams, N. (2014). *Sense of placelessness on the Christchurch periphery post-earthquake* (Doctoral
dissertation, Lincoln University).

Wilson, E.H., Hurd, J.D., Civco, D.L., Prisloe, S. and Arnold, C. (2003). Development of a geospatial
model to quantify, describe and map urban growth. *Remote Sensing of Environment*, **86**(3),
275–285.

Winder, P. & Perrott, T. (2015). Review of the development of the Christchurch Replacement District
Plan. https://www.ccc.govt.nz/assets/Documents/The-Council/Plans-Strategies-Policies-
Bylaws/Plans/district-plan/CCC-DPR-Review-Final-Report.pdf

World Commission on Environment and Development (1987) Our Common Future. Oxford: Oxford

University Press.

Chapter 1

Introduction

1.1   International context: sprawl versus intensification

This research stems from an increasing interest in the context and development of urban form and the argument that intensification is a means to achieve sustainability imperatives, manage urbanisation and curb peripheral sprawl.

A well-known approach to accommodate urban growth is for "the government" to make land available for peripheral residential development (Montgomery, 2012; Gallagher, 2012). This is typically referred to as greenfield development and it is known for its tendency to promote "sprawl". "Scattered development is classic sprawl; it is inefficient from the standpoints of infrastructure and public service provision, personal travel requirements, and the like" (Bhatta, 2010, p. 13).

A different approach, which will be the focus of this study, is housing infill, in which land that is already being used for residential or brownfield purposes within current city limits is intensified to include more dwellings or units on an existing site.

> "Modern cities have grown predominantly by spreading out from the center
> with new low-density homes built at the urban fringe…Such a
> decentralization process, nevertheless, gives rise to common problems
> associated with urban sprawl such as traffic congestion, increased
> infrastructure costs, and loss of rural and resource land. Recognizing that
> such growth is not sustainable, some communities have adopted policies
> restricting the amount of land in the suburbs that can be used for
> development. Instead, infill developments that involve developing on vacant
> or under-used parcels within existing urban areas are encouraged." (Ooi &
> Le, 2013, p. 850).

There are various definitions used to conceptualise housing infill. Plew (2001) defines infill as development that "occurs when new development takes place within an existing suburb of older houses. It includes one or more townhouses built behind, in front of or beside an existing older house. It also includes developments of two or more townhouses where the original older house has been demolished. Infill townhouses are built on crosslease sections or small (subdivided) freehold sections" (Plew, 2001, p. 1). The Wellington Urban Development Strategy (2006) defines residential infill as "the establishment of new dwellings within an existing suburb, facilitated by the division of existing residential properties into smaller sections by way of cross-leasing, or subdivision into fee-simple or unit titles" (p. 14). Wilson et al. (2003) discuss that infill development usually occurs where

Chapter 2

Literature review

2.1 'Compactionist' perspectives as justification for intensification

This section explores the role of emerging policy and planning theory in establishing justification for intensification of land use. It will be established that literature highlights residential infill as a key type of compact development and that there are a few gaps that ought to be addressed.

2.1.1 Sustainability and the compact city

Defining sustainability and compact city and its relevance to urban form

Various global issues, including climate change and population growth, have spiked multiple debates relating to an overarching concept of 'sustainability'. There are debates relating to both the conceptualisation of sustainability and whether sustainability is the right approach to addressing global and local environmental issues. "Sustainability [was] initially referred to [as] 'environmental sustainability' or 'ecological sustainability', that is, the longterm capability of the Earth to accommodate ever expanding human needs and wants, given their toll on the natural ecology" (Chiu, 2004, p. 65). Sustainable development is defined by the World Commission on Environment and Development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (1987, p. 23).

Sustainable development has often been assessed using a model called the three pillars of sustainability which use social, economic and environmental indicators (Wallis, Graymore & Richards, 2011). The indicators are seen as a means to communicate sustainability and to better inform decision making and policy formation through collecting and collating information about the sustainability of economic, social and biophysical systems (Wallis, Graymore & Richards, 2011). There is not much consensus among literature on which of the many sustainability models ought be promoted and there is no overarching agreement on how the concept of sustainability should be translated into practice (Wallis, Graymore & Richards, 2011). This issue has meant that sustainability is redefined to suit individual political agendas which may mean that sustainability models that have been developed reveal more about the social and political ideologies than about sustainability itself (Wallis, Graymore & Richards, 2011).

The spatial dimension of human settlements and the influence of urban morphology and location on resource and energy consumption is an important debate on the sustainability of housing (Rérat, 2012). Recent theories and practices have led to practitioners and decision makers being influenced

Chapter 3

Research methods

The overall aim of this research was to document different types of infill, identify various stakeholders associated with different types and explore how their roles align and conflict.

3.1 Research objectives

A large body of literature focuses on the idea that cities should become more compact to address urbanization trends and sustainability imperatives. Infill is widely mentioned in the literature as a means for cities to intensify land use, however there appears to be a gap in the research over what infill actually consists of. Research question 1 seeks to address this gap and help determine key characteristics of infill including whether it can be categorised into different types.

