

STRENGTHENING LOCAL CENTRES

Addressing residential proximity, retail convenience and urban amenity within neighbourhood centres.

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ABSTRACT

This research develops a set of design criteria to direct the enhancement of residential proximity, retail convenience and urban amenity within neighbourhood centres.

Neighbourhood centres are an important part of a city's infrastructure. They can provide service amenities for local residents, foster social interaction, create economic platforms for smaller businesses, provide nearby places of work and contribute to the local identity of their surrounding neighbourhoods. Neighbourhood centres create layers of intensity within our suburban fabric.

Traditionally, neighbourhood centres served their local market catchment. Today, by contrast, there are many retail alternatives easily accessible to our mobile society. In New Zealand, these centres are often located in low density suburbs; if they are to maintain a level of patronage, they must compete to hold their local customers.

In this study, three aspects of the retail experience – proximity, convenience and urban amenity – were identified as fundamental considerations in the selection of a retail environment. A literature survey was carried out to create an

initial set of design criteria which outline the key priorities for these three research themes. Comparative analysis of three neighbourhood centres in Christchurch, and detailed analysis of one of these centres, informed a number of subsequent refinements to these criteria, making them more specific to the residential, retail convenience and urban characteristics of these centres. The Christchurch centre of Woolston was chosen as the site for a design case study, where the amended set of criteria directed the design of both a master plan and an individual building.

Finally, the design outcomes were used to formulate a number of strategies which can be used to retrofit other centres, responding to their existing built fabric and suburban structure. These strategies include parking lanes, central orientation spaces, anchor structures, secondary streets and retail zones. These strategies ensure that neighbourhood centres can provide both residential proximity and retail convenience in such a way that enhances their urban amenity. Ultimately, this research provides strategies to develop neighbourhood centres as distinct, convenient and enjoyable places to work, live and visit.

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1.0

INTRODUCTION

1.0 INTRODUCTION

1.1 Thesis outline

This thesis investigates suburban neighbourhood centres in the context of Christchurch. The research explores how residential intensification can be achieved alongside retail convenience in such a way that enhances the urban amenity of a centre. These design intentions will be explored at the scale of both a master plan and an individual building in the Christchurch centre of Woolston. Since the September (2010) and February (2011) earthquakes, a number of buildings have been demolished along the commercial street. These empty sections present an opportunity to rethink how Woolston, and other centres, may develop in the future to enhance their residential proximity, retail convenience and urban amenity.

1.2 Introducing neighbourhood centres

Neighbourhood centres are suburban locations zoned for multiple uses. These include commercial businesses, schools, churches, recreational areas and suburban industries. It is this concentrated area of different land use and activities that creates the 'centre' of these neighbourhoods. Common terms used within the Christchurch, Auckland and Wellington City Plans to describe these places are 'local centres,' 'suburban centres,' 'smaller district centres' and 'neighbourhood centres.'

'Neighbourhood centre' will be the term used to describe such places throughout this research. The inclusion of the word 'neighbourhood' creates a stronger reference to the people who use these places, rather than to an area, size or location.

1.3 Significance of neighbourhood centres

Suburban neighbourhood centres can be at the core of local communities. They can provide crucial amenities, foster social interaction, create economic platforms for smaller businesses, provide local employment and contribute to the identity of their surrounding neighbourhoods. As significant places in low-density suburbs, these centres hold considerable potential for residential intensification. They are located within existing city limits, with established infrastructure, existing commercial and community services, and they are in close proximity to key transport links. This situation makes these centres logical locations for consolidation, creating neighbourhoods where more people can live, work and shop locally. These benefits are of particular significance when considering the predicted decline of personal transport due to rising fuel costs. Consolidation around activity centres such as these is a vital step in future-proofing our cities.

1.4 Research problems

As areas of commercial and social intensity, neighbourhood centres create a focus point for their surrounding community. These commercial areas traditionally serviced the day-to-day needs of a local area. Today, the high rates of personal transport have made a wider range of retail locations easily accessible to many (Powell & Allan, 2009, p. 1). Malls, big box retail parks, the internet and convenience stores are creating demanding competition for neighbourhood centres. It is therefore no guarantee that nearby residents will stay and shop locally.

This research investigates how these local centres can evolve in order to survive and prosper against other retail environments, without losing their inherent benefits. This is approached from three distinct angles. The first considers how to improve consumer proximity with residential intensification, the second explores how to achieve a convenient retail experience, and the last, how to provide an urban environment where both residents and visitors want to spend time.

1.4.1 Strengthening Residential Proximity

The more people living in close proximity to neighbourhood centres, the stronger their local market will be. Residential intensification and the resulting consolidation at neighbourhood centres places more people in close proximity

to the benefits of nearby public transport, commercial amenity and community services. The Christchurch City Plan states that “higher residential densities help to sustain the suburban centres as important physical resources for the surrounding community” (Christchurch City Council, 2005, p. 6.2.1).

1.4.2 Providing Retail Convenience

“Convenience occurs when the barriers to the undertaking of an activity are reduced or eliminated” (Reimers & Clulow, 2004, p. 208).

Reimers and Clulow (2004) completed a study of retail convenience in traditional shopping strips. They propose that “the demise of the shopping strip could be linked to its inability to satisfy the needs of a convenience-orientated society” (Reimers & Clulow, 2004, p. 209). They, and others, attribute higher numbers of working women and a perceived time scarcity to “a generation of consumers that will no longer tolerate inconvenient retail centres” (Reimers & Clulow, 2004, p. 242; Longman, 2000). Providing retail convenience within neighbourhood centres is therefore an important requirement if these centres are going to compete for consumers.

1.4.3 Enhancing urban amenity

Powell and Allan (2009) suggest one way of improving the long-term viability of neighbourhood centres is to enhance the

quality of the built environment, encouraging people to linger and spend more time in the centre. Shopping is regarded as a common leisure activity (Reimers & Clulow, 2001, Kilment, 2004); it is therefore important to provide attractive, inviting and enjoyable retail environments where both residents and visitors want to spend time.

1.5 Research method

A literature survey, comparative analysis and a design phase have been used to build this research, with each phase informing the next. The research develops in a sequence of stages, each of which contributes to a set of design criteria. These criteria were used to create a master plan design for Woolston, from which a number of design strategies were then distilled.

1.6 Thesis structure

This thesis consists of six chapters, with graphic representations and analytical drawings used throughout.

2.0 Literature Survey presents the key findings from relevant literature. This chapter is divided into four parts. The first section summarises the main ideas that contributed to the research intentions. The following three sections discuss these intentions: (a) residential proximity, (b) retail convenience and (c) urban amenity of neighbourhood centres. The key principles from each of these three research topics have

contributed to an initial set of design criteria that will be used to direct further research. The research material used in these literature surveys includes both key academic texts and recent council reports, surveys and design guides.

In order to successfully translate these principles into the context of neighbourhood centres, it was important to fully understand the shared characteristics of these centres. This way the initial design criteria produced from the literature survey could be adapted to suit their unique requirements.

3.0 Comparative Analysis presents the findings from comparative analysis of three neighbourhood centres in Christchurch. Informed by this comparative analysis, a number of amendments were made to the initial design criteria and are explained throughout the chapter.

4.0 Site analysis presents the site analysis completed for the design phase of this research. This analysis considers Woolston in Christchurch, previously discussed as part of the comparative analysis. This analysis illustrates the primary issues and opportunities on site. They in turn inform a number of further amendments to the design criteria. These amendments are also discussed within the chapter.

5.0 Design Case Study presents the proposed master plan and building design for Woolston. These designs have been developed in response to the design criteria discussed in 2.0, 3.0 and 4.0. This chapter discusses key design moves which inform the overall structure of the centre; it then concentrates on four key spaces, one of which is the site for the building design.

6.0 Design Outcomes distils the design moves used in the previous chapter to create a set of design strategies. These can be used to address similar problems in other neighbourhood centres. These strategies are tested in two other centres to illustrate their applicability.

7.0 Conclusions reflects on the research findings. It considers the key concepts used to guide this research, the research process used, and the applicability and limitations of the research findings.

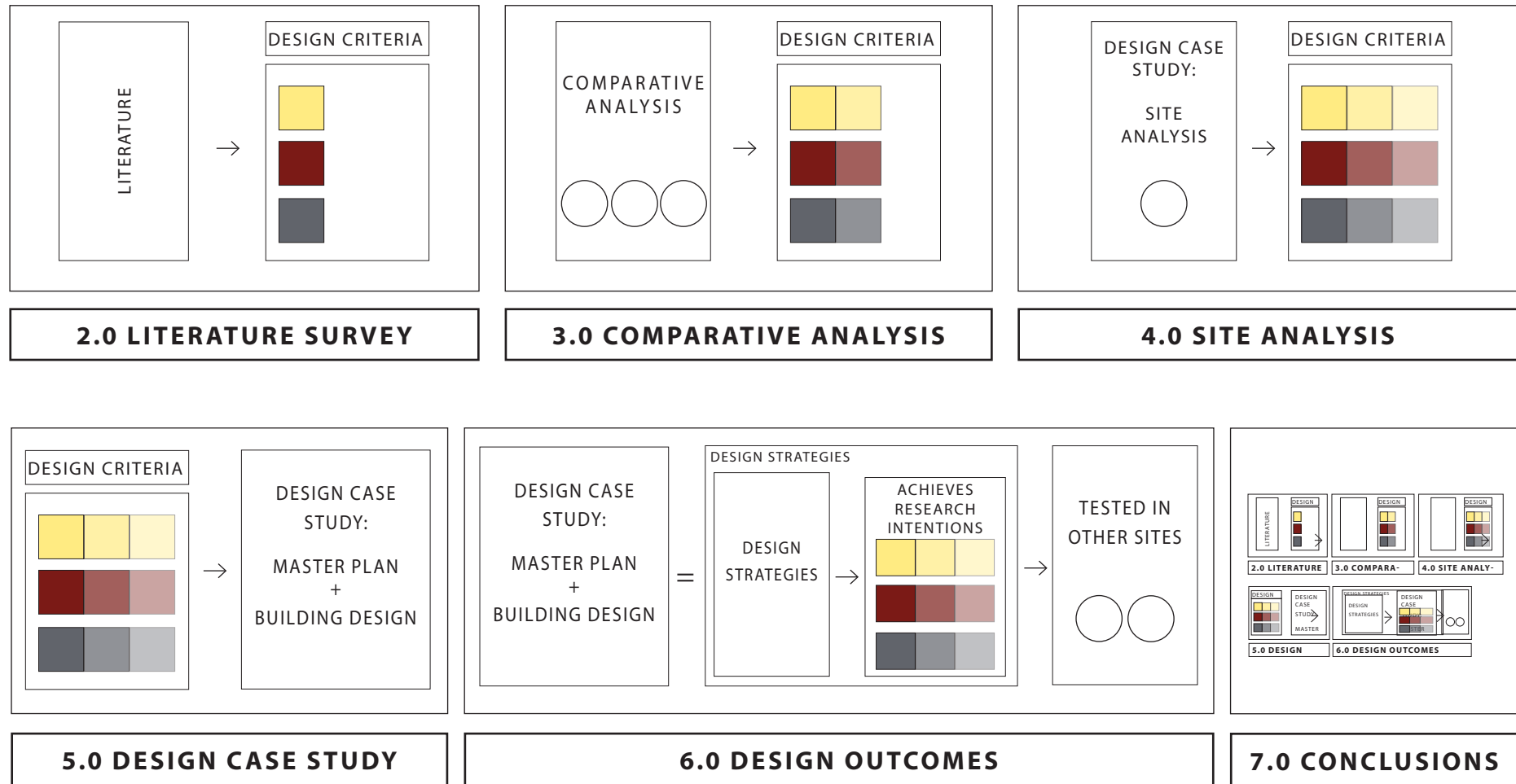


Fig. 1 Research process



2.0

LITERATURE SURVEY

2.0 LITERATURE SURVEY

2.1 INTRODUCTION

The first part of this literature survey presents key ideas that have informed the direction of this research. The following three sections discuss the research themes in turn: (a) residential proximity, (b) retail convenience and (c) urban amenity of neighbourhood centres. Each of these themes has informed a set of design criteria. This is presented as a whole at the end of this chapter.

2.2 THE CHANGING ROLE OF NEIGHBOURHOOD CENTRES

2.2.1 Section Introduction

This section begins by defining the traditional and current roles of neighbourhood centres. It explores their significance and potential for development. Factors challenging the future viability and strength of neighbourhood centres are then outlined. These include the increased mobility of consumers and the range of retail competition. This is followed by a brief discussion on which factors influence the shopping experience. It includes reasons why residential proximity, retail convenience and urban amenity have been selected to address these challenges.

2.2.2 Defining neighbourhood centres

Traditionally, neighbourhood centres provided their surrounding communities with vital commercial and community services. These centres were often located at significant suburban tram stops, aligning key transport routes (McLauchlan, 1989). As areas of commercial and social intensity, these centres created a focal point for their surrounding community.

According to the current Christchurch, Wellington and Auckland City Plans, suburban centres are locations which possess a range of commercial and community activities. These areas may also include small offices and residential living. Most have limited off-street parking, good pedestrian access and public transport links, and exist within primarily car-orientated suburbs. Each City Plan recognises the suitability of these sites for residential intensification and further development, particularly those with significant transport links.

The exact definition of a 'neighbourhood centre' is unclear in the literature. Any definition "is indicative only, because the size and type of each centre will be different due to historical,

locational and environmental circumstances” (Christchurch City Council, 2005, p. 12.7.1).

The Christchurch City Council states that ‘smaller district centres’ will often be zoned as both Business Zone 1 and 2. Areas defined as ‘Business 1 Zone’ are often “...dominated by small-scale retail shops and service activities, and many are characterised by “strip” development of shops immediately adjoining road frontages. The Business 1 Zone’s purpose is to provide for local opportunities for employment, community activities and convenient (often pedestrian) access to goods and services. It is recognised that many of these local centres have a poor physical layout and parking arrangements, or are located across major traffic routes from larger centres.”

“The Business 2 Zone component of these centres identifies the focal point for business activity and development within these centres, these zones often allow for larger scale commercial development” (Christchurch City Council, 2005, p. 3.1.4).

It is these district centres (or as discussed throughout this research) neighbourhood centres which still have some trace of their traditional “strip” layout that are the primary focus of this research.

2.2.3 The significance of neighbourhood centres

Neighbourhood centres are an important part of a city’s infrastructure. They can provide crucial service amenities to nearby residences, foster social interaction, create economic platforms for smaller businesses, provide nearby places of work and contribute to the local identity of their surrounding neighbourhoods. By providing essential day-to-day services, neighbourhood centres can be crucial for those members of the community who are less mobile. Beyond providing basic amenity, neighbourhood centres can also create opportunities for social activity (Harding & Powell, 2010, p. 4; Thomas & Bromley, 1995; Taylor, Baines, & Perkins, 2010; Taylor & Baines, 2008).

“Suburban centres provide a gathering point for social contact and community expression, in addition to the fulfilment of requirements for goods and services... In many cases, suburban centres are often located with or near to schools, sports clubs on reserves, churches, medical facilities, crèches, police stations and post offices which reinforces their pivotal role in the community” (Christchurch City Council, 2005, p. 12.7.2).

Banerjee (2001) suggests that our desire for relaxation, social contact, entertainment, leisure and simply having a good time – or, our desire for ‘public life’, can be satisfied by commercial

environments. The Christchurch City Council reinforces this point – “suburban centres can meet the needs of the community for social wellbeing, by providing a focus for community activity and social interaction.” (Christchurch City Council, 2005, p. 12.7). Our personal psychological needs for contact, knowledge and stimulation are often satisfied alongside other reasons for being out and about, such as “to shop, to take a walk, to get some fresh air, to buy a paper...” (Gehl, 1986, p. 117).

These centres provide opportunities for small-scale businesses that could not survive in more expensive retail areas. (Taylor, Baines, & Perkins, Strategic SIA for urban retail developments, 2010). Being peripheral to the central city allows businesses to establish themselves without the higher rents demanded by central areas (Harding & Powell, Future Retail and Urban Forms in New Zealand, 2010; Bahin, 1998). The Christchurch City Plan acknowledges the importance of these centres in providing “local opportunities for employment.”

As areas of social, commercial and built intensity, neighbourhood centres can make a strong contribution to the local identity of their surrounding neighbourhoods. This distinctiveness is an asset that requires nurturing and careful consideration.

“Local distinctiveness is closely linked to the natural and built environment, the economy and the social ambience of a place. It is the sum of traditions, buildings, history, people, landscape and wildlife which contribute to making a place distinct” (Miller, 2008).

Grant, Human, & Le Pelley believe that “the fragility and difficulty of achieving and maintaining local distinctiveness means that to possess it is considered an economic asset.” (Grant, Human, & Le Pelley, 2002). In order to remain competitive, this image and identity must be sustained and nurtured (Crewe & Lowe, 1995, p. 1880). It is therefore vital that a clear vision is defined that can enhance the character of these individual places.

Overall, the key points discussed above outline the continued importance of neighbourhood centres in providing nearby residents with a centre from which to live, work and shop locally. Beyond this, these centres can also contribute to a local sense of identity, create opportunities for small businesses and provide locations for public life and social interaction within the local community. Careful consolidation and intensification will allow more people to live in close proximity to this commercial activity and its associated benefits.

2.2.4 The place of neighbourhood centres in the retail hierarchy

Central place theory asserts that different retail items require different catchment markets depending on the nature of the goods being sold. The catchment market describes the number of people within a defined travelling time. The size of the market differs because consumers are prepared to travel different lengths of time, depending on the item they are after (Brown, 1993). Low order items (frequently purchased convenience goods) require smaller market areas to sustain their business than high order items (infrequently purchased comparison goods such as furniture or jewellery). Retail hierarchies emerge naturally because of the different market areas required to sustain different businesses (Brown, 1993). At the top of the hierarchy is the central shopping district, which can be accessed by a great number of consumers. At the bottom of the hierarchy are the smaller centres which primarily serve a local catchment (Brown, 1993 ;Powell & Allan, 2009). However, in such a mobile society (Harding & Powell, Where retailing and transport merge: Implications for New Zealand's future urban forms, 2010), consumers have easy access to numerous different retail locations throughout the city, calling into question the existence of definite 'local catchment markets' (Brown, 1993; Borchert, 1998) . Some authors still regard the hierarchy as an effective and clear basis for structuring current retail environments (Borchert,

1998; Rowe, 2009). From empirical analysis it is clear the basic hierarchical retail model has considerable relevance in regard to Christchurch. For a long while there has been a push for the regeneration of the central city in order to maintain its key role as the primary retail destination. This primary centre is surrounded by supporting satellite centres and between these, smaller neighbourhood centres. Complications to this hierarchy occur as a number of these satellite centres have grown to be of considerable size, and in effect they are competing for retail dominance.

The 'pre-earthquake' Christchurch City Plan demonstrates this hierarchical emphasis by making clear the intent to consolidate at multiple scales, including the central city, district centres and neighbourhood centres (Christchurch City Council, 2005, p. 12.1.2). Even after the 2010 and 2011 earthquakes presented significant opportunities to reshuffle the system of centres, a hierarchy still emerges, with a strong emphasis on the benefits of both the central city, and the importance of the local. It is therefore important to acknowledge a centre's place in the retail hierarchy, and design appropriately for this scale.

2.2.5 Retail competition & choosing a retail destination

New and different types of retail formats create serious competition for neighbourhood centres. This competition is made easily accessible in such a mobile society. This current mobility means consumers are no longer limited to nearby retail centres (Brown, 1993; Thomas & Bromley, 1995). Neighbourhood centres are therefore in competition with other retail centres from across the whole city (Powell & Allan, 2009).

These alternative environments include malls, big box retail parks, the internet, smaller shopping centres, markets, petrol stations and convenience stores. These retail formats are creating demanding competition for neighbourhood centres in terms of the alternative benefits and retail experience they each offer. It is therefore not a guarantee that nearby residents will stay and shop locally.

It is important that neighbourhood centres are competitive retail locations in order to avoid a 'spiral of retail decline' (Thomas & Bromley, 1995), where services gradually reduce until only a core of basic stores remain. This puts those local residents who are less mobile at a disadvantage, limiting them to a small range of services. Neglect of the retail centre also jeopardises the overall vibrancy and prominence of the area.

Choosing a shopping location is a complex process informed by a number of personal motivations and benefits (Westbrook & Black, 1985; Reimers & Clulow, 2004; Powell & Allan, 2009; Gibbs, 1992; Ibrahim & Wee, 2002). Experiential aspects include factors such as the proximity of the shopping location, the convenience of the experience itself and the quality of the urban environment. Product motivations include aspects such as variety and price. It is the experiential motivations, rather than the product motivations, which have the most potential to be improved through design. These considerations provide an opportunity to increase the appeal of one centre over another.

2.2.6 Conclusion

The three aspects of the retail experience outlined above – residential proximity, retail convenience and urban amenity – are the three primary themes which will be addressed simultaneously throughout this research. Each contributes to the success of a person's retail experience. Therefore, enhancing each of these aspects is critical in strengthening the competitiveness and thereby the viability and success of neighbourhood centres. These themes are discussed in the following three sections of this chapter.



A

INCREASING RESIDENTIAL PROXIMITY

2.3 INCREASING PROXIMITY WITH RESIDENTIAL INTENSIFICATION

2.3.1 Section Introduction

In order to increase the number of residents living in close proximity to neighbourhood centres, and thereby strengthen the local market, this section considers residential intensification within neighbourhood centres.

This section begins by defining density and intensification. It then outlines an appropriate target density and suggests a number of significant considerations for designing residential intensification. This section receives less attention than others because of the considerable amount of research already completed on this subject. The main source used was the North Shore City Council's Good Solutions Guides.

2.3.2 Defining density and intensification

Auckland's Regional Growth Strategy defines intensification as "An increase in density (of dwellings, activity units, population, employment etc) over the current density of a given area" (Auckland Regional Council, 1999). Density can be defined as a system of measurement that references dwelling units to a given area of land (Turner, Hewitt, Wagner, Su, & Davies, 2004).

2.3.3 Why plan for intensification

For this research, the principal benefit of intensification is to strengthen the local market by locating more people in close proximity to the centre. Urban intensification is encouraged as a growth management tool (Cullen, 2005.), directing residential development towards existing suburbs, with existing infrastructure. Designing for intensification is important to provide a blueprint and benchmark density for development to align to. Christchurch's Urban Development Strategy (2007) recommends areas of 'urban consolidation' as preferable around existing centres.

2.3.4 Defining medium and low density living

Suburban areas are most often zoned for low density residential use. However, at neighbourhood centres a 'medium density zone' is often located nearby.

A report on best practice in medium density housing design completed for the Housing New Zealand Corporation, suggests the most common definition of medium density housing used by the majority of City Councils and the Housing New Zealand Corporation is: Housing at densities of more than 30–66 dwellings per hectare (dph) (Turner, Hewitt, Wagner, Su, & Davies, 2004). What constitutes low density varies somewhat between sources from 0-14 to 0-30 dwellings per hectare (Saville-Smith, 2010).

To consider the effects of density on an area, it is helpful to consider not only the numerical data, but also a spatial description of the character of these areas. Low density style housing can be described as detached, and usually on a generous section. Medium density is semidetached, and up to three storeys in height. Any housing four storeys and over is classified as high density (Bray Sharpin, 2006, p. 14).

In terms of Christchurch, the 'Living 1 Zone' covers most suburban living environments of the city. This zone provides "principally for low density permanent living accommodation.

Table 1 Density definitions

DENSITY HEIRARCHY	LOWEST	LOW	MEDIUM
CCC City Plan living zones (Christchurch City Council, 2005, p. 2.1)	Living 1 (Outer Suburban)	Living 2 (Inner Suburban)	Living 3 (Medium Density and Suburban Focals)
Common density definitions (Turner, Hewitt, Wagner, Su, & Davies, 2004; Saville-Smith, 2010)	0-14dph	15-30 dph	30-66dph
Density of Living Zones in 2001 census (Howland, 2004)	L1= 9.8 dph	L2= 13.3 dph	L3= 18.0 dph

It is anticipated that the zone provisions will maintain open space and landscape plantings as an essential feature of the environment with dwellings at low building densities and heights. A range of types of permanent residential accommodation is expected to establish in the zone, limited only in terms of building bulk and density and environmental effects on the neighbourhood." (Christchurch City Council, 2005, p. 2.1.2)

"The Living 3 Zone provides principally for medium-density residential accommodation. It is anticipated that the zone provisions will encourage diverse residential development, redevelopment and infill to medium densities and moderate heights, compatible with the character of existing development in the area while maintaining a reasonable degree of open space." (Christchurch City Council, 2005, p. 2.1.2)

Currently, neighbourhood centres remain at a low density despite these medium density zones (see table 1). The target density for this research is therefore to achieve a medium density of between 30-66dph. It is important to understand how this initial stage of intensification, transforming from low density to medium density, can be achieved alongside retail convenience and urban amenity requirements.

The table below compares the definitions for different living

zones as set by the Christchurch City Plan with the actual density as recorded in the 2001 census. This data shows that the areas set out for medium density living are well short of their intended population level; this shortfall is so great that it is unlikely to have been remedied in the intervening decade.

2.3.5 Design considerations

If medium density is to be achieved in neighbourhood centres, developing around existing housing formations will not provide sufficient intensification. Infill development in which houses are inserted behind existing dwellings fails to maximise the potential space available (Christchurch City Council, 2005, p. 11.4.1). Designing for intensification must therefore go beyond infill development to also consider the urban structure.

The Good Solutions Guide for medium density housing suggests a range of design principles covering a variety of sites. These principles include interaction with the surrounding urban and natural environments, proximity, adaptability, energy efficient design, and privacy, as well as creating socially active and safe environments. Included with these strategies is a compendium of housing types, each differently suited to different site situations. The last section of this guide outlines the elements that should be considered for each house type. These range from surface dressing, such as materials and colour, to amenity issues, such as outlook and privacy.

Using energy efficient design

Orienting streets in a north/south direction maximises morning and afternoon sunlight, and attaching houses in a terraced, semi-detached or apartment style configuration can save heating energy (North Shore City Council, 2007).

Designing active and safe environments

It is important to build houses and parking in areas which are highly visible to neighbouring properties to deter burglary and car theft (North Shore City Council, 2007).

Privacy and legibility

The housing compendium section of this document clearly outlines a range of different housing solutions for different situations. The strongest point made in this section is the importance of ensuring that the public face and private areas remain distinct from one another. This distinction should ultimately create some degree of private outdoor space and a more pleasant public street front (North Shore City Council, 2007).

2.3.6 Conclusion

In order to increase the number of people living in close proximity to neighbourhood centres, residential intensification needs to achieve a medium density of between 30-66dph. This section also outlined three important 'tools' to use when site planning. This information has contributed to an initial set of design criteria presented at the end of this chapter.

Neighbourhood centres are not purely residential areas; rather, they coexist with a variety of other land uses and activities. The literature emphasises that intensification is not simply a function of residential land use, but can enhance the amenity value of the area as a whole in many ways, for example improving safety through increased activity and natural surveillance.

2.3.7 Initial design criteria: residential proximity

1. Provide for medium density living of between 30-66dph
2. Reconsider street structure if required in order to increase intensification and provide an optimum pedestrian and vehicular network
3. Design housing for maximum sunlight and energy efficiency
4. Design for both privacy and natural surveillance to ensure the safety of surrounding streets
5. Intensify near commercial areas to maximise the potential amenity value.



2.4 PROVIDING RETAIL CONVENIENCE

2.4.1 Introduction

This section of the literature survey outlines key principles for achieving retail convenience. Few sources in the literature explicitly discuss retail convenience at all, much less in terms of neighbourhood centres. The literature discussed below is primarily from two key sources: Reimers and Clulow who discuss retail convenience in regard to Australian 'strip centres'; and Gibbs (1992), who discusses reinvigorating 'downtowns' to compete with malls.

As a result of the limited source material, the area of retail convenience has been explored more thoroughly in the literature research. The section begins by offering a definition of what constitutes retail convenience, followed by an outline of key principles. This chapter concludes by summarising this information as an initial set of design criteria.

2.4.2 Defining retail convenience

Reimers and Clulow (2004) suggest several aspects of 'spatial convenience' which determine the spatial, temporal and effort costs of shopping. These factors are barriers to undertaking the activity of shopping.

- Size of the centre
- Physical design: structure and arrangement
- Store compatibility
- Retail concentration

These factors encompass movement, the structure of centres, and store types. However, they do not include the principles of visibility and access as considered by Gibbs (1992).

2.4.3 Aspects of retail convenience

Size of the centre

The smaller the retail centre, the less distance the pedestrian must walk. However, the size of the retail centre also limits the number of stores available. The ideal size is therefore a careful balance between the distance the consumer will walk and maximising the number of stores (Reimers & Clulow, 2004, p. 208). Common consensus is that retail environments should be no longer than 200m. Any longer, and people lose interest in browsing the whole length. Anchor tenants can

attract users to move from one end of a retail centre to the other. Smaller stores can then be discovered along the way. The further people walk in a retail centre, the more stores they pass and the more stores they are exposed to (Gibbs, 1992, p. 6). Below, is Barry Maitland's model of a generic double anchor centre; this structure places anchor tenants no further than 200m apart.

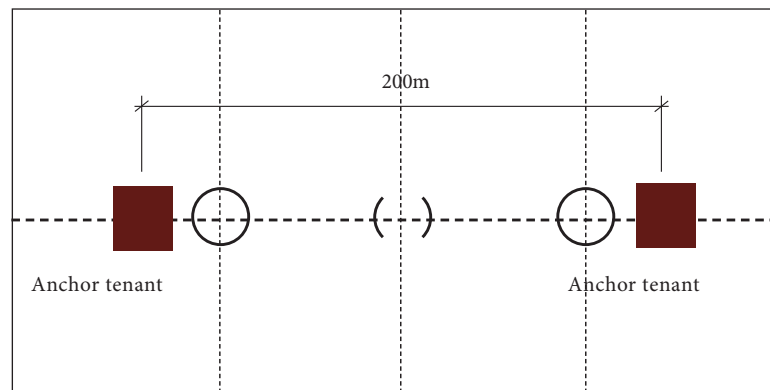


Fig. 2 Dumb-bell anchor structure. Adapted from (Maitland, 1985).

Structure of the centre

Clustered stores are more spatially efficient to move through than a lineal strip (Reimers & Clulow, 2004, p. 208). However, a clustered arrangement allows people to make short cuts to the stores they are aiming for. Gibbs suggests that “a good pedestrian route directs shoppers in a path that brings the greatest number of stores to clearest view and make it difficult for people to skip past” (Gibbs, 1992, p. 6). In this case the

lineal structure of neighbourhood centres is ideal for leading people to walk down one side of a street, cross over at the end of the retail strip and then walk down the opposite side, not missing anything along the way.

Nodes can either be purposefully designed within the structure of a retail centre, or develop naturally around a popular and busy store. Maitland defines nodes within retail centres as those locations which can re-orientate, distribute and hold users (Maitland, 1985). He notes that nodes are often planned where they connect to a secondary pathway. This is supported by Gibbs (1992), who suggests that nodes at central intersections are important for allowing people to orientate themselves. In malls these central nodes are often food courts (Gibbs, 1992; Maitland, 1985). More needs to be understood about the structure of neighbourhood centres in order to understand how such spaces could function within, and benefit, these centres.

Retail zones: Store compatibility & locations

Achieving the right tenant mix can increase rates of impulse shopping – reminding people of similar items they may need (Gibbs, 1992, p. 7). The right tenant mix can also improve retail convenience (Reimers & Clulow, 2004). Aligning similar product types can facilitate comparison shopping and enhance the efficiency of moving between shops. Providing an

appropriate range of retail types makes it easier for customers to one-stop shop, avoiding the need to travel elsewhere (Reimers & Clulow, 2004).

Table 2, adapted from Reimers and Clulow (2004) sets out the suitability of store types in different retail zones. Figure 3 illustrates the retail zones which exist within a lineal strip centre.

Restaurants benefit from any position with a view; these locations may be found throughout the centre and in the main square. In malls, these locations are often accessed after hours, and are often located at the periphery (Maitland, 1985) (Fong, 2005). In neighbourhood centres, dispersing these service types that are used later in the evening is a good way to maintain activity throughout the centre after hours, increasing natural surveillance. Cafes are assigned to the retail core as they provide a regular traffic flow for nearby stores. However, for supermarkets the need for consumers to carry bulky goods to parking locations dictates an intermediate location (Reimers & Clulow, 2004). Gibbs (1992) recommends service shops be located at the outer edges of a shopping district. “Examples include barber shops, shoes repairers, bakeries and dry cleaners. In this way, service shops can be easily reached by people coming from their cars or near residents on foot” (Gibbs, 1992, p. 7).

Retail concentration

Retail concentration refers to the spatial convenience and proximity between retail stores. “The geographic dispersal of stores increases the time and physical effort involved in

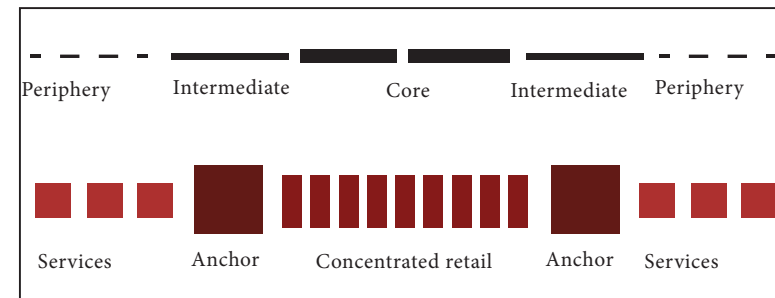


Fig. 3 A typical division of zones in a shopping strip. Adapted from (Reimers & Clulow, 2004).

shopping.” (Reimers & Clulow, 2004, p. 209). There are a number of key strategies for achieving retail concentration.

The first strategy considers the mix between retail and non-retail services. Ideally, non-retail services should not disrupt the retail strips, particularly the retail core. “Non-retail functions act as dead shopping space, deterring shoppers from proceeding along a strip.” (Kivell & Doidge, 1982).

The second aspect considers the length of the store frontage. Minimising the width of storefronts increases retail concentration, ultimately contributing to the convenience of

Table 2 Classification of zones for the shopping strip. Adapted from (Reimers & Clulow, 2004).

ZONE DEFINITION (Reimers & Clulow, 2004, p. 211)	STORE TYPES IN EACH ZONE (Reimers & Clulow, 2004, p. 211)	STORE TYPES IN EACH ZONE Adapted for neighbourhood centres according to research findings from comparative analysis (see appendix c)
RETAIL CORE: A concentrated retail zone where consumers are able to window shop easily.	Department stores Fashion stores Food service—cafe Prof. serv. (banks) Comm. serv. (post offices)	Fashion stores Food store—cafe Food store—restaurant Prof. services (banks) Community services (post offices) Homewares
DUAL ZONES: Core and Intermediate zones	Supermarkets Food sales and health Leisure products (shopping)	
INTERMEDIATE ZONES: These zones are at the edge of the retail core, within the service zone at the periphery	Homewares Food service—fast food Professional services (travel agents, optometrists) Consumer services (hair salons, shoe repairs)	Food sales and health Supermarkets
SERVICE PERIPHERY: A zone of stores that are most likely to be accessed by car or require the most efficient access. This zone is most suited to stores that do not require window shopping, those that people will deliberately visit for a required service.	Community services Consumer services Food service—restaurant Hardware/industrial/garden professional services	Consumer services (hair salons, shoe repairs) Professional services (travel agents, optometrists) Food service—fast food Food service—restaurants Hardware/industrial/garden professional services

the shopping (Gibbs, 1992). Gibbs believes that a “frontage of 30 feet without retail is enough to cause shoppers to stop in their task and turn around” (Gibbs, 1992, p. 6). A concentrated, active frontage is important to keep customers moving along the full length of the retail strip. By maintaining pedestrian traffic in front of all stores, more stores are viewed, thereby increasing the likelihood of impulse purchases. (Reimers & Clulow, 2004; Gibbs, 1992; Tauber, 1972).

Retail convenience: Visibility and Access

There is a limited ‘window of opportunity’ in which to grab a potential customer’s attention. In order to do this successfully, the store front visibility and design is critical (Gibbs, 1992). The challenge beyond attracting a customer’s attention is to get them into the store. A ‘non-committal zone’ where people can window shop and consider their purchases without pressure is important. This may be provided simply by overhead shelter outside of the shops, window-front (Maitland, 1985). An area of dedicated ‘spill space’, where shops can place displays or tables and chairs, can also help to blur the edge between the inside and outside of the store. (Llewelyn-Davies, 2000; Roger Evans Associates Ltd, 2007). Gibbs however warns that streetscapes can become cluttered with signage, furniture, street trees, canopies, lamp posts and rubbish bins. All of these objects impose themselves on pedestrian space affecting movement and visibility. He suggests that sight lines should

be carefully maintained to allow visibility of destinations and that street furniture should be well placed to ensure the route remains easy to move along (Gibbs, 1992). The pedestrian route and spill space should remain clearly defined where possible.

Store exposure and visibility is not only important to pedestrians using the centre, but also to passing traffic. “The sight of a store serves as a reminder to purchase needed items” (Tauber, 1972, p. 4). Gibbs makes the point that vehicles are vital to main streets, providing a constant exposure to storefronts and merchandise displays that ultimately leads to impulse and latent buying (Gibbs, 1992, p. 5).

Getting potential customers who are driving past to stop driving and begin shopping is a crucial transition. Making it convenient for people to park is therefore vital in gaining these potential customers. Thomas and Bromley note that “The enhancement for car-parking is a necessary facet of commercial regeneration if some of the car-borne trade is to be recaptured.” (Thomas & Bromley, 1995, p. 448) Interestingly Thomas and Bromley acknowledge that these parking requirements must be integrated with other schemes such as environmental enhancement and a consolidated store arrangement (Thomas & Bromley, 1995, p. 448). Simply providing parking without due consideration of its effect on

urban amenity is not acceptable. Parking is a significantly large function and therefore must be considered alongside other intentions.

2.4.4 Conclusion

Most of the concepts discussed above do not refer specifically to neighbourhood centres. However, the material is flexible enough to be translated into the context of neighbourhood centres. The points outlined above have contributed to a set of design criteria outlined at the end of this chapter.

The material was particularly thorough. It was often discussed in spatial terms and therefore translated well to design criteria.

2.4.5 Initial design criteria: retail convenience

1. Limit overall length of commercial area
2. Locate retail anchors in intermediate zone no further than 200m apart
3. Achieve retail concentration with retail zones
4. Provide some form of central orientation space
5. Provide sheltered browsing space
6. Maintain store signage visibility
7. Facilitate access from multiple modes of transport



2.5 ENHANCING URBAN AMENITY

2.5.1 Introduction

This section presents a summary of findings from a survey of urban design literature. Below is a brief definition of both urban design and urban amenity, followed by a comparison of key urban design principles from local, national and international sources. This chapter concludes with a discussion of these urban design principles before presenting them as a set of design criteria. As these principles are well accepted, only a summary of key sources are presented here.

2.5.2 Defining urban design

Urban design considers the “design of the buildings, places, spaces and networks that make up our towns and cities, and the people who use them” (Greater Christchurch: Urban Development Strategy, 2007). The British Urban Design Compendium (2000) outlines that urban design draws together the many strands of place-making, to create places of beauty and distinct identity (Llewelyn-Davies, 2000). The scales of urban design can vary from a “metropolitan region, city or town down to a street, public space to a single building.” (Greater Christchurch: Urban Development Strategy, 2007). Considered like this, urban design provides the tools and principles that can be worked together at multiple scales. They consider multiple aspects, such as open space, streets, buildings

and landscapes in order to create places of distinct identity.

2.5.3 Defining urban amenity

Urban amenity is defined by the New Zealand Ministry for the Environment as being “the things that people appreciate about their urban environment. An amenity can be a tangible thing, like a shopping centre or a park, and it can be an intangible thing, like a feeling of safety or sense of community.” (Ministry for the Environment, 2002) This research therefore aims to enhance the urban amenity of these centres, in order to foster an urban environment that is valued by its users as a desirable place to live, work and visit.

2.5.4 Urban design principles: survey of key sources

Below is a comparison of key urban design principles from three different sources. The right hand column presents a summary of these principles which will contribute to the initial urban amenity design criteria.

2.5.5 Understanding urban design principles

The design principles summarised in the right hand column are each discussed below. Firstly, the potential application of each principle is outlined. Secondly, these principles are considered with regard to (a) residential proximity and (b) retail convenience.

Table 3 Comparing urban design principles

THEMES	URBAN DEVELOPMENT STRATEGY (Greater Christchurch: Urban Development Strategy, 2007)	URBAN DESIGN PROTOCOL (Ministry for the Environment, 2005)	URBAN DESIGN COMPENDIUM 1 (Llewelyn-Davies, 2000)	SUMMARY
CONSOLIDATION AND DISPERSAL	Consolidation Considers development patterns and intensity. Enhance locations of intensity, to strengthen communities, business and public transport and achieve resource efficiencies			Enhance locations of intensity, to strengthen communities, business and public transport and achieve resource efficiencies
INTEGRATION AND CONNECTIVITY	Integration and connectivity Considers movement networks and building interfaces. Facilitates ease of access, economy of movement and improved social interaction	Connections Create safe, attractive, secure, navigable pathways and links between centres, landmarks and neighbourhoods with a priority for walking, cycling and public transport	Connections Visual and physical integration	Facilitate movement of pedestrians, cycles, buses, cars legibly and safely while achieving visual and physical integration
DIVERSITY AND ADAPTABILITY	Diversity and adaptability Provide a range of density, mix of uses and flexibility of buildings to respond efficiently to social needs	Choice Fosters diversity by offering people choice in urban form including densities, building types, transport options, and activities. Flexible and adaptable design provides for unforeseen uses	Mix use and forms Appeal to the widest possible range of users, amenities and social groups. Also weave together different building forms, uses, tenures and densities	Provide a range of density, building types, transport options and mix of uses with flexible and adaptable design to allow for unforeseen uses

CONTEXT		Context Recognises and builds on landscape, cultural, economic, built and historical context and character	Enrich the Existing Respond to and complement the setting	Acknowledge, understand and enhance the existing context, while ensuring it can evolve
LEGIBILITY AND IDENTITY	Legibility and identity Considers town form, visual character and special places to facilitate enhanced usage, enjoyment and pride in local place	Character Quality urban design reflects and enhances the distinctive character and culture of our urban environment, adding value to our towns and cities by increasing tourism, investment and community pride	Legibility and identity Considers town form; urban structure; visual character; special places	Enhance the distinctive character and culture of our urban environment, considering town form; urban structure; visual character; special places
PLACES FOR PEOPLE			Places for People Prioritise vibrant, safe places which provide opportunities both to socialise and to watch the world go by	Prioritise vibrant, safe places which provide opportunities both to socialise and to watch the world go by
ENVIRONMENTAL SUSTAINABILITY	Environmental responsiveness To promote urban environments that are responsive to natural features, ecosystems, water quality issues, reduced energy usage and waste production	Custodianship Reduce the environmental impacts of our towns and cities through environmentally sustainable and responsive design solutions. To promote a sense of ownership and responsibility in all residents and visitors	Work with the landscape Achieve a balance between the natural and man-made environment and maximize energy conservation and amenity	Reduce the environmental impacts of our towns and cities through environmentally sustainable and responsive design solutions to achieve a balance between the natural and man-made environment and maximize energy conservation and amenity

Consolidation and dispersal

Consolidation and dispersal considers the location of higher intensity development and how these locations fit together in the wider 'urban logic' of a city (Greater Christchurch: Urban Development Strategy, 2007). The purpose of this principle is to promote appropriate and legible areas of higher intensity development that can: promote the formation of communities, strengthen businesses and public transport, create resource efficiencies and protect peripheral areas from sprawling low density development (Greater Christchurch: Urban Development Strategy, 2007).

Within the City Plan, the CCC states that encouraging the consolidation of commercial activity, particularly retailing, at existing commercial centres is important for avoiding adverse effects from commercial activity in other unprepared locations (Christchurch City Council, 2005, p. 12.1.2). Consolidation needs to remain appropriate to the significance of the centre in the wider context of the city. Ideally these areas of consolidation would be logically dispersed to support one another and the central city (Christchurch City Council, 2005, p. 12.1.2).

Consolidation of housing at these commercial centres can contribute to the formation of larger communities that provide more people to support businesses. On a smaller scale,

consolidation of higher intensity living is also important for creating legible areas of intensification which do not disrupt the character of the surrounding low density areas.

Context

In order to "enrich the qualities of existing urban places," design responses must both derive from, and complement, the context (Roger Evans Associates Ltd, 2007). Context encompasses the cultural, economic, built, landscape and historical characteristics of a place. Enriching the existing context should strengthen the positive characteristics that make each place distinctive (Ministry for the Environment, 2005).

A solid contextual understanding is a vital starting point from which to create distinct communities with which residents can identify.

Legibility and identity

The principle of legibility promotes environments that are easily understood by their users, in terms of both navigation and identity (Greater Christchurch: Urban Development Strategy, 2007).

This understanding has much to do with the imageability of a place within its context. Strong imageability fosters a strong

identity. In order to provide a diverse range of destinations, town centres must be imbued with their own unique sub-character, each clearly distinct from one another.

This point is highly relevant to commercial environments. There are elements of the commercial context which suppress this distinctiveness – commercial imperatives tend to produce homogeneity. As noted previously, Grant, Human, & Le Pelley (2002) suggest that the “fragility and difficulty of achieving and maintaining local distinctiveness means that to possess it is considered an economic asset.” In order to remain competitive, this image and identity must be sustained and nurtured (Crewe & Lowe, 1995).

The Urban Design Compendium states that “the character and identity of a town centre will be rooted in its urban structure, and its patterns of movement and activity.” (Roger Evans Associates Ltd, 2007) Therefore it is important to look to the structure of a place, and not its surface appearance, as the first source of individuality. It is the structure, and our movement through it, which forms the framework for our experience of place.

Residential intensification can considerably disrupt the original grain and structure of a place (Vallance, 2003). Other

aspects of identity must therefore be strongly enhanced to surpass any disruption in structural identity that may occur.

Connectivity and integration

This principle aims to facilitate movement of pedestrians, cycles, buses and cars legibly and safely. Connections must be considered at multiple scales and modes. Connections can be both visual and physical (Greater Christchurch: Urban Development Strategy, 2007; Roger Evans Associates Ltd, 2007).

Streets and other thoroughfares should be treated as positive spaces with multiple functions (Ministry for the Environment, 2005). For these areas, consideration should be given to how street design can enhance and promote the sense of place (Roger Evans Associates Ltd, 2007). It is important to assess the movement pathways which different user groups will need. Providing suitable pathways between key destinations will also help to improve the convenience of the centre. A grid spacing of 80-100m provides an optimum network for pedestrian and vehicular needs in most circumstances (Llewelyn-Davies, 2000).

When designing these physical connections, it is important to consider how they can be used to integrate different land uses,

such as retail convenience and residential intensification, in mutually beneficial ways. Physical transport connections can give rise to a sense of integration between these two functions. This is explored in more detail in chapters 4.0 and 5.0.

Diversity

Diversity promotes a ‘diverse mix of compatible activities and uses.’ (Greater Christchurch: Urban Development Strategy, 2007). This concept is applicable in both residential and commercial aspects.

Diversity in residential types can attract a broader demographic. Different housing types will provide a range of living options that will appeal to different people.

In terms of the commercial aspect, Christchurch’s Urban Development Strategy notes that a range of different commercial building types is also important. Similar small building types will attract a similar type of commercial activity; therefore a range in commercial buildings is important for achieving a diverse mix of businesses. Interestingly, when considered alongside the retail zoning recommended by the retail convenience criteria, different building types can help to direct this diversity in order to achieve a more convenient tenant distribution.

Adaptability

This principle should be considered across a number of different scales and different forms. It considers how the urban environment can future proof itself for changes in the way we live, current trends that evolve at a faster pace, and infrastructural upgrades and maintenance.

In terms of infrastructure – how easily can services be accessed for maintenance or changes in technology? This has particular resonance with the residential and retail sectors as both are areas that change at a considerable pace. Living circumstances can often change, and retail is an inherently dynamic industry which must evolve to remain attractive.

Methods for achieving this design principle includes following the long life loose fit principle. It is important to ensure that when buildings, roads and open spaces are put together, they can also be taken apart. In terms of design it means preparing for potential changes in use. Changes in use can evolve frequently over the course of a day, or less frequently depending on the flexibility allowed for within the design.

Environmental sustainability

The primary aim of this principle is to reduce the environmental impacts of our towns and cities. The three main sources each suggest working with the natural systems

of a place. It is important to consider an urban environment's relationship to, and impact on, water quality, energy use and waste production. Good quality urban design should address these considerations. A major priority is not only the long term minimisation of environmental impacts but also the potential benefits and inherent pleasure of living in and visiting healthy, greener and thereby more attractive environments.

Places for people

This principle focuses on people as the ultimate beneficiaries of urban amenity; it deals with the creation of places where people want to spend time, as both residents and visitors. Vibrant places provide opportunities both to socialise and to watch the world go by (Gehl, 1986). This principle is vital if these centres are to appeal to residents and visitors as desirable destinations to shop, live and work. In terms of environmental sustainability, successfully designed places that remain well used will provide a high return on environmental investment.

2.5.6 Conclusion

The urban amenity principles were discussed in broad terms by the literature. Sourcing literature that discussed urban amenity in specific regards to neighbourhood centres was particularly difficult. The diagram in figure 4 illustrates the gap between the different scales of literature.

In order to consolidate the expansive material on urban design, this survey took the approach of directly comparing three different sources – local, national, and international.

The outcome is a summary of important urban design principles which often have meaning in various contexts. This discussion of the literature indicates that these principles are best understood not in isolation but by their potential to qualify interventions which satisfy the other research criteria.

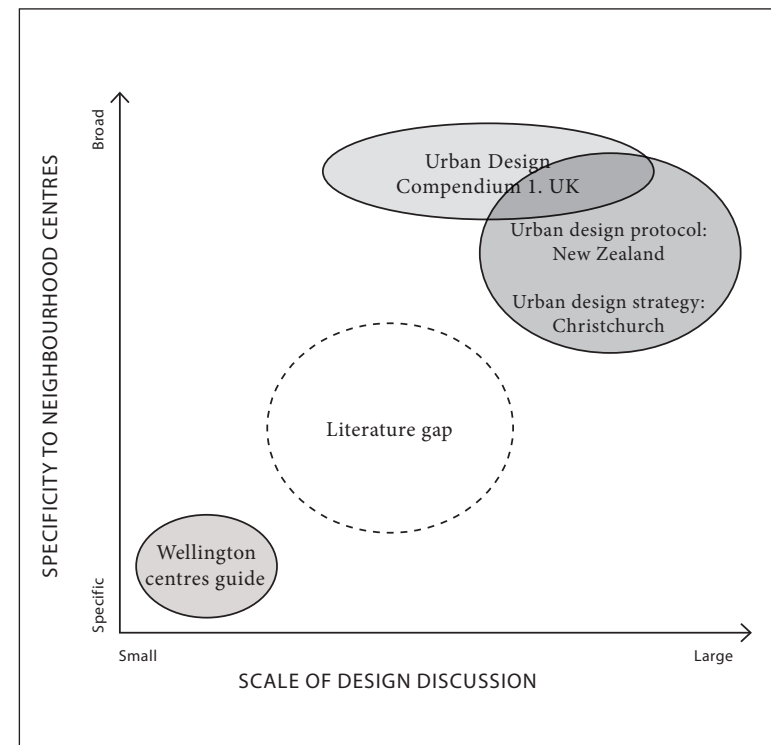


Fig. 4 Literature spread

2.5.7 Initial design criteria: urban amenity

1. Consolidation and dispersal: Consider development patterns and enhance locations of intensity
2. Consider context: Acknowledge and enhance existing context
3. Connectivity and integration: Facilitate movement of pedestrians, cycles, buses and cars legibly and safely
4. Achieve diversity: Provide for mixed use and a variety of building types
5. Design for adaptability: Future proof at all scales
6. Achieve legibility and identity: Enhance the legibility of existing character in order to create a distinct local identity
7. Provide places for people: Prioritise vibrant places to provide opportunities both to socialise and to watch the world go by
8. Environmental sustainability: Reduce the environmental impacts of our towns and cities by supporting or reinstating natural systems

2.6 CONCLUSION

Starting point for research.

The three topics of discussion are each elements of the shopping experience: (a) residential proximity, (b) retail convenience and (c) urban amenity. As experiential aspects, each translates well to a spatial context, and thereby has the potential to influence the success of neighbourhood centres through design.

The literature provided an outline of important principles contributing to an initial set of design criteria presented in table 4. This created an outline of necessary principles required to achieve these three research topics. The process of shaping the design criteria involved extracting the key principles from the literature, and communicating them as directly as possible.

Source material

There was very little discussion in the literature of the effects and benefits of improving retail convenience, and in fact none with specific regard to neighbourhood centres. Only one source specifically dealt with the spatial implications of retail convenience; to expand this section it was therefore necessary to draw from sources which concern larger shopping malls and retail environments.

There was an overwhelming amount of material about enhancing urban amenity and residential intensification. In this field, with such an established outline of best practice, it was necessary to limit the sources in order to better focus on the less discussed topic of retail convenience.

Interaction of three research themes

In order to thoroughly outline the different research themes, each was separately investigated within the literature. However, there was a notable overlap in the residential and urban amenity themes; any discussion of residential intensification inevitably went on to discuss the attendant requirements in terms of amenities. In order to create a set of design criteria which outlined the specific requirements for residential intensification, the overlapping urban amenity discussion was separated. The retail convenience literature, while thorough and comprehensive in its own considerations, was discussed in terms of its own benefits.

Most usefully, this led to the view that it is in the implementation of the residential proximity and retail convenience criteria that the urban amenity criteria can be fulfilled. Thereby, these three topics can enhance the quality of these centres for both residents and visitors, by addressing their commercial and residential aspects, in a way that strengthens their urban amenity.

Direct vs. Abstract criteria

Some criteria indicate more obvious design responses, such as ‘B.5a Provide sheltered browsing space’ and ‘B.6a Maintain store visibility.’ However, some criteria are more idealistic and abstract, such as ‘C.6a Strengthen legibility and identity: Enhance the legibility of existing character in order to create a distinct local identity’– these criteria need to be developed with further specific site knowledge.

As they are now, the criteria provide a useful outline of key literature findings. To develop a more specific design criteria, comparative analysis between three neighbourhood centres has been completed, and will be discussed in the following chapter.

Table 4 Initial Design Criteria from Literature Survey

LITERATURE REVIEW: DESIGN CRITERIA	
RESIDENTIAL PROXIMITY	A. 1a Provide for medium density living of between 30-66dph
	A. 2a Reconsider street structure if required in order to increase intensification and provide an optimum pedestrian and vehicular network
	A. 3a Design housing for maximum sunlight and energy efficiency
	A. 4a Design for both privacy and natural surveillance to ensure the safety of surrounding streets
	A. 5a Intensify near commercial areas to maximise the potential amenity value.
	A. 6a Provide a diversity of housing types
RETAIL CONVENIENCE	B. 1a Limit overall length of commercial area
	B. 2a Locate retail anchors in intermediate zone no further than 200m apart
	B. 3a Achieve retail concentration with retail zones
	B. 4a Provide some form of central orientation space
	B. 5a Sheltered browsing space
	B. 6a Maintain store visibility
	B. 7a Facilitate access from multiple modes of transport
URBAN AMENITY	C. 1a Consolidation and dispersal: Consider development patterns and enhance locations of intensity
	C. 2a Consider context: Acknowledge, and enhance existing context
	C. 3a Connectivity and integration: Facilitate movement of pedestrians, cycles, buses, cars legibly and safely.
	C. 4a Achieve diversity: Provide for mixed use and a variety of building types
	C. 5a Design for adaptability: Future proof at all scales
	C. 6a Strengthen legibility and identity: Enhance the legibility of existing character in order to create a distinct local identity
	C. 7a Provide places for people: Prioritise vibrant places to provide opportunities both to socialise and to watch the world go by.
	C. 8a Environmental sustainability: Reduce the environmental impacts of our towns and cities by supporting or reinstating natural systems



3.0

COMPARATIVE ANALYSIS

Three Christchurch neighbourhood centres

3.0 COMPARATIVE ANALYSIS

3.1 Introduction

This chapter outlines the comparative analysis completed between three neighbourhood centres. Particular attention is given to the key findings and how these have informed a number of amendments to the initial design criteria introduced in 2.0. The analysis used to produce these findings is presented in full in appendices a, b and c.

Comparative analysis was undertaken between three Christchurch neighbourhood centres in order to obtain a clear understanding of their residential, retail convenience and urban amenity characteristics. The analysis established which characteristics are typical of neighbourhood centres in general and which are specific to an individual site. The centres used in this study are Woolston to the east of Christchurch's central city, Richmond to the north and Addington to the southwest. All are described in Christchurch's City Plan as 'local centres'; Addington and Woolston are also defined as 'district centres,' indicating their wider appeal.

The analysis findings have informed a number of amendments to the initial design criteria. These amendments result in a set of design criteria that are more applicable and relevant to

Christchurch's neighbourhood centres, better responding to their residential, retail convenience and urban characteristics. Suggested amendments are discussed alongside related analysis.

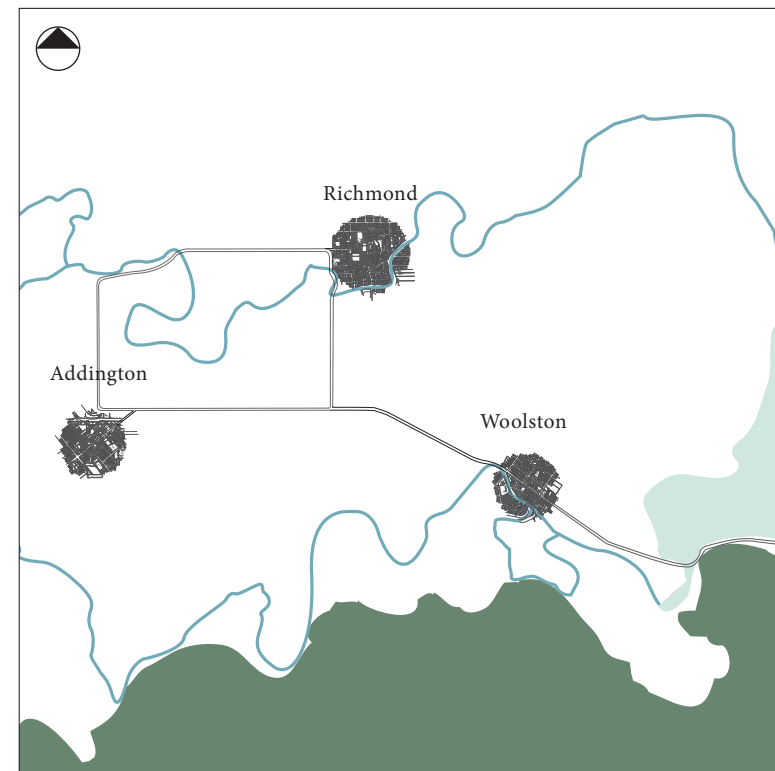


Fig. 5 Three Christchurch neighbourhood centres selected for comparative analysis



Fig. 6 Figure Ground Plan 400m radius around comparative analysis sites



Fig . 7 Lincoln Road, Addington.



Fig .8 Stanmore Road, Richmond



Fig . 9 Ferry Road, Woolston

Earthquake damage sustained in the September (2010) and February (2011) earthquakes has not been a part of this analysis; the patterns of each centre remain intact despite any damage. Buildings which have come down provide wider opportunities for development, which will be addressed in the design phase of this research.

3.2 Method

The maps and diagrams created for this analysis were directed by the literature survey. That is, the maps and diagrams produced are appropriate to the residential, retail convenience and urban amenity characteristics of these centres.

Most of the analysis focuses around the commercial centre. However, the relationship with, and the characteristics of, the surrounding residential context is still considered. The maps used have been constructed from cadastral and building footprint maps supplied by the Christchurch City Council. These cover a diameter of 400m; each map is orientated to the north.

3.3 Key findings from comparative analysis

There are a considerable number of recurring patterns within this analysis, indicating the similarities between these centres. These shared characteristics have been summarised in a series of diagrams, discussed in the following few pages. This

discussion also describes the ways in which these findings affected the initial design criteria. However, not all of the analysis findings have contributed to a criteria amendment. This occurred only when the analysis findings changed the initial understanding developed from the literature. The summary diagrams and discussion are divided into the three different themes for which they were assessed.

1. The urban amenity findings are presented first as these urban characteristics provide a useful overview.
2. The residential characteristics provide an overview of the current residential situation within and around the centres.
3. The retail convenience findings provide an understanding of how the commercial centres align with the principles of retail convenience as discussed in the literature.

Below is a list of the analysis material which informed these findings; each loosely aligns with the initial design criteria created in 2.0. The discussion of key findings follows.

Appendix A: Urban amenity

- Figure ground introduction
- Street hierarchy
- Building and land use
- Building heights
- Public transport and cycleways
- Building mass location on each site
- Gateways
- Parking spaces
- Green space

Appendix B: Residential characteristics

- Population densities
- Residential zoning

Appendix C: Retail Convenience

- Centre length
- Service types and parking locations
- Retail concentration:
 - Concentration of service types
 - Concentration and orientation
- Anchor tenants
- Footpath shelter

3.3.1 SUMMARY OF URBAN CHARACTERISTICS

Gateways

At both the beginning and end of the primary street there is a significant landmark building or physical characteristic, such as a river or perpendicular street, which creates a gateway or bookend. These definitive landmarks contain the image of these centres. The overall length of these centres is between 400m and 550m.

Amendment C.1b Define and communicate outer extends of centre, consolidate development within.

The length of these centres was somewhat staggering (between 400-550m long.) Identifying the boundary, celebrating and strengthening it, can help to bookend these centres and make them more legible. If the boundary is within the extents of the commercial zone, this can help to create a concentrated core, and clearer sequence of different spaces.

Green space, commercial areas & residential living

There was limited integration between commercial areas and public recreation space. This is a missed opportunity in terms of the potential amenity from an integrated relationship between commercial areas and green space. This limited interaction was also the same between residential areas and green space. Not only is it a missed opportunity for amenity

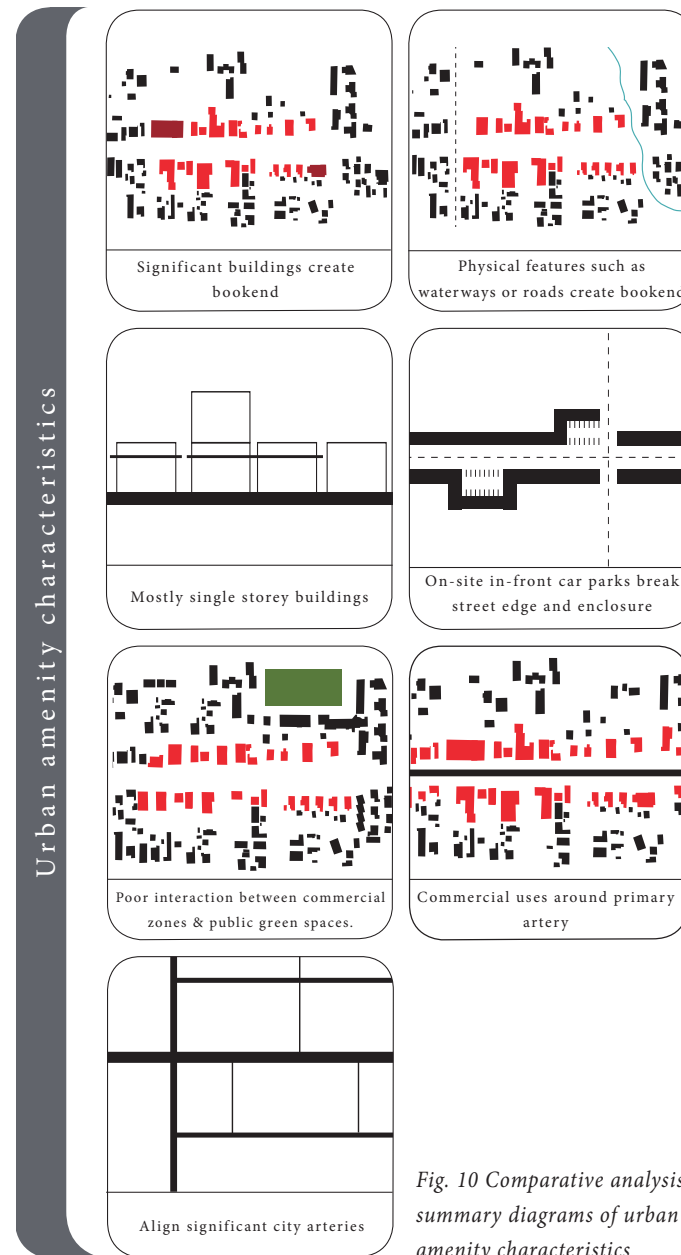


Fig. 10 Comparative analysis summary diagrams of urban amenity characteristics

but it also limits natural surveillance in the area. Requirements associated with commercial areas such as car parking, service areas and delivery zones can potentially have adverse effects on the quality of residential areas in terms of privacy, noise and security. Public recreational areas if not in regular use can also have issues surrounding safety and security.

Amendment C.3b Consider interface between residential areas, public recreation areas and commercial uses.

The mediation between different land uses needs to be handled in such a way that contributes value to the centre while also actively managing the safety and privacy of these areas.

Concentration of uses along the primary street

Each centre demonstrates a concentration of different land and building uses along the primary artery illustrating its prominence within the centre. These concentrated areas are primarily commercial and surrounded mostly by residential living with some schools, parks and churches nearby.

Street hierarchy & wider city connections

Two of the three centres align with significant city transport routes. This proximity to such a major connection indicates the dominance and importance of this street within each centre. This artery will likely have consequences in terms of the pace, safety and noise within the centre. However, it also provides

benefits in terms of visibility by creating a public face for the neighbourhood and advertising its services to people who pass through.

Few multi-storey buildings

There are few multi-storey buildings throughout these centres. Where they do exist they are often standing alone. This not only disrupts the street edge but also limits the level of built intensity along these primary streets.

Street edge disruption

The ‘pull in and park’ configurations that are evident in each of the centres are considerably disruptive, breaking what little street edge exists. These developments also creates areas of commercial concentration and intensity which are isolated from the rest of the centre (discussed in 3.3.3).

Amendment C.9b Define primary street with a strong built edge and an intensity of building heights.

To reflect the significance of the primary street within the street hierarchy, building heights should reflect this intensity of activity. The built edge should also contribute to a sense of enclosure and consistency.

3.3.2 SUMMARY OF RESIDENTIAL CHARACTERISTICS

Density and housing types

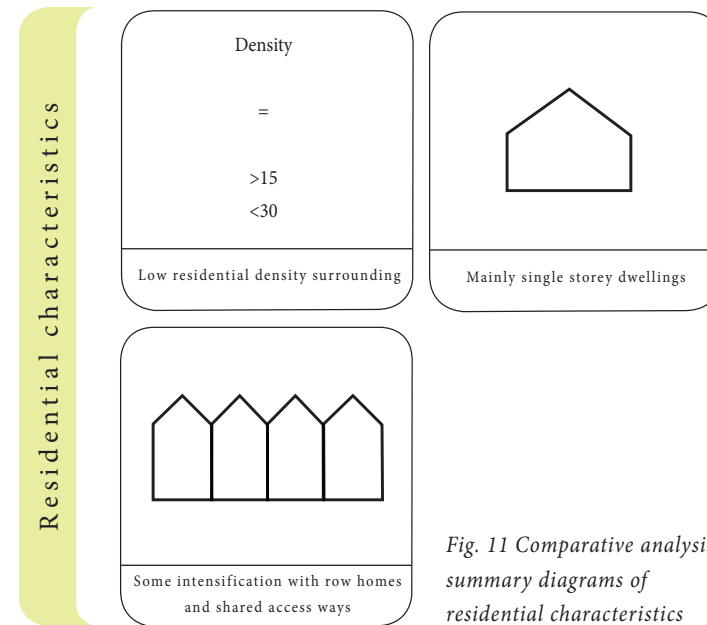
The residential density of each of these three areas are recorded between 15 and 30 dwellings per hectare. The majority of housing types are single storey dwellings, sitting just forward of half-way on the lot. Some residential intensification has occurred. In these instances, small single storey units or row homes have been developed with shared access. This intensification does not appear to follow any sort of location pattern and in some cases it causes considerable disruption to the surrounding suburban grain.

Amendment A.7b Incorporate intensification into existing built character

This amendment is informed by the strength and regularity of the surrounding low density suburban fabric. Intensification must acknowledge this context in order to maintain the existing suburban character.

Privacy

Privacy is mostly achieved with a front garden behind a low fence. Visibility between housing and public green space is limited, this reduces the natural surveillance and creates a formidable edge.



Amendment C.3b Consider interface between residential areas, public recreation areas and commercial uses.

Achieving privacy, safety and natural surveillance should be carefully considered near public spaces and commercial service areas which often abut residential areas (North Shore City Council, 2007).

3.3.3 SUMMARY OF RETAIL CONVENIENCE CHARACTERISTICS

Centre size and structure

As mentioned before in 3.3.1, the commercial zones are between 400m-550m long, a length far greater than what is considered convenient (Maitland, 1985). One way of increasing the concentration and thereby the convenience of shops is to cluster them around a fine network of streets (Reimers & Clulow, 2004). However, the finding across each of the three centres was that there is little or no commercial activity off the main thoroughfare. Where such activity exists, it is in the form of larger industrial commercial uses. This clearly illustrates the importance of main street visibility for these stores, and indicates that clustering stores in neighbourhood centres would not be sensible.

Amendment B.6b Ensure stores remain visible to main thoroughfare

According to Gibbs (1992) store visibility is very important for achieving retail convenience; in the context of neighbourhood centres, visibility to the main thoroughfare is a vital requirement.

Only one of the three centres provided any central structure. This structure, a large green space aligned with the primary street, provides a useful pause and gathering space the other

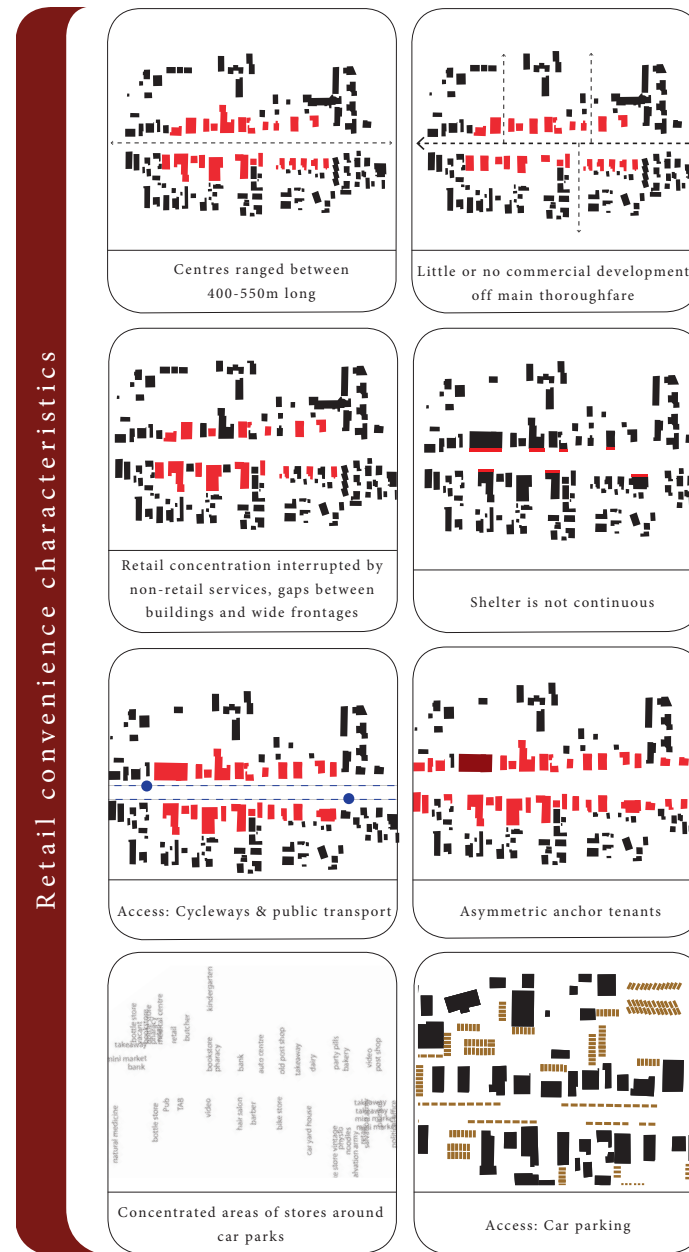


Fig. 12 Comparative analysis summary diagrams of retail convenience characteristics

centres do not.

Amendment B.4b Provide a central gathering space

This expands on the previous 'orientation space' criteria to create a central gathering space which allows visitors to orientate themselves, meet friends, pause along a commercial strip and provides space for larger gatherings.

Retail concentration

There are two methods for achieving retail concentration, and thereby retail convenience (refer to section 2.4 of the literature survey).

The first considers the width and proximity of stores. The wider the frontages, the fewer stores that will fit within a concentrated retail core, dispersing the window displays. The second aspect considers the non-retail services that exist. These services create 'dead space' (Reimers & Clulow, 2001), as they provide little in the way of ground floor interest. These principles of retail concentration were not evident in any of the three centres.

Anchors and movement

There are two different types of anchors within each of these centres which contribute to their overall structure and circulation. The first are single tenant anchors, such as a supermarket; the second is a concentration of stores, typically around a carpark. Two of these three centres have supermarkets; all three have concentrated

car park developments. Due to the range of stores within each configuration, and the available car parking, these areas provide one-stop destinations that do not encourage further walking to the rest of the centre. This concentration of stores would be better utilised along the length of the centre, creating a walking route.

In addition, most of the anchors are asymmetrically located. That is, one end of the centre has few enticements to encourage a reasonable number of people to walk the full length.

The pedestrian crossings and smaller destinations also contribute to the movement patterns within each centre.

Amendment B.2b Locate a second retail anchor

The analysis found that each of the centres has only one significant anchor tenant. However significant concentrations of stores create, in a sense, an anchor by attracting many people. To make more use of the centre as a whole, areas of concentration should be located in the middle of the centre, with anchor tenants in the intermediate zone. This structure is likely to facilitate more movement past the concentrated area in the centre.

Shelter

There is a general inconsistency of shelter space provided in front or around the main street stores. This inconsistency also disrupts pedestrian circulation.

Amendment B.5b Provide continuous sheltered browsing space

Shelter contributes to the convenience of shopping in all weather conditions while also facilitating a continuous retail pathway. The provision of shelter also has a significant effect on urban amenity and place making. Mehta and Bosson (2010) state that shelter is one of the primary characteristics of buildings considered to be 'third places.' Places where people can commune with friends, neighbours or even strangers, other than at home or the workplace (Mehta & Bosson, 2010).

Access

Each of these three locations provide cycle lanes and multiple bus stops. Interestingly the bus stops are often located near parks or open spaces; this means that people are often left standing with little services or activity around them. Parking is mainly available in large car parks (provided by an anchor tenant), on-street parallel parking or on-site in front of stores. The car parks are often busy, indicating the dominance of this transport mode.

Amendment B.7b Provide accessible car parking

Providing easy, convenient and accessible parking is vital for attracting potential customers passing through these centres. The strength of the street edge should be carefully considered when integrating car parking.

3.4 Conclusion

These analysis findings have contributed to new knowledge, not found in the literature, about residential, retail convenience and urban amenity characteristics of neighbourhood centres. The analysis discussed above defined which characteristics of neighbourhood centres are shared, and those which are unique to an individual centre.

A critical finding of this analysis is that despite these shared characteristics identified by this research, it is the configuration of the underlying spatial structure (such as public recreation areas, side streets, natural features, and landmark buildings) that helps to differentiate these neighbourhood centres and contribute to their individual distinctiveness.

In understanding the residential, retail convenience and urban amenity characteristics of neighbourhood centres, nine amendments have been made to the initial set of design criteria presented in table 4. The amendments use the comparative analysis findings, to realign the initial design criteria with the characteristics of neighbourhood centres. To further relate the literature to the specifics of neighbourhood centres, the following chapter analyses the site of Woolston in more detail.

Table 5 Amended Design Criteria from comparative analysis of three Christchurch neighbourhood centres

	LITERATURE REVIEW: DESIGN CRITERIA	COMPARATIVE ANALYSIS: AMENDED CRITERIA
RESIDENTIAL PROXIMITY	A. 1a Provide for medium density living of between 30-66dph	
	A. 2a Reconsider street structure if required in order to increase intensification and provide an optimum pedestrian and vehicular network	
	A. 3a Design housing for maximum sunlight and energy efficiency	
	A. 4a Design for both privacy and natural surveillance to ensure the safety of surrounding streets	
	A. 5a Intensify near commercial areas to maximise the potential amenity value.	
	A. 6a Provide a diversity of housing types	
		A. 7b Incorporate intensification into existing built character
RETAIL CONVENIENCE	B. 1a Limit overall length of commercial area	
	B. 2a Locate retail anchors in intermediate zone no further than 200m apart	B. 2b Locate a second retail anchor
	B. 3a Achieve retail concentration with retail zones	
	B. 4a Provide some form of central orientation space	B. 4b Provide a central gathering space
	B. 5a Sheltered browsing space	B. 5b Provide continuous sheltered browsing space
	B. 6a Maintain store visibility	B. 6b Ensure stores remain visible to main thoroughfare
	B. 7a Facilitate access from multiple modes of transport	
		B. 7b Provide accessible car parking
URBAN AMENITY	C. 1a Consolidation and dispersal: Consider development patterns and enhance locations of intensity	C. 1b Define and communicate outer extends of centre, consolidate development within.
	C. 2a Consider context: Acknowledge, and enhance existing context	
	C. 3a Connectivity and integration: Facilitate movement of pedestrians, cycles, buses, cars legibly and safely.	
		C. 3b Consider interface between residential areas, public recreation areas and commercial uses.
	C. 4a Achieve diversity: Provide for mixed use and a variety of building types	
	C. 5a Design for adaptability: Future proof at all scales	
	C. 6a Strengthen legibility and identity: Enhance the legibility of existing character in order to create a distinct local identity	
	C. 7a Provide places for people: Prioritise vibrant places to provide opportunities both to socialise and to watch the world go by.	
	C. 8a Environmental sustainability: Reduce the environmental impacts of our towns and cities by supporting or reinstating natural systems	
		C. 9b Define primary street with a strong built edge



4.0

SITE ANALYSIS

Woolston

4.0 SITE ANALYSIS

4.1 Introduction

This chapter expands on the analysis presented in 3.0 by focusing specifically on Woolston. This site analysis is in preparation for the design case study in 5.0. What follows below is a brief introduction to the suburb of Woolston, outlining the neighbourhood's history and current situation. From here, graphic site analysis is presented and the key findings are discussed in turn. These findings indicate important issues and opportunities within this centre which have informed a number of further amendments to the general design criteria. These findings also contribute to a set of criteria specifically for Woolston, effectively providing a design brief for the following research phase.

A range of mapping studies and multiple site visits informed the analysis. This is communicated using diagrams and photographs; the structure loosely follows the urban design principles identified in the literature survey in section 2.5.

4.2 Site description

Woolston village is a neighbourhood centre on the south-east of Christchurch's CBD. Christchurch is a city of approximately 350,000 people (Statistics New Zealand, 2006), located on the

east coast of the South Island in the Canterbury region. In 1850 the original city planning laid down a formal gridded street pattern bound by four avenues: Bealey, Fitzgerald, Moorhouse and Rolleston (Christchurch City Council, 2005).

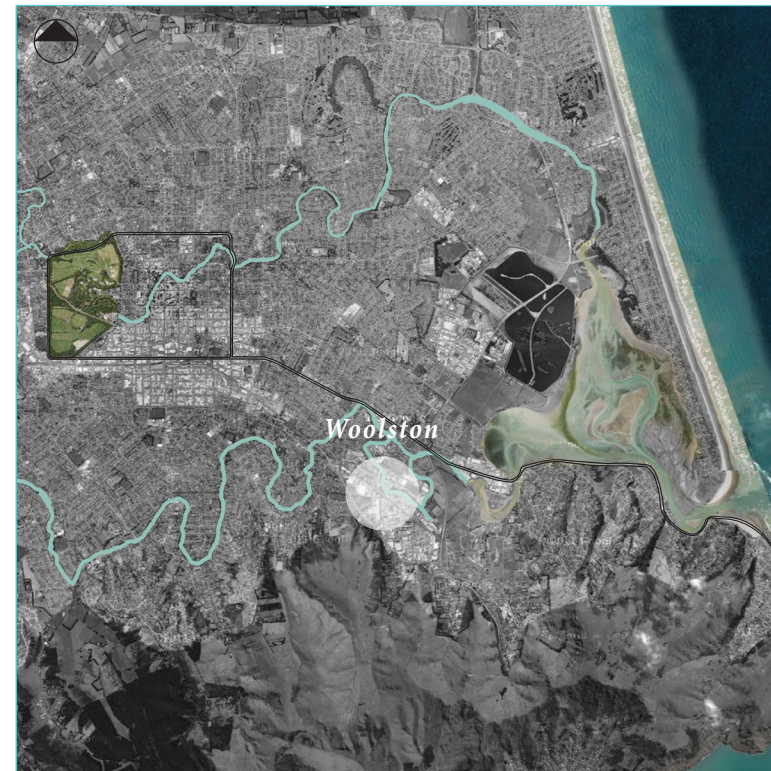


Fig. 13 Aerial view of Woolston study area and surrounds. Ferry Road connects the central city avenues to Sumner and Scarborough beach suburbs



Fig. 14 Ferry Road artery 1928



Fig. 15 Woolston emporium 1885



Fig. 16 Worker's housing



Fig. 17 The Nugget factory built in 1924

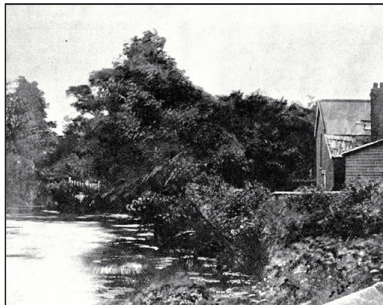


Fig. 18 Heathcote River

Old Christchurch Quay was built in 1851. It was also known as Montgomery's Wharf and was the first to be built on the Heathcote River. Before the opening of the Lyttelton Tunnel, this was one of the wharves where merchandise landed after being brought up the Heathcote River from Lyttelton.

Woolston's commercial centre aligns with Ferry Road, a significant city artery that connects Moorehouse Avenue to the beach suburbs.

4.2.1 History

Woolston suburb was established in the 1850s as Christchurch's first industrial suburb (Christchurch City Council, 2009). Its proximity to the Heathcote River contributed to this early concentration of industries. "Water was available and the river was a convenient 'sewer' for the disposal of liquid industrial wastes." (Opus International Consultants Limited, 2005, p. 13). Tanneries, brickworks, fish processors and many other industries caused severe pollution to the lower river. (Christchurch City Council, 2011).

"In 1873 there were seven wool scours and five tanneries on the lower Heathcote; by 1883 there were 11 of each. Subsequently, other industries gravitated to the Woolston area, notably a large gelatine and glue works and a rubber factory. The founding of Para Rubber, followed by the establishment of the Latex, Marathon and Empire factories." (Opus International Consultants Limited, 2005, p. 13).

With the development of the Ferry Road tram line, Woolston was a convenient stop for those travelling to the Sumner and Scarborough beaches. The tram line also contributed to

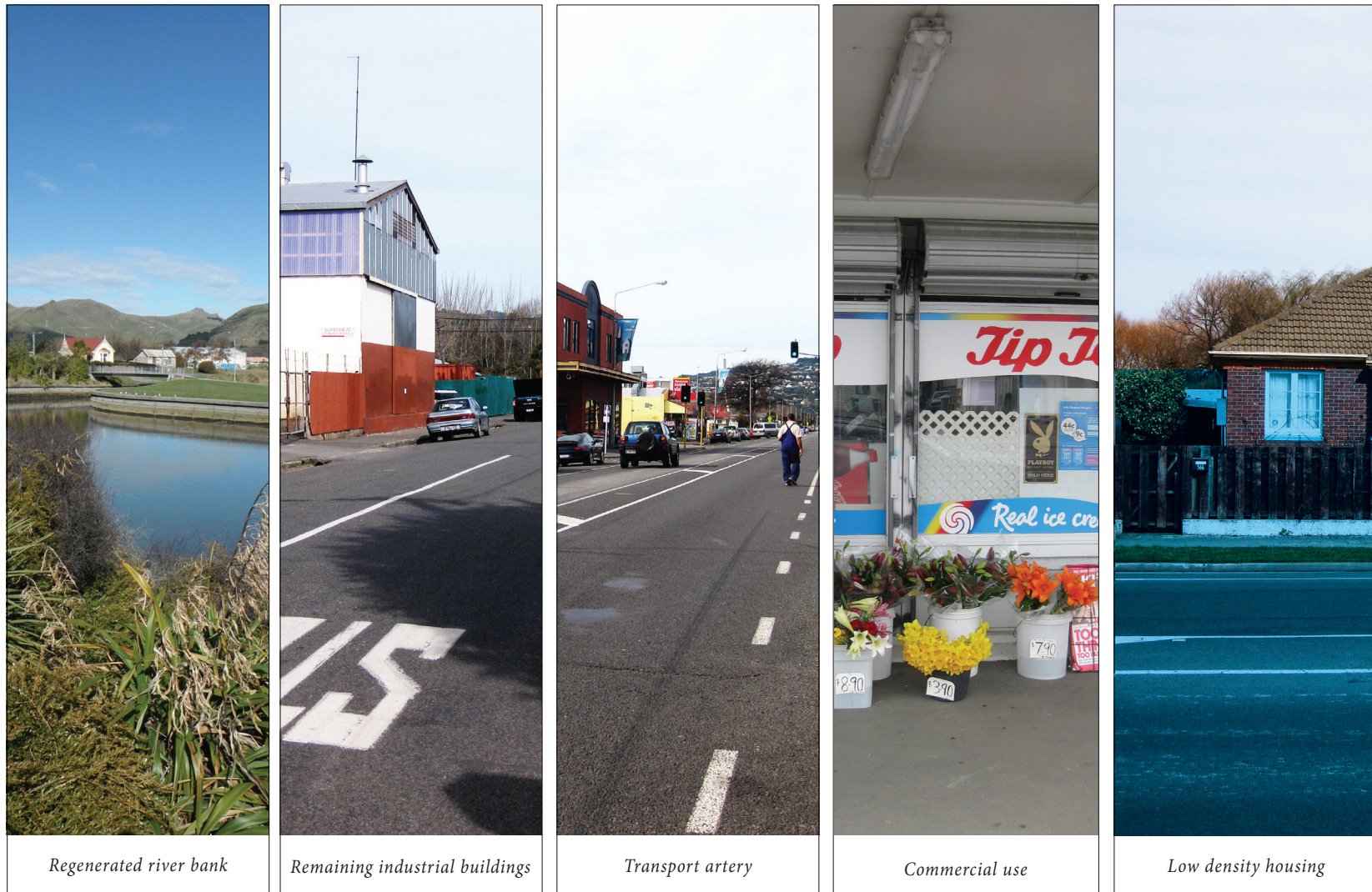


Fig. 19 Woolston's significant features

residential development and commercial growth, providing a connection for those residents who worked in the central city (Christchurch City Council, 2009).

4.2.2 Situation today

Today, ‘Woolston village’, as it is still called, extends along 450m of Ferry Road. This road remains an important city artery. The most significant retail centres nearby are Eastgate Mall, a medium-sized mall to the north and the Ferrymead ‘big box’ centre to the east.

Minimal intensification within Woolston means that many of the original suburban plot lines remain visible (Christchurch City Council, 2009). However, only a few remnants of the original industrial buildings remain. Extensive native planting along the river banks has regenerated much of this river area. Parts of this river stretch are regarded as among the few places in Christchurch which appear as it might have looked before European settlement (Christchurch City Council, 2009).

Census data

The mesh block areas used for the 2006 census divides the commercial centre in two along Ferry Road. The census information is therefore not gathered for the ‘centre’, but rather for the two separate halves. The statistics of each mesh block were mostly consistent across the north and south of Ferry

Road. Around 10 percent of households in both Woolston South and Ferrymead (the two mesh block zones) have no access to a vehicle, compared with around 6 percent in the Canterbury region. This indicates a higher percentage of people in Woolston are dependent on their local centre than in other suburbs.

4.3 Site analysis: diagrams and discussion

What follows is a discussion of key findings from the graphic site analysis; the discussion includes ways in which these findings have influenced, added to, and amended the initial design criteria. The set of design criteria specifically for Woolston is presented separately at the end of this chapter.

4.3.1 Existing zoning

Within a 400m radius there are three different living zones (Refer to section 2.3 for a full definition of these zones). Woolston ‘centre’ has a dwelling density of 11.2 compared with an overall city average of 10.4 in 2001 (Howland, 2004). This net centre density is averaged across living zones one, two and three.

There are three business zones. ‘B1 Local centre/Distinct centre fringe’, is dominated by small-scale retail shops and service activities, and characterised by a “strip” development of shops immediately adjoining road frontages (Christchurch



Fig. 20 400m radius Figure Ground Plan of Woolston & Heathcote River

City Council, 2005, p. 1.4). ‘B2 zones or District centre core’ will most often include a variety of small retail, community and service activities, and usually include a supermarket. ‘Business 4 (Suburban Industrial) Zone’ allows for light industrial use, including some commercial activity and limited retailing. This zone “often serves as a buffer between residential and the general industrial areas.” (Christchurch City Council, 2005, p. 1.1).

4.3.2 Selected area for intensification

It is the existing medium density L3 living zones and the B4 suburban industrial zones that will be intensified as part of the design scheme in 5.0. These areas have been selected for intensification as they offer better prospects because of their proximity to the riverfront and commercial strip, and their rectilinear street forms.

To the south east of Woolston there is a larger precinct of industrial buildings near the railway line. Consolidating industrial uses here, this would open up the river front for residential development that is well connected to green space, public transport, and nearby commercial services. At the time of this decision, in June of 2011, three of the eight factories in the B4 zone were vacant and for sale.

The low density living areas present a complex situation of

large blocks, rights-of-way and cul-de-sacs. Intensification will instead be concentrated within the L3 and B4 zones discussed above. Here, the rectilinear street structure means the research priorities can be addressed without the site-specific complications of the surrounding low density areas.

4.3.3 Buildings and land use

There are clear distinctions between various land uses throughout Woolston. The different concentrations of use create small ‘precincts’. The community and commercial facilities generate an increase in activity to the north of Ferry Road, while the significant recreational amenity at the riverfront is to the south. Connecting with this river front is an important opportunity to increase the urban amenity of Woolston.

Due to the concentration of car parks, roading and industrial areas, there is a considerable amount of hard surfacing within Woolston. Green space is mostly in public pockets or on private land.

Amendment C.1c Reduce and treat runoff pollutants from hard surfaces in natural systems

Locating storm water treatment within this centre would be an efficient use of this infrastructure, dealing with the concentration of hard surfacing.

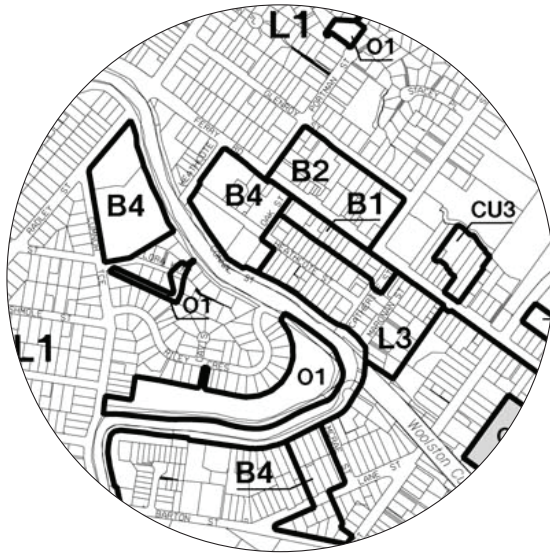


Fig. 21 Council zoning



Fig. 22 Existing building & land use diagram



Fig. 23 Existing Street Hierarchy

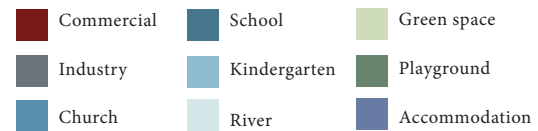




Fig. 24 Edge conditions within Woolston

4.3.4 Edge conditions between uses

The images featured here in figure 24 illustrate a number of edge conditions between buildings and land uses. These examples indicate the strength of these separations, creating some significant barriers within the site.

4.3.5 Movement and connections

As in most neighbourhood centres, the commercial centre in Woolston aligns with the primary street. One of the most significant urban characteristics is the strength of this axis, contributing to a structure that aids thoroughfare.

Amendment C.4c Create a sequence of spaces

If the primary street is to facilitate public life and provide destinations, it becomes important to break this lineal structure of the primary street down into a more workable sequence of spaces which hold and contain people, and are less about movement.

Most of the street connections within Woolston are aligned to the east west axis, illustrated in fig 23, limiting permeability between the river and commercial centre.

4.3.6 Barriers

Ferry Road is a significant city artery, demonstrated by the considerable traffic flow through the centre. Though this artery supplies many customers to the centre, it also creates a significant barrier. It limits pedestrian movement across, and contributes significant noise and air pollution. There are a number of other significant barriers within Woolston which affect movement within the centre. These include the limited river crossings, the cul-de-sacs, the 200m long suburban



Fig. 25 800m radius Figure Ground Plan of Woolston & Heathcote River

blocks, and the large car parks. These create large expanses of open space that do little to direct any clear connections or provide a built street edge. In addition, the industrial buildings create a number of spaces along the river's edge with little natural surveillance. This inhibits safe movement within these parts of the centre. Removing these barriers and creating efficient, safe and pleasant routes through the centre will contribute to the convenience and amenity value for both local residents and visitors.

Amendment C. 3c Manage traffic speed on main thoroughfare

The considerable traffic flow along Ferry Road needs to be managed in such a way that creates a safe and pleasant pedestrian environment, without encouraging the traffic to move elsewhere.

Amendment B. 1c Provide car parking solutions that contribute to both retail convenience and urban amenity

The existing large format car parks cover significant expanses of open space. By creating a network of parking 'routes' these will not only free up large blocks of land but also provide more permeability within the centre and act as a buffer between uses. It is important that the car park spaces offer more than just convenient parking.

4.3.7 Multi modal connections

As mentioned in the comparative analysis, Woolston benefits from both public transport and cycleways. The cycleways are in the form of painted lines that define zones for cyclists on the road. These are on the inner edge of the parked cars, putting cyclists between both stationary and moving vehicles. The bus stops are located at the periphery of the centre where there is more space for manoeuvring and stopping.

4.3.8 Legibility and identity

As discussed in the previous chapter, it is the underlying structural features which differentiate one centre from the next. In the case of Woolston, these features include the Heathcote River and its relationship to Ferry Road. The industrial site history also contributes significantly to the character of the centre. The most physical manifestations of this character are the remaining industrial buildings, which provide sizeable landmarks within the centre. Prominent among these are the two brick factories at either end of Ferry Road, which 'bookend' the centre. Celebrating and enhancing these structural features is an important opportunity to enhance the distinctiveness of Woolston.

4.3.9 Diversity

There is a vast range of sizes, scales, colours, heights and signage along Ferry Road. This diverse appearance was also



Fig. 26 Building variety aligning Ferry Road

noted in the comparative analysis. Diversity in building forms, materials, scales, spaces, planting and uses contribute to the variety of Woolston. Most notably, different building types are conducive to different activities, providing an important tool for directing the location of different land and building uses. Configuring a diverse range of building types can, in a sense, direct uses to create different precincts.

4.4 Conclusion

The site analysis discussed above highlighted the urban issues and opportunities for Woolston centre. The site analysis presented findings that relate not only to Woolston specifically, but also to neighbourhood centres more generally (this is understood through the previous stage of research, examining multiple centres).

The site analysis findings have been summarised in two different sets of design criteria. The first, aimed at neighbourhood centres in general, is presented in table 6. The second, specifically for Woolston, is presented in table 7 (see Appendix D). This criteria acts as a design brief for the development of Woolston, stating the site specific issues and opportunities in relation to the research themes of: (a) residential proximity, (b) retail convenience and (c) urban amenity. These issues are to be addressed and resolved through design, at the scale of both a master plan and building. This design case study is presented in the following chapter.

Table 6 Amended Design Criteria from Woolston site analysis

	LITERATURE REVIEW: DESIGN CRITERIA	COMPARATIVE ANALYSIS: AMENDED CRITERIA	SITE ANALYSIS: AMENDED CRITERIA
RESIDENTIAL PROXIMITY	<div>A. 1a</div> <div>Provide for medium density living of between 30-66dph</div> <div>A. 2a</div> <div>Reconsider street structure if required in order to increase intensification and provide an optimum pedestrian and vehicular network</div> <div>A. 3a</div> <div>Design housing for maximum sunlight and energy efficiency</div> <div>A. 4a</div> <div>Design for both privacy and natural surveillance to ensure the safety of surrounding streets</div> <div>A. 5a</div> <div>Intensify near commercial areas to maximise the potential amenity value.</div> <div>A. 6a</div> <div>Provide a diversity of housing types</div>	<div>A. 7b</div> <div>Incorporate intensification into existing built character</div>	
RETAIL CONVENIENCE	<div>B. 1a</div> <div>Limit overall length of commercial area</div> <div>B. 2a</div> <div>Locate retail anchors in intermediate zone no further than 200m apart</div> <div>B. 3a</div> <div>Achieve retail concentration with retail zones</div> <div>B. 4a</div> <div>Provide some form of central orientation space</div> <div>B. 5a</div> <div>Sheltered browsing space</div> <div>B. 6a</div> <div>Maintain store visibility</div> <div>B. 7a</div> <div>Facilitate access from multiple modes of transport</div>	<div>B. 2b</div> <div>Locate a second retail anchor</div> <div>B. 4b</div> <div>Provide a central gathering space</div> <div>B. 5b</div> <div>Provide continuous sheltered browsing space</div> <div>B. 6b</div> <div>Ensure stores remain visible to main thoroughfare</div> <div>B. 7b</div> <div>Provide accessible car parking</div>	<div>B. 7c</div> <div>Create car parking solutions that contribute to both retail convenience and urban amenity</div>
URBAN AMENITY	<div>C. 1a</div> <div>Consolidation and dispersal: Consider development patterns and enhance locations of intensity</div> <div>C. 2a</div> <div>Consider context: Acknowledge, and enhance existing context</div> <div>C. 3a</div> <div>Connectivity and integration: Facilitate movement of pedestrians, cycles, buses, cars legibly and safely.</div> <div>C. 4a</div> <div>Achieve diversity: Provide for mixed use and a variety of building types</div> <div>C. 5a</div> <div>Design for adaptability: Future proof at all scales</div> <div>C. 6a</div> <div>Strengthen legibility and identity: Enhance the legibility of existing character in order to create a distinct local identity</div> <div>C. 7a</div> <div>Provide places for people: Prioritise vibrant places to provide opportunities both to socialise and to watch the world go by.</div> <div>C. 8a</div> <div>Environmental sustainability: Reduce the environmental impacts of our towns and cities by supporting or reinstating natural systems</div>	<div>C. 1b</div> <div>Define and communicate outer extends of centre, consolidate development within.</div> <div>C. 3b</div> <div>Consider interface between residential areas, public recreation areas and commercial uses.</div> <div>C. 9b</div> <div>Define primary street with a strong built edge</div>	<div>C. 3c</div> <div>Manage traffic speed on main thoroughfare</div> <div>C. 4c</div> <div>Create a sequence of distinct spaces</div> <div>C. 8c</div> <div>Reduce and treat runoff pollutants from hard surfaces in natural systems</div>



5.0

DESIGN CASE STUDY

Master plan & building design

5.0 DESIGN CASE STUDY

5.1 INTRODUCTION

This chapter presents a master plan and building design for Woolston. These designs respond to the design criteria developed throughout sections 2.0, 3.0 and 4.0. This chapter first discusses the key design moves which inform the overall structure of the centre; it then concentrates on four key spaces, one of which is the site for the building design. This discussion is structured by key design moves, developed in response to the design criteria.

This master plan proposes a framework to structure future development. It utilises the existing urban structure of Woolston to develop a number of features in response to the completed set of design criteria. At the scale of a master plan, the design can focus on the urban characteristics found in multiple sites, ensuring the design research outcome remains applicable elsewhere.

Both the September (2010) and February (2011) Christchurch earthquakes caused considerable damage to Woolston's commercial centre and river front areas. The empty sections that resulted from this damage present an opportunity to address how Woolston, and other centres, may develop in the

future, as the rebuilding begins. The demolished buildings, and land requiring further assessment create a dynamic context for the next phase of research (see fig. 25).

The design context (see fig. 26) being considered for this master plan is within a 400m radius area. However, it will become clear throughout the design discussion that particular areas around the commercial axis, riverfront, L3 and B4 zones, are the primary locations of design investigation.

A number of existing buildings are to be incorporated into the design scheme (see fig. 26). There are various reasons for these choices, mainly to do with the age, significance and location of each building. It is important to note that these are not the only buildings that will remain. These are in prominent locations and will therefore contribute to the structural make up of the master plan. This scheme is not about redesigning from scratch, rather, working with the existing site conditions.



Fig. 27 Woolston prior to the September (2010) & February (2011) earthquakes

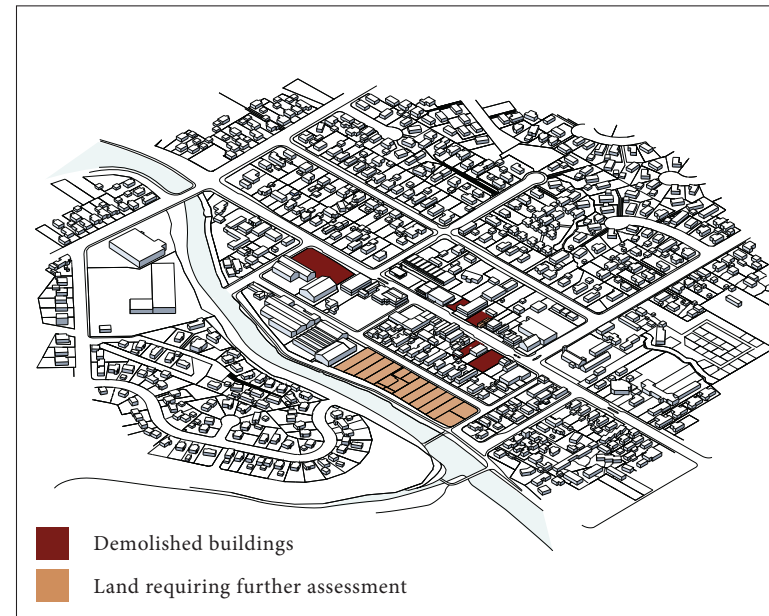


Fig. 28 Woolston after the September (2010) & February (2011) earthquakes
(Canterbury Earthquake Recovery Authority, 2011)

5.2 MASTER PLAN: KEY DESIGN MOVES

5.2.1 Strengthen gateways

The first key move is to re-establish and strengthen the gateway buildings that originally identified the edges of Woolston's commercial centre (refer to appendix C fig.1). Two industrial brick factories, as a pair, provided 'bookends' to Woolston. The larger of the two, the Nugget Factory building, created the western gateway; this occupied the large site identified in fig. 30. The factory was demolished after the earthquakes. Its counterpart, a small industrial factory, defines the eastern edge of the centre; in recent times it has been used as a smokehouse and restaurant.

Strengthening and re-establishing these gateway sites is an initial design move in order to identify the boundary of Woolston centre within the surrounding city.

A new building will be designed for the old Nugget Factory site to re-establish the western gateway. This design is discussed in section 5.6. For the eastern edge, it is important that any development alongside the small factory complements this significant building in order to strengthen the gateway.

5.2.2 Allocate retail zones

To enhance the convenience of using the commercial centre, it is critical to provide a concentrated retail core and an accessible service zone. The literature findings presented in table 2, and discussed in section 2.4.3, have informed the location of three different retail zones outlined below.

1. A concentrated retail core ideal for window shopping
2. At the edge of this concentrated core and no further than 200m apart will be two anchor tenants (Maitland, 1985)
3. Service stores at the periphery of the centres, that require efficient access (Reimers & Clulow, 2004)

The anchor tenant to the east is the existing supermarket, while a second anchor tenant will be located on the old Nugget factory site.

One of the most crucial moves for creating retail convenience is to reduce the distance between these anchors by strengthening the prominence of their inner edges. At their outer extents, they are over 300m apart, while at their inner edges these stores are 220m apart. These edges will therefore be strengthened with laneways and activity nodes, providing space for bus stops, people-watching and socialising and defined with planting and different paving.

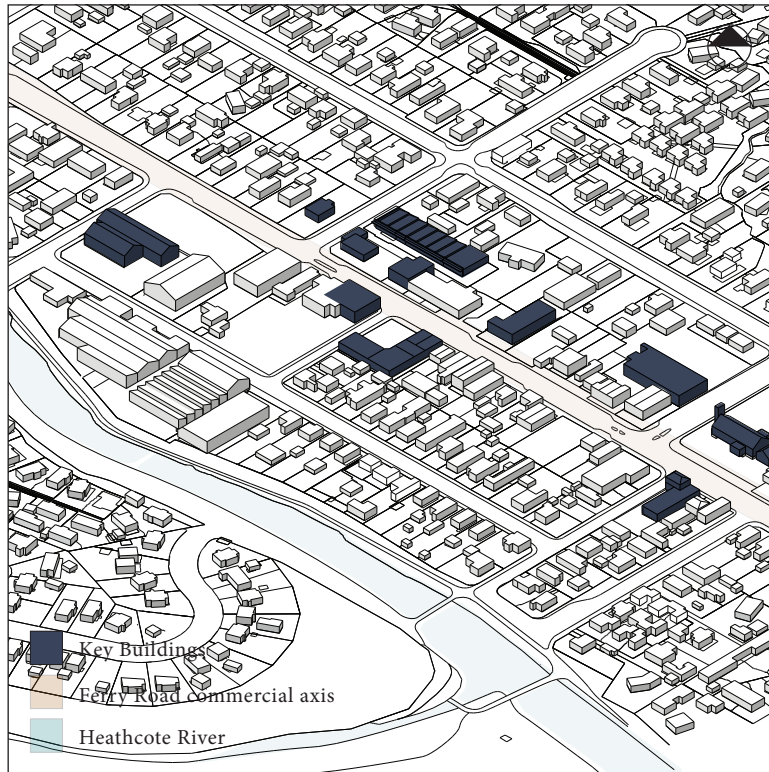


Fig. 29 Key buildings to incorporate

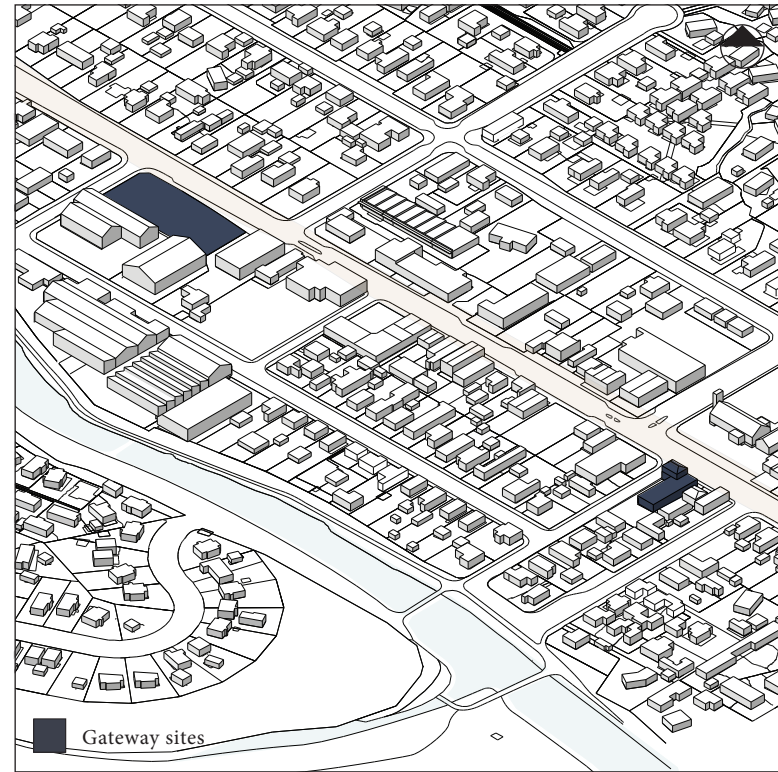


Fig. 30 Existing site with gateway locations

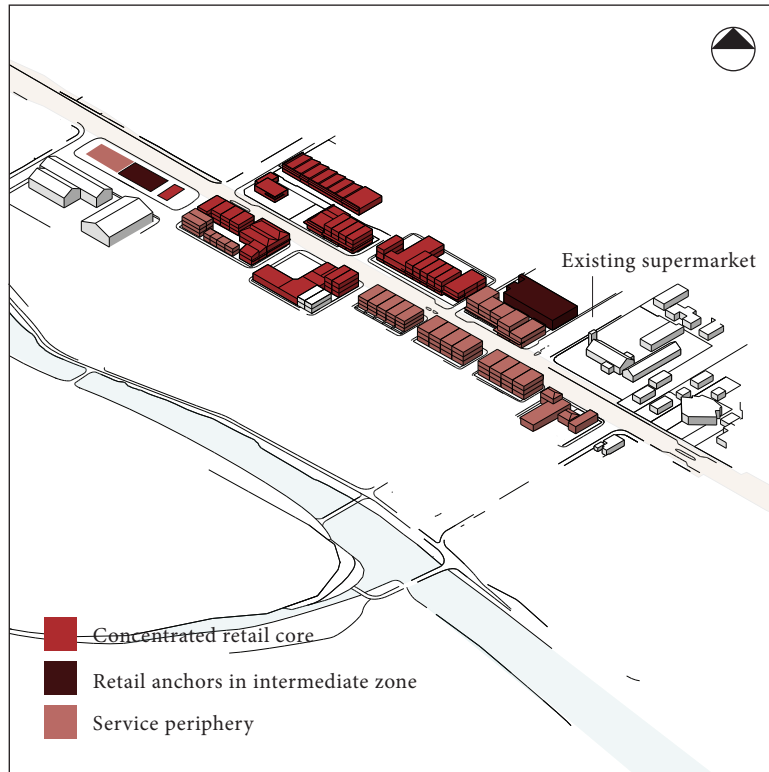


Fig. 31 Retail zones and according intensification

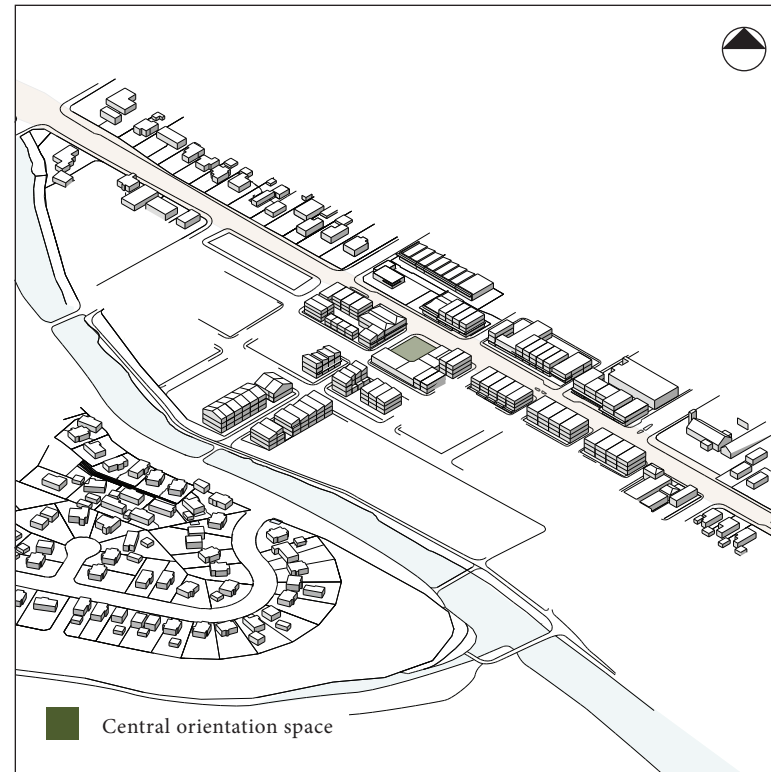


Fig. 32 Central orientation space

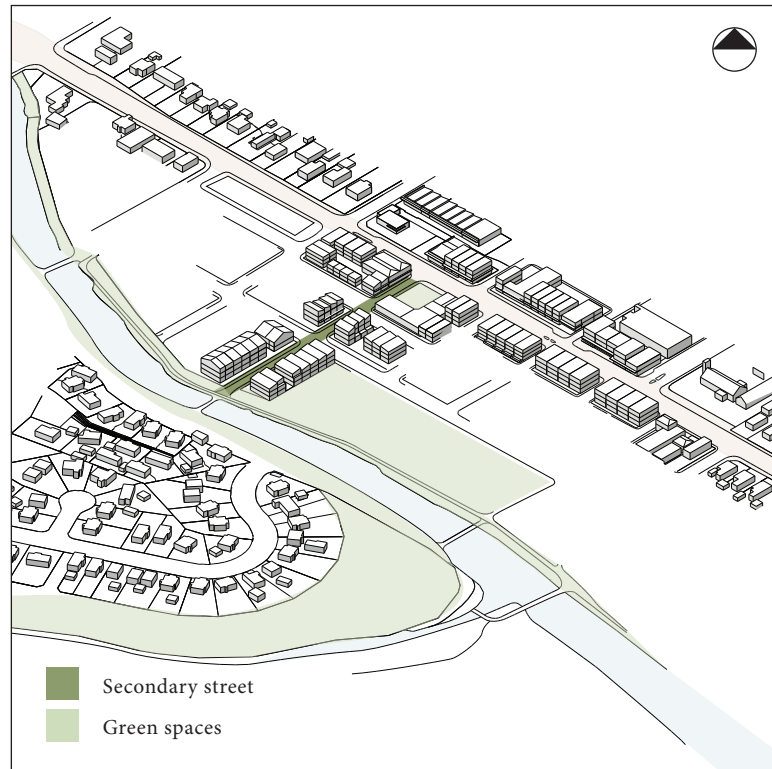


Fig. 33 Proposed secondary street connecting river front to Ferry Road

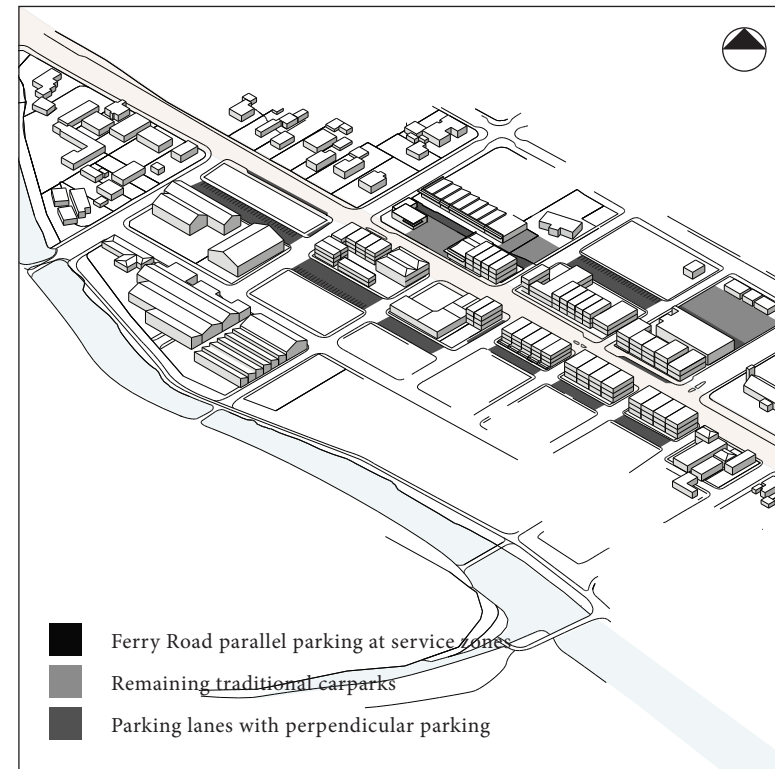


Fig. 34 Proposed parking network

5.2.3 Define a central orientation space

To create a central orientation space at the middle of the commercial centre, a green space has been retrofitted into an existing configuration of shops. These shops are configured in an L shape surrounding a car park at the road edge. While this is a common pattern, it is detrimental to the strength of the street edge, and diverts pedestrian activity from the main thoroughfare.

This configuration can easily be improved to function in a more positive way: providing a public gathering space for the surrounding neighbourhood centre.

This central orientation space will provide spill space for surrounding stores, a potential market space, a playground, community gathering space and pause within the centre, helping to divide this long stretch of road.

5.2.4 Strengthen a secondary street

The central orientation space is connected to the river by the proposed secondary street. The comparative analysis made clear that none of the centres cluster commercial uses where they are not visible to the main street. The purpose of this secondary street is therefore to provide a primary and celebrated link to the river. This street is lined with more trees

than any other, communicating the green link to the river front and recreation spaces.

Live/work units align this street. (Refer to section 5.3.12 for a full description of intensification). These allow for commercial use if required, and as an over-flow alternative to Ferry Road. The front rooms at ground floor can be used as a home office, studio or small store, thereby making use of the centrally located, pleasant streetscape.

5.2.5 Provide a parking network

Christchurch's City plan recognises that suburban centres are often: "...unable to provide on-site car parking which is adequate to serve the wide range of business and other activities located there. This may be due to historical patterns of site development, or the existence of significant constraints to further expansion of a centre." The provision of parking within a centre can impact on both the convenience and urban quality within the centre (established in section 2.4.3). These centres often rely on potential shoppers who are driving through. It is therefore vital to provide these convenient parking options.

The proposed solution provides a network of parking lanes running parallel to Ferry Road. These lanes provide not only



Fig. 35 Map of proposed street types



Fig. 36 Proposed green and blue network

car parking, but more internal street connections, storm water treatment and planting; they also function as a buffer between the commercial and residential areas.

This strategy has a minimal effect on parking numbers. When tested, the transformation from a traditional car park to parking lane changed from providing 21 car parks to 18 parks respectively.

Two traditional car parks and some on-street parking along Ferry Road remain. On-street parking is concentrated primarily at the periphery of the centre, particularly near the service stores.

5.2.6 Create green and blue networks

A network of street planting and storm water treatment will limit the environmental impact of this centre. A network of swales and rain gardens can reduce the pollutants within storm water runoff, before it re-enters the Heathcote River. Street planting within these systems will also enhance the urban amenity of the centre, creating healthy, greener and thereby more attractive environments for residents and visitors.

Because of the limited width of Ferry Road, and to maintain store visibility, street planting and exposed storm water

systems are limited to side streets. This emphasises each of the street corners and river connections, while providing some greening to Ferry Road.

5.2.7 Introduce new street network

The site analysis in 4.0 identified a number of issues relating to the existing street network within Woolston. These issues include bare streetscapes, storm water runoff, parking, an enclosed river front and numerous movement barriers.

Fig. 38 illustrates the new street grid, indicating the finer grain of connections around the commercial axis, river front and areas of residential intensification. The different street types used for each of these connections is illustrated in fig. 35. The location of these different street types has been informed by a number of factors, including the location of vacant sections, nearby building types and the surrounding building density.



Fig. 37 Map of existing street grid

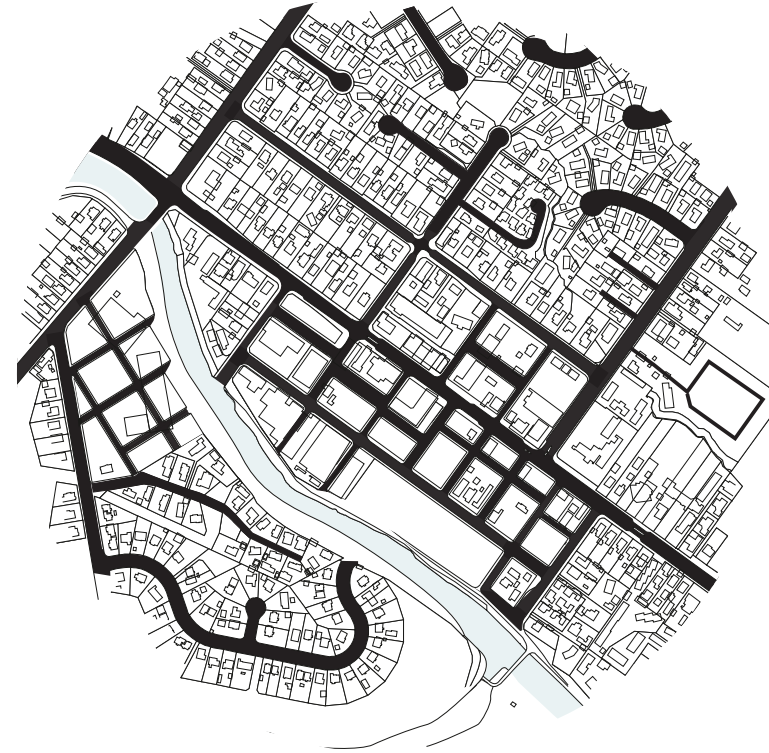


Fig. 38 Map of proposed street grid

The specific location of these streets is not crucial; rather, it is what these new connections contribute to the centre that is most relevant. Their exact location remains flexible.

5.2.8 Proposed new street types

The proposed street network is an arrangement of six different street types.

1. Ferry Road (Primary Street)
2. Secondary Street
3. Parking lanes
4. New internal connections
5. Retrofitted existing streets
6. Shared lanes

Each of these different street types are presented in figures 36-42. Small icons beneath each isometric outline what each street type offers, including the provision of spill space, bike lanes, bus stops, parking, greening or storm water treatment. New internal streets will also help to strengthen the pedestrian and visual connection between Ferry Road and the river. Retrofitted streets will differ depending on the particular dimensions and features of each original street.

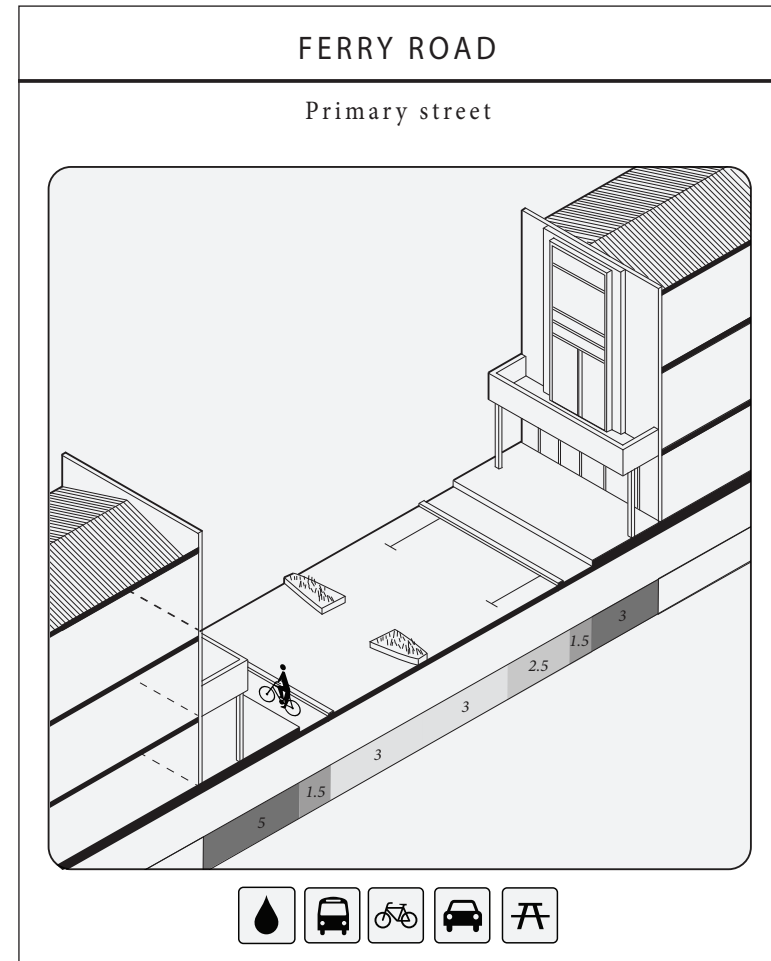


Fig. 39

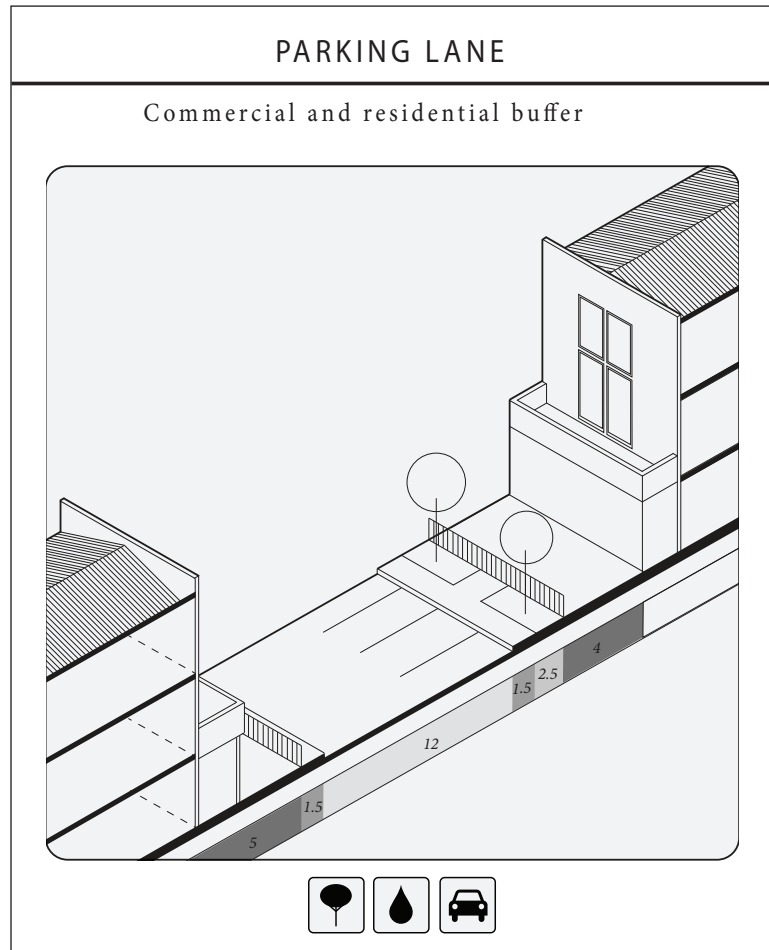


Fig. 40

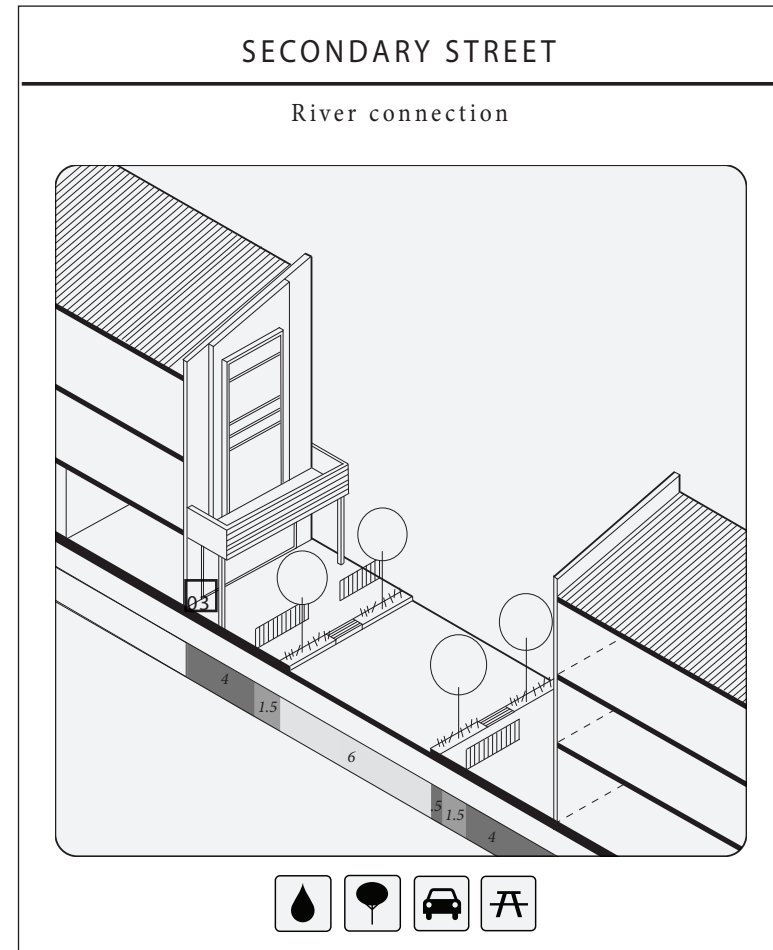


Fig. 41

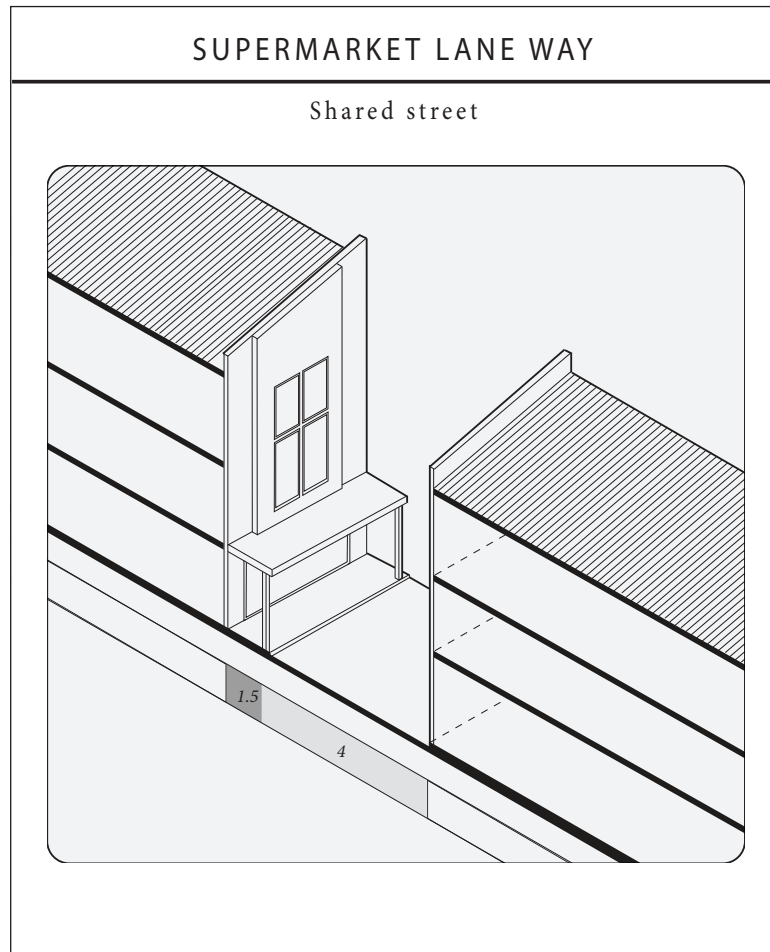


Fig. 42

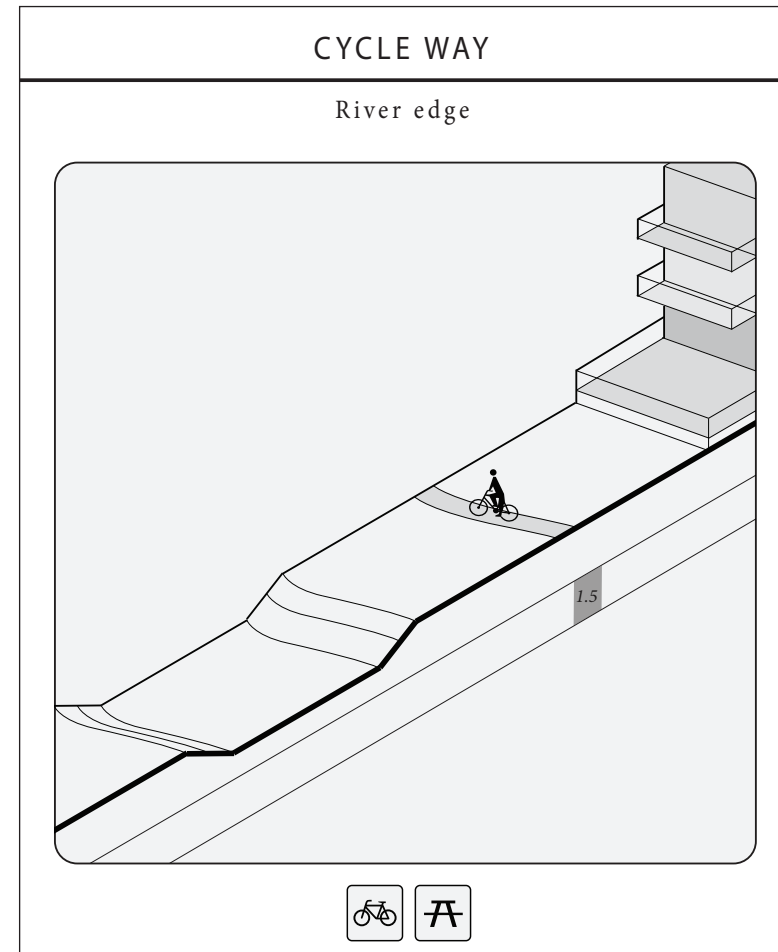


Fig. 43

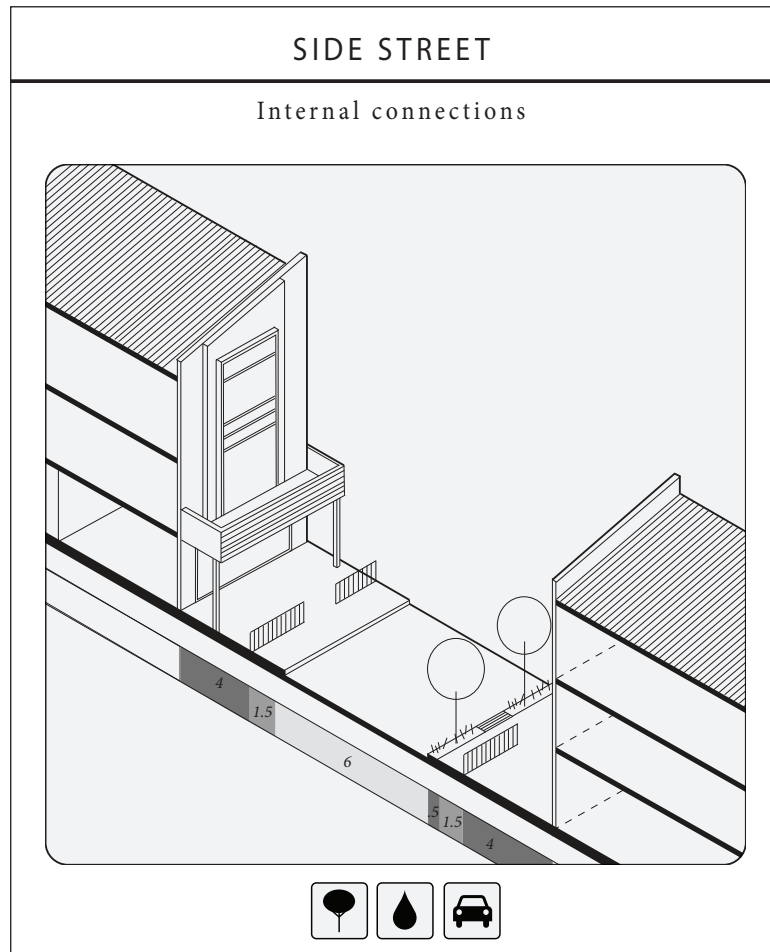


Fig. 44

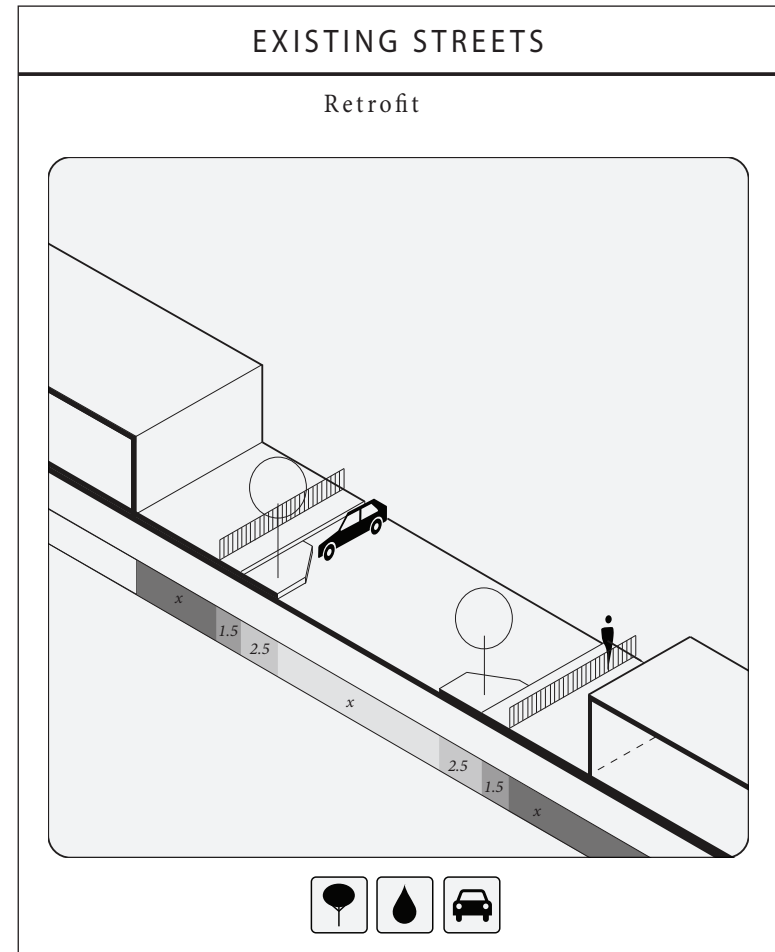


Fig. 45



Fig. 46 Public transport and cycle lanes

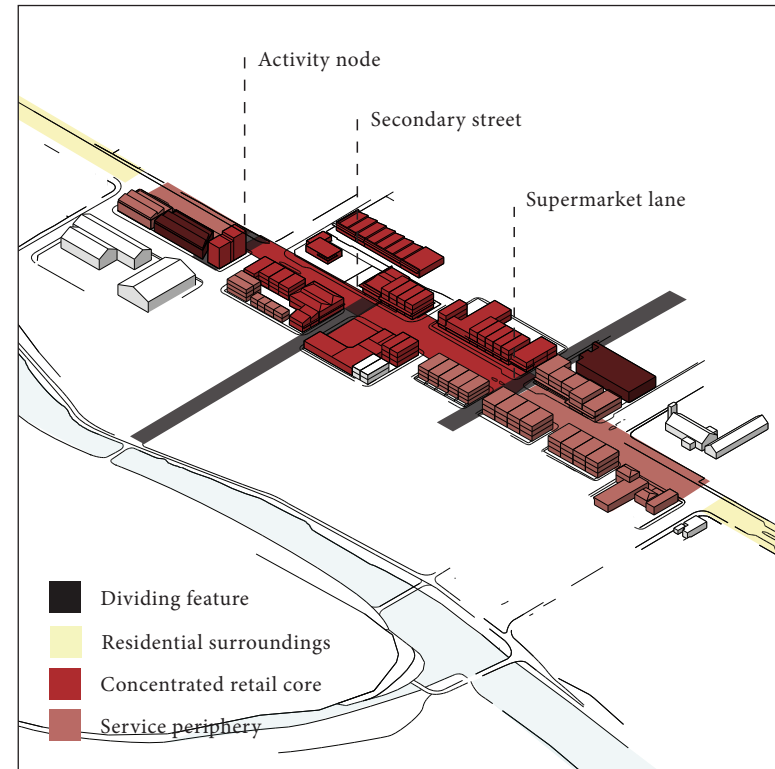


Fig. 47 Primary street: sequence of spaces

5.2.9 Facilitate multi-modal movement

The cycleway along Ferry Road has been modified to sit within the parallel parking (see fig. 36). Within the service periphery zone, parallel parking is provided on both sides of the street. In the concentrated retail core, this space is instead used as an extended footpath, increasing the available spill space on the north-facing side of the street, while retaining some parking on the shaded side.

Bus stops are located in the intermediate zone. They are in close proximity to the anchor stores, between both the concentrated retail core and the service periphery.

5.2.10 Strengthen public fronts

It is important to encourage public access along Ferry Road, and provide service access at the rear of each building. This promotes more activity along the commercial axis, and limits direct access from the rear parking lane. Clearly defining how the front and back of buildings are used will better communicate the street hierarchy, aid way-finding and ensure that more activity, movement and interaction occurs in the same place. This definition is normally accomplished by aligning a building's 'front' with the most prominent street.

5.2.11 Define distinct spaces along the primary street

To create a sequence of distinct spaces, Ferry Road has been broken down into four areas which loosely align with the retail zones allocated in 5.2.2. Different spaces will encourage different uses and activities depending on the surrounding streetscapes and building types. The transitions between different zones are emphasised by either significant connecting streets or activity nodes (see fig. 43)

5.2.12 Controlling pace

Woolston will be experienced by pedestrians, cyclists and motorists. Outside the commercial centre the vehicular pace is most dominant with traffic moving at 50 km per hour. Aspects such as the loose suburban grain, wide roads and median strips make this a comfortable pace. However, the traffic needs to be slowed before it enters Woolston's centre.

Design moves such as road pinching and an overall narrowing of carriageways can help raise drivers' awareness of their surroundings and communicate the required change of pace within the centre. Other features such as changing the street lighting from large overhead lights to more human scaled street lamps and an increased intensity of buildings can also help to differentiate this stretch of road.

5.2.13 Strengthen residential proximity with residential intensification

The areas of residential intensification are illustrated in figure 46. The colour coding depends on the building type.

The new net density for the centre as a whole has been increased from 26 to 37 dwellings per hectare.

Considering only the areas which were intensified, the net density increased from 12 to 56 dwellings per hectare; the total number of dwellings in these areas increased from 47 to 226.

Medium density is defined as being between 30 and 66 dwellings per hectare (see Table 1).

5.2.14 Define mixed use axis

Mixed-use development aligns both Ferry Road and the secondary street. These two axes integrate commercial and residential uses within the same building (refer to figs. 47 and 50). They intersect at the central orientation space.

5.2.15 Provide a diversity of housing types

Five different housing types have been used to achieve this intensification with a diverse range of living configurations. Each of these are discussed in turn, beginning with figure 47.



Fig. 48 Proposed residential intensification and mixed-use axes

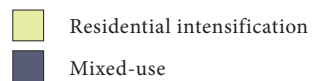




Fig. 49 Map of housing types used for intensification

- Garden housing
- Shop tops
- Terrace housing type A
- Terrace housing type B Live/work
- River front apartments

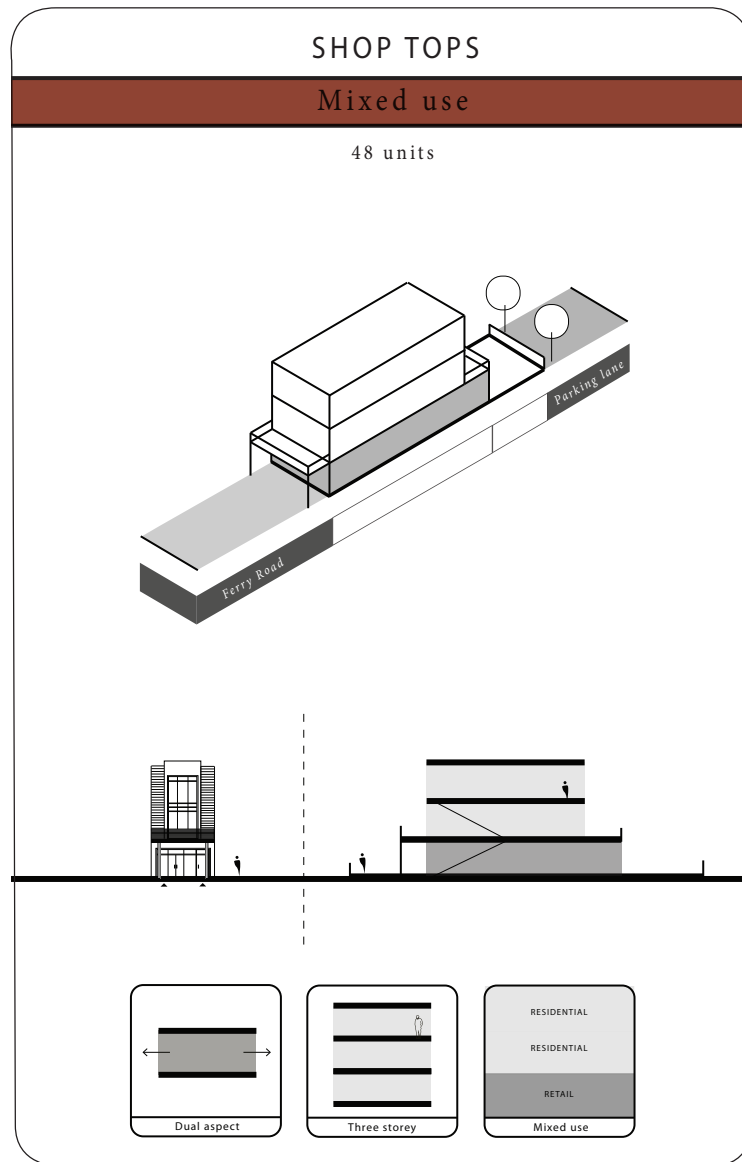


Fig. 50

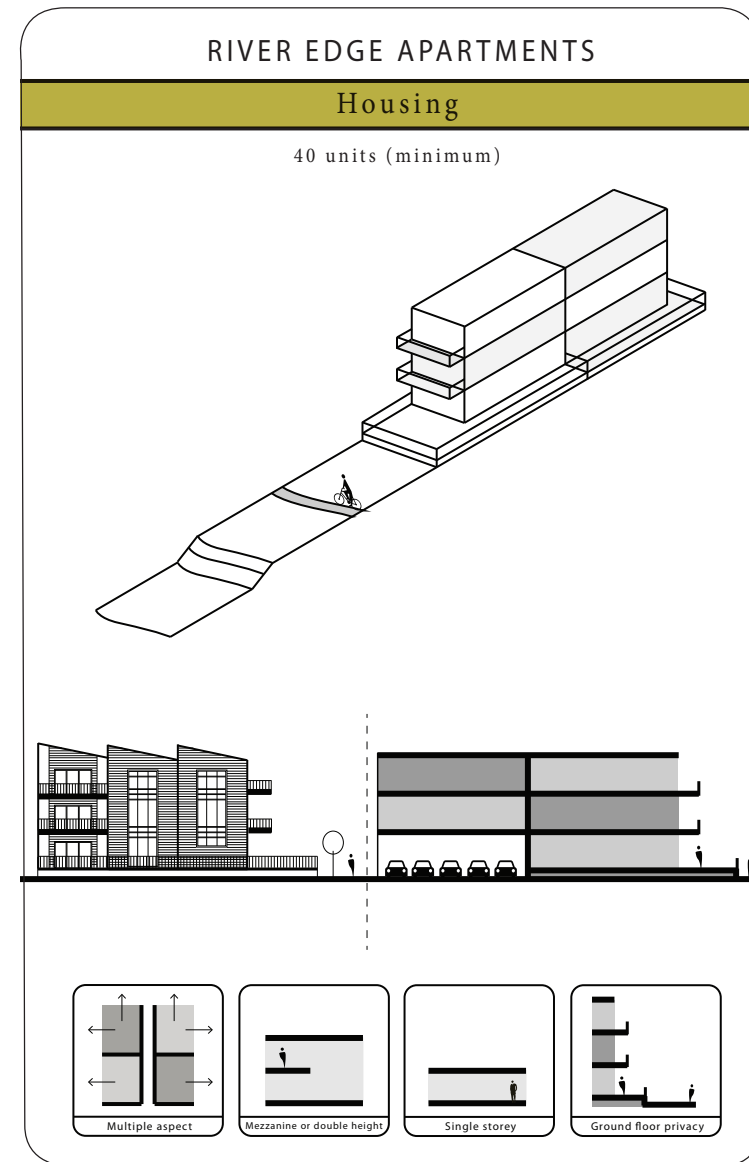


Fig. 51

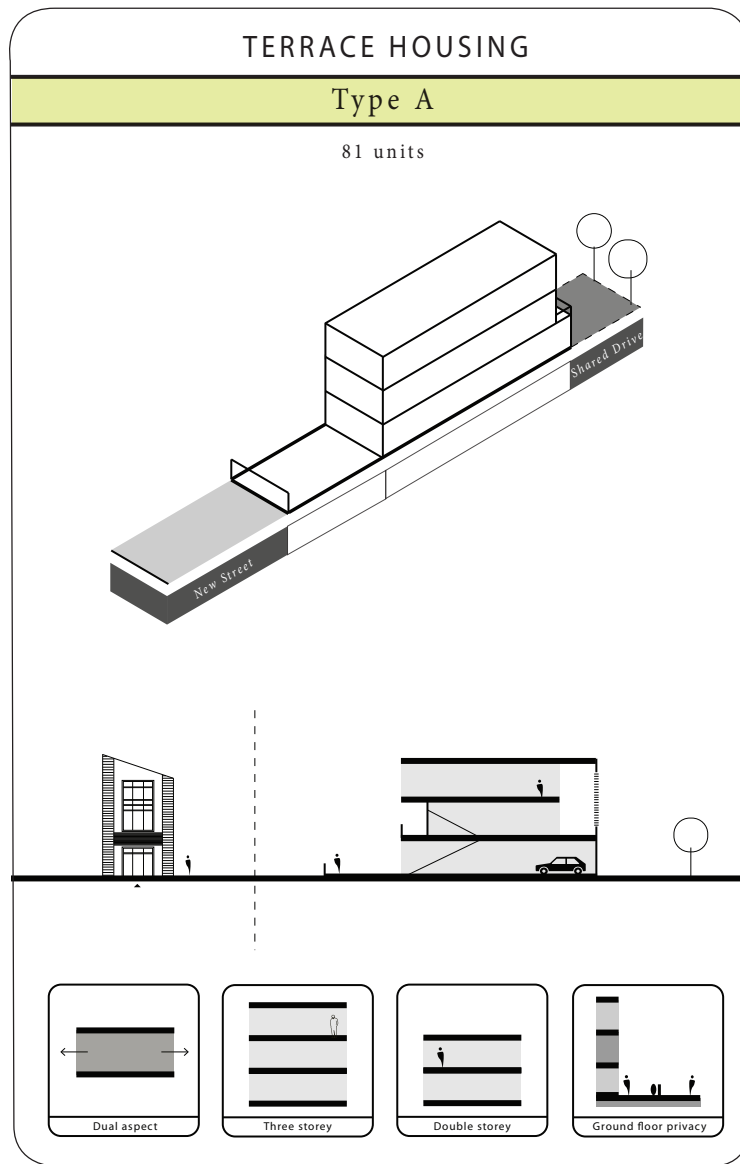


Fig. 52

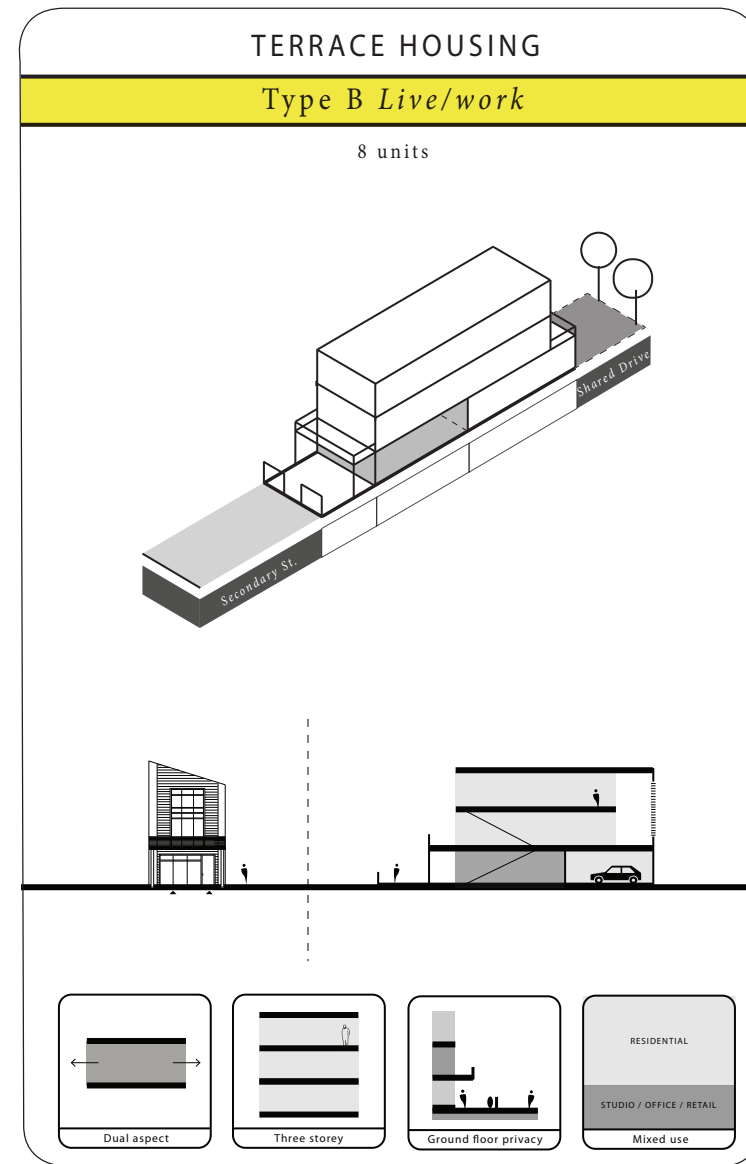
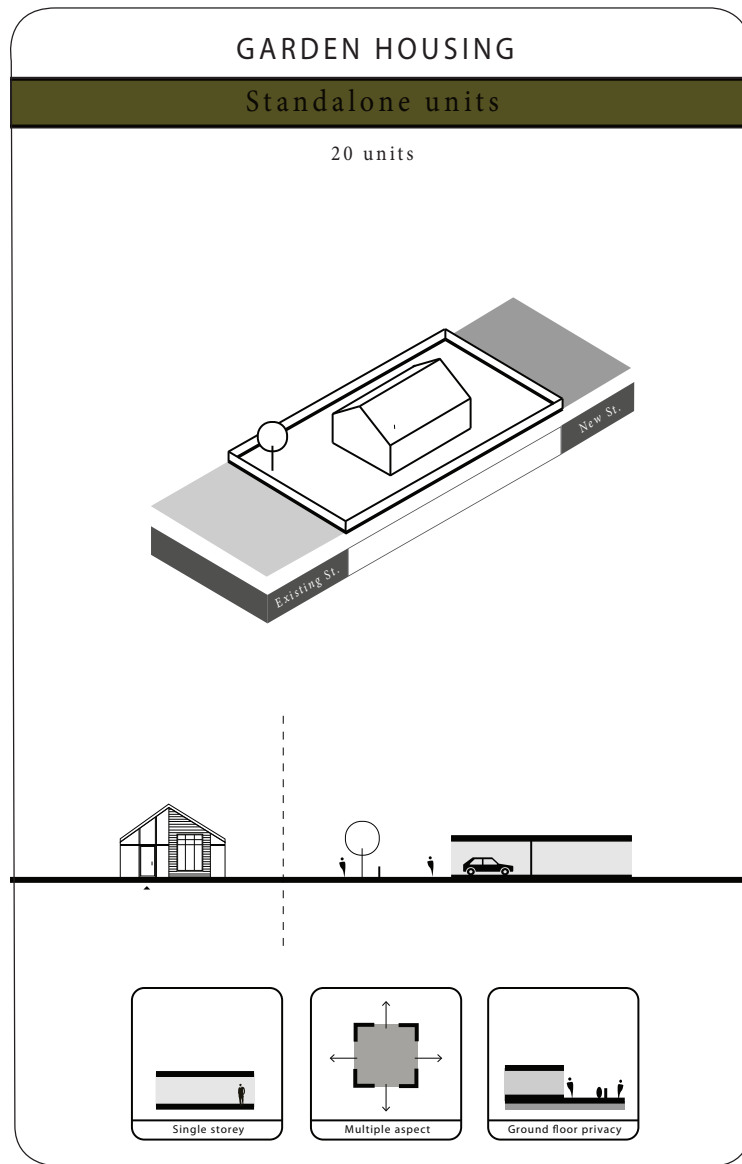


Fig. 53

*Fig. 54*

Shop tops

This housing type will be used along Ferry Road, providing ground floor commercial use and residential accommodation above. A balcony on the first floor Ferry Road provides natural surveillance.

The residential apartments are accessed from Ferry Road. An outdoor service area is provided at the rear for the ground floor commercial area. To ensure the two-sided buildings have enough daylight, each building is no deeper than 14m.

River apartments

Apartment buildings provide the highest density housing within this intensification scheme. The apartments allow a great deal of flexibility in terms of unit size, outlook and therefore price. They provide for a range of demographics. A 7m deep module has been used to design these overall forms, the width varying between 5 and 10m. The overall form of each apartment block fills the original factory footprint, remaining consistent with the industrial grain and suburban street setback.

Terraced housing: Type A

These terrace houses create an outcome that avoids a street sequence of garages. Residential parking is provided at the rear of each unit with a shared access way to garages. Privacy is achieved between these facing rows with trees and louvered outdoor rooms. This in turn contributes to a more attractive street front. The living room of each dwelling faces onto this public street providing natural surveillance.

Terraced housing: Type B Live/work

This form of terraced housing is the same as type A. However, as it aligns the secondary street these units also provide for a studio, home office or small retail store at ground level. These units are positioned closer to the street edge in order to achieve a stronger and more enclosed street scene.

Compact stand-alone units

These units are designed to provide a buffer zone between the surrounding low density housing and areas of intensification. These units have a ratio of garden to built-form similar to that of the surrounding low density areas.

Housing type location

The range of housing types introduced above suit various locations and combinations. It is particularly important to consolidate the live/work units, as this concentrates the activity they generate – hence the mixed use axis here.

The most significant challenge when designing this residential intensification has been ensuring these areas do not have adverse effects on the character of the surrounding low density housing. In order to integrate the new development into the existing fabric, a gradual increase of building density has been used at the periphery of the intensified areas.

5.3 LAND UNCERTAINTY

At the time of this design process, there was a sizeable block of land aligned to the river that required further assessment after the earthquakes before it could be deemed safe for development (see fig. 25). In the case of the land being deemed unsuitable, it is suggested that it be converted to green space with childrens' soccer fields to activate the river edge. If the area is approved as safe, it will be developed in a similar fashion to the rest of the river front, providing a number of public access ways and natural surveillance over the public walkway. Both of these potential outcomes are demonstrated in Figs. 52-53. However, it is option A which has been used throughout this master plan.



Fig. 55 Option A: Land is deemed unfit for development. Purchased by government and converted to green space. Used as childrens' sports fields to activate river edge.



Fig. 56 Option B: Land is deemed fit for development. Intensified using river front apartments that align the continued street grid.

5.4 STAGED DEVELOPMENT

The sequence of this development follows the path of least resistance.

1. The first stage is to increase the local population, thereby locating more people in close proximity to the centre. This would begin with residential intensification where two vacant factories currently stand (fig. 57). A pedestrian bridge across the river would connect these houses to the commercial centre.
2. The second wave of development would occur in four different locations at key spaces. These spaces have each been selected primarily because of the significance of their location. That is, their site can be beneficial for the centre as a whole. These spaces will act as catalysts for surrounding development. These are each discussed individually in section 5.5.
3. The final stage encompasses the remainder of the master plan, directing further incremental intensification, new streets and commercial development.

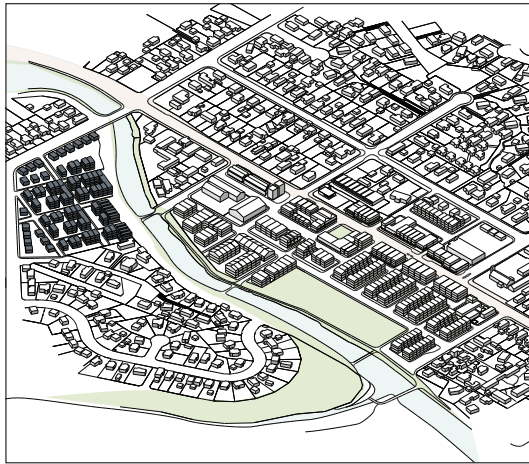


Fig. 57 Stage one. Increase residential population

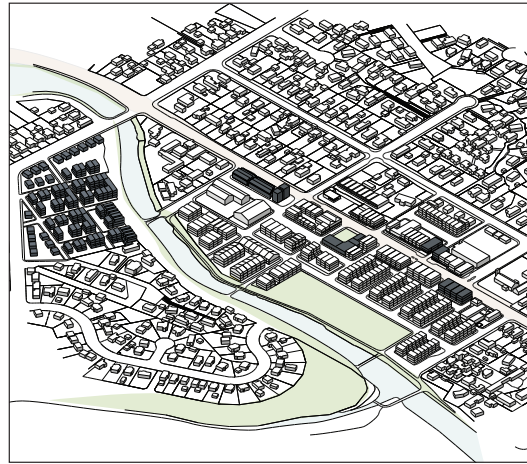


Fig. 58 Stage two. Strengthen key spaces to anchor further development.

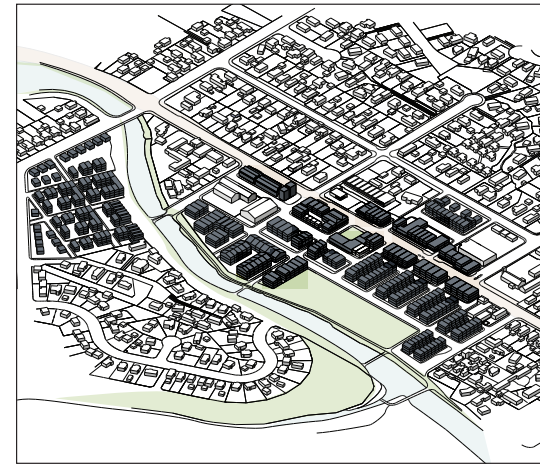


Fig. 59 Stage three. Implement remainder of development including street network, residential intensification and commercial development.

5.5 MASTER PLAN: KEY SPACES

5.5.1 Introduction

Within the master plan there are four spaces that are crucial for ensuring the design moves set out in section 5.2 fit together. What follows is an outline of how these spaces could develop beyond the resolution of the master plan, within the framework set out in section 5.2.

The four spaces are presented individually below, with an image of the existing site, an outline of the design intentions, and an image of the proposed outcome. The fourth and final site has been selected for further design development at the scale of a building.

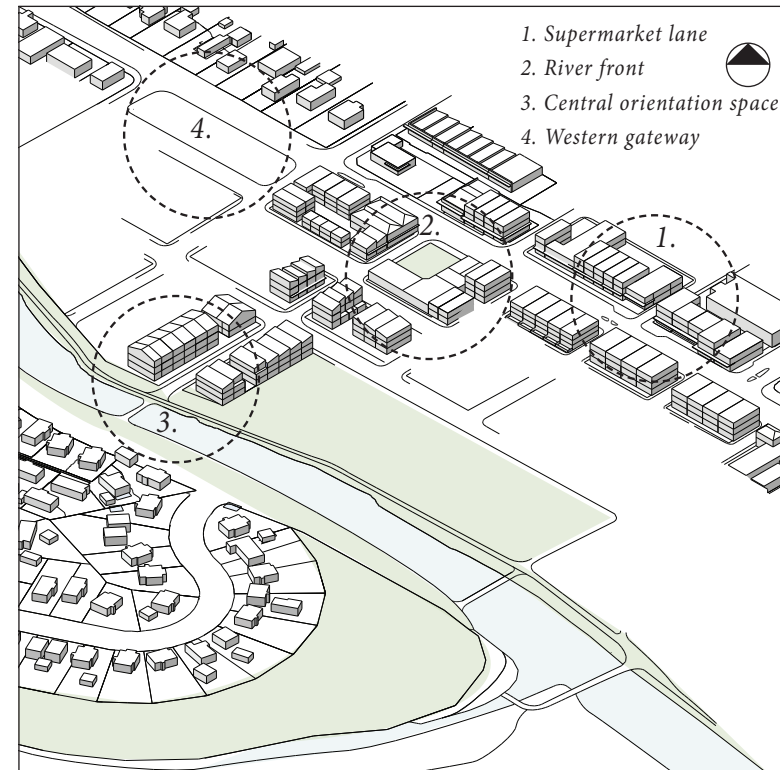


Fig. 60 Key spaces



Fig. 61 Existing condition of supermarket lane

5.5.2 KEY SPACE 1. SUPERMARKET LANE

The purpose of this space is to reduce both the perceived and the actual distance between the two major anchor tenants. This is achieved by strengthening the existing service lane at the inner edge of the supermarket creating an enjoyable, safe and direct route to the supermarket. The main design moves for this space are outlined below.

1. New buildings need to contribute to the natural surveillance of the area. The buildings that currently align this laneway features service areas and blank walls. These should instead provide openings and access.

2. Expanding on the previous point, the primary facade of the nearby buildings should wrap around the corner of the lane, creating a public front for both Ferry Road and the laneway.
3. Street trees and paving should communicate the lane to Ferry Road.
4. The intersection of this laneway with Ferry Road helps to create a sequence of spaces along Ferry Road as demonstrated in section 5.9.3.



Fig. 62 Proposed supermarket lane: Looking north across Ferry Road



Fig. 63 Existing condition of central orientation space and secondary street

5.5.3 KEY SPACE 2. CENTRAL GATHERING SPACE

This space retrofits an existing car park to create a central gathering space as discussed in the amended design criteria of B.4b (outlined in section 3.3.3). This space is at the intersection between the commercial axis and the secondary street. To ensure its success, a number of design requirements are set out for this important site.

1. The outer corner needs to be strengthened. Generous planting here will help to reinstate this corner while still maintaining visibility to the stores behind.
2. This site aligns two important streets, therefore this hierarchy should be communicated in the building facade, indicating the difference between Ferry Road and the secondary street.

3. To encourage movement down the secondary street, outdoor shelter should continue around this corner towards the river.
4. Aligning swales and native planting along this street will create an extension of native planting from the river to Ferry Road. Significant planting will help to reinforce this as the primary river connection.
5. Increasing the height of the surrounding buildings will help to enclose this space and increase the density of building.
6. To achieve a higher retail concentration, the width of some of these shops will need to be reduced. Three smaller stores would comfortably fit in the space of the current video store, which would be better located in the service periphery.



Fig 64 Intersection of commercial axis and secondary street. Central orientation space seen to the left.



Fig. 65 Existing condition of river front

5.5.4 KEY SPACE 3. RIVER FRONT

This space marks the end of the secondary street where it intersects with the cycleway and connects to the river front. The space should allow for the following:

1. A public picnic area, providing nearby residents and visitors with large outdoor tables.
2. A clear view to the river from Ferry Road.
3. Access to the cycleway which should continue the length of the Heathcote River.
4. Housing should be raised by around a meter with planting in front. This should ensure a degree of privacy for the residents while still providing natural surveillance across the public space.



Fig. 66 Proposed river edge apartments and Heathcote River Cycleway



Fig. 67 Current condition of the old Nugget Factory site

5.5.5 KEY SPACE 4.

WESTERN GATEWAY: BUILDING SITE

This site originally accommodated the Nugget Factory created the western gateway of Woolston's commercial centre. Below is an outline of the specific design intentions for this site extending on those proposed by the initial design moves.

1. This site should communicate the edge of Woolston's commercial centre, once again creating the western gateway.
2. Accommodate three retail zones as specified in the master plan. A concentrated retail zone, an intermediate zone for an anchor tenant, and a service zone at the periphery of the site.
3. Create an activity node at the eastern edge of the site, reducing the perceived distance from the other anchor store.
4. Implement part of the parking network by providing a parking lane at the rear of the site.

5. Incorporate residential living into this site where appropriate, thereby providing residential proximity.
6. Acknowledge the original Nugget Factory destroyed in the earthquakes.
7. Communicate the industrial site history of Woolston to those who pass through.

Achieving these priorities at the scale of a building will be explored in section 5.6 of this chapter.

Two large factories remain at the rear of this site. These are accessed from the south. These factories could be converted to residential living like other industrial areas within the centre. However, as these sites do not align with the river, their conversion would be less desirable than the other instances. These factories are quite suitable functioning as they are, and help to retain some of the industrial scale.



Fig 68 The proposed new Nugget Factory

5.6 BUILDING DESIGN

5.6.1 Introduction

The western gateway site, outlined above in section 5.5.5, sets out a number of design requirements for this site. These site requirements are proposed as part of the master plan. The purpose of this design phase is to explore the potential of the initial design criteria in informing detailed design responses at the scale of an individual building, to ensure that the research themes remain relevant.

5.6.2 Building programme

The retail zones set out within the master plan (see section 5.2.2) have directed the configuration of programme within this building, combining residential accommodation, a shared outdoor courtyard and three different retail zones. These are discussed in turn below.

Concentrated retail zone

The first retail zone is part of the 'concentrated retail core' and is located at the eastern edge of the site. The concentration of stores here helps to attract pedestrians down the length of Ferry Road. It provides a more active edge to the neighbouring anchor store, without internalising its entrance. The ground floor can open on three sides, creating a permeable edge to the site. On the ground floor is space for four small moveable

kiosks containing stores appropriate to the central retail zone (refer to table 2) such as a cafe, florist and small book store which could spill into the shared courtyard.

Intermediate zone

The anchor store has been designed for a produce supermarket. The parking lane at the rear of the site (introduced as part of the master plan) restricts the depth of the building site, as it is too narrow to create two layers of stores. This tenant directly aligns with Ferry Road, providing visibility to passing traffic