Research question 1: What is residential infill and can it consist of more than one type of development?

Chapter 2 points to a potential gap in the literature whereby little is known about who they key stakeholders are in infill development and what are the key drivers and constraints that they face.

Research question 2: Who are the key stakeholders associated with residential infill development and what drivers and constraints do they face?

Findings from Chapter 2 suggest that stakeholders can have complex relationships and their ideals and agendas might not necessarily be well aligned. Research Question 3 will address this dynamic and explore the impact it has on infill development.

Research question 3: How do various stakeholders' roles align and conflict?

3.2 Methodology

This research is explorative in nature and will use a qualitative approach to undertaking research. This research aims to draw together information which is currently fragmented and widely distributed through a range of various sources. The value in qualitative data relates to gaining explanations of facts and also the relationships between variables (Flick, 2006). A comparison can be made between positivist and interpretive approaches whereby positivist approaches are concerned with observable phenomena and natural sciences whereas interpretive approaches consider the constructed, evolving and dynamic nature of social reality (Travers, 2001). Interpretivists take into account people's perspectives at face value and can appreciate the contrast of differing perspectives

Chapter 4

Background

4.1   Brief history of urban development in New Zealand

4.1.1   Master planned intentions stemming from overseas ideals

Beginning from the 1840s, In the very early days of colonisation in New Zealand, town planning was the result of legislative measures of local and central government, private corporations' initiatives and commercial imperatives (Productivity Commission, 2015). Wellington, Nelson, Christchurch and Dunedin were founded by the New Zealand Company through Wakefield's approach to systematic planned settlement (Productivity Commission, 2015). The layout of New Zealand's colonial towns was influenced by other nations, especially Australia and the United States. The predetermined grid layout was desirable for various reasons. These included: it was simple to survey and lay out it; imposed order on the landscape; it would allow air to move freely and thus reduce cases of disease; and it would be able to be extended and enabled sub-division in the future (Productivity Commission, 2015). However, while the intention was for well-planned town form, the realities of settler life and commercial imperatives shaped the outcome of the town plans (Productivity Commission, 2015).

4.1.2   The importance of geographical context

Literature highlights that New Zealand colonial towns developed in ways that reflected the geographical context. "In some cities… growth and expansion was shaped by biophysical features, and the original town belt is still retained as public open space" (Swaffield, 2012, p. 407). As an Island nation, development demonstrated that the economy was highly export dependent, with most towns being located in proximity to the sea. The majority of New Zealand cities have their development linked with the "rural hinterland, with all cities with the exception of Palmerston North and Hamilton located on the coastal fringe… reflecting their roles in an export dependent economy" (Miller, 2015, p. 5).

4.1.3   Short lived master plan and haphazard development

It is arguable that the slow development of the governance structures resulted in towns developing in a haphazard manner where many were subdivided from the outset with houses being separated by many vacant sections (Miller, 2015). After the New Zealand settlements began developing, the original master planned layouts were typically not adhered to as the needs of the settlers at the time outwaited the arguable long term gains for the future (Productivity Commission, 2015). Patterns of settlement were influenced by speculators, absentee land owners and eclecticism (Productivity

Chapter 5

Overview of legislative framework and key planning documents

This section will give a brief overview of the legislative framework regulating land use in Christchurch, New Zealand. It will provide a timeline and hierarchy of key documents governing land use in Christchurch before and after the earthquake sequence. It is arguable that a key means to understanding the relationships between central and government, as key stakeholders in infill development, is by considering the complex legislative frameworks in which they operate.

5.1   Overview of activities under the Resource Management Act

The Resource Management Act 1991 (RMA) is New Zealand's fundamental piece of legislation that sets out how the environment should be managed. It came into force in October 1991 and replaced or amended over 50 town planning and resource management laws (MFE, 2016). The RMA attempted to replace rules that had become overlapping, fragmented, inconsistent and complicated with a more coherent, structured and integrated scheme (Environmental Defence Society v King Salmon). A significant element of the RMA framework is the hierarchy of planning documents whereby the Act itself sits atop the framework with part 2 and section 5 at its core (Milne, 2016). Part 2 contains the governing principles that are referred to throughout the framework and provides the purpose of the Act in section 5, with the rest of part 2 elaborating on the definition of sustainable management and provided more specific direction (Milne, 2016).

The RMA provides a hierarchy of documents, with district documents sitting under regional documents which sit under national documents.

> *"Under the RMA, there is a three tiered management system – national, regional and district. A "hierarchy" of planning documents is established. Those planning documents deal, variously, with objectives, policies, methods and rules. Broadly speaking, policies implement objectives and methods and rules implement policies. It is important to note that the word "rule" has a specialised meaning in the RMA , being defined to mean "a district rule or a regional rule". (Environmental Defence Society v King Salmon, paragraph 10).*

With regards to this hierarchy, first are the national environmental standards, national policy statements and the New Zealand Coastal Policy Statement which are the responsibility of central government (Environmental Defence Society v King Salmon). There is no obligation to prepare national environmental standards and national policy statements although there must be at least one New Zealand coastal policy statement. Lower order planning documents must give effect to the objectives and policies in these documents. Second in the hierarchy are the regional policy

Chapter 6

Understanding residential infill: typologies; drivers and constraints; and aligning or conflicting ideologies of central and local government

As outlined in Chapters 1 and 3 this research has three overarching questions:

Research question 1: What is residential infill and can it consist of more than one type of development? Research question 2: Who are key stakeholders associated with residential infill development and what drivers and constraints do they face? Research question 3: How do various stakeholders' roles align and conflict?

Chapters 1 and 2 established that infill is a key type of land use intensification and alluded to the idea that there could be multiple types of infill and different stakeholders as well as a variety of drivers and constraints. This section will present the findings on this subject.

Chapter 6 outlined that local and central government, which this study considers key stakeholders in infill development, have a dynamic relationship that is not free of conflict. This section will explore interviewees perspectives on this matter and further add to this finding.

6.1   Conceptualising residential infill

In carrying out this study, it appears that there are a wide variety of infill types in Christchurch. This chapter will demonstrate that there is essentially a "spectrum" of infill typologies ranging from the construction of a house in the backyard of a site where there is an existing house, to the amalgamation of many sites to establish several residential units. Depending on the type of infill, different characteristics are apparent, including location and the level of government involvement.

6.2   Conceptualising 'backyard' suburban infill development

6.2.1   Low density development

Principal Advisor Planning at Christchurch City Council, Sarah Oliver, describes 'backyard' infill as typically occurring in low density suburban areas. In agreement, Subdivision Advisory Manager at Christchurch City Council, Vil Vabulis, discusses that a major type of infill is 'backyard' infill which occurs in older suburban areas. He emphasises that this type typically involves an existing house remaining on the site and a new house is developed in the backyard area. Vabulis highlights that this type of infill usually involves subdividing one site into two sites.

Chapter 7

Discussion

7.1 Revisiting literature gaps and restating the research questions

While a great body of work on Compact City, Smart Growth and New Urbanism emphasises the benefits of intensification, little research has been done on understanding infill development in terms of its conceptualisation, its drivers and constraints, and relationships between key stakeholders. Literature suggests that there are different types of infill development, however this has not been adequately elaborated on and raises questions over whether there are different characteristics drivers, constraints, and stakeholders for each type of infill.

Therefore, this research has sought to document different types of infill, identify various stakeholders associated with different types and explore conflicts and collaboration between them. The research questions that have been the overarching focus of this study are as follows:

Research question 1: What is residential infill and can it consist of more than one type of development?

Research question 2: Who are key stakeholders associated with residential infill development and what drivers and constraints do they face?

Research question 3: How do various stakeholders' roles align and conflict?

The following section will reiterate the arguments that have surfaced in literature and situate the findings of this study within the existing theory and practice.

7.2 Addressing research question 1: Spectrum of infill typologies and resulting density

7.2.1 Residential infill typologies

Literature in Chapter 2 highlights that there are multiple ways of defining infill development. The results suggest that infill can be looked at broadly as new residential development within existing urban areas. It also appears that infill can be understood in more specific ways and requires an understanding of how various types of development can be considered as "infill". Thus, viewing infill as a "spectrum" is considered the most appropriate method of conceptualising these developments.

Chapter 8

Conclusion

This research focused on documenting different types of residential infill, identifying various stakeholders associated with the different types and exploring conflicts and collaboration between them. Results suggested that there is a "spectrum" of residential infill developments ranging from low density development to higher density development. Key drivers and deterrents for 'backyard' infill and 'multi-unit' infill were established and major stakeholders were identified. It appears that, while traditionally, central government has not been a particularly active stakeholder in infill development or regulation, there are indications that in Christchurch, post-quake, this has changed. This has resulted in a complex relationship between central and local government and has paved the way for both conflicts and collaboration relating to land use regulation and residential infill development.

8.1 Implications for theory

Literature on the topic of urban form emphasises the benefits of intensification without providing an understanding its various forms, stakeholders, constraints and drivers. This study demonstrates that there is a "spectrum" of residential infill developments and there are different drivers and constraints depending on the type of development. This study also suggests that there are different levels of government interest and involvement in particular types of infill, in this case 'multi-unit' infill is of considerable interest to local and central government.

8.2 Implications for practice

Planning and policy implications from this study especially relate to the changing role of central government in regulating land use. Local and central government as stakeholders in housing development are regularly under scrutiny as cities become more urbanised. The results from this study suggest that there can be (as Moore, 2012 might put it) a 'tug-o-war' between local and central government ideals which can impact how housing infill, and land use in general, will be developed. It appears that local government can be stuck between what communities' value and the policy outcomes directed from central government.

8.3 Areas of future study

From this research stems opportunities for future research. The findings from this study point to a potential rift between local and central government relations when central government attempts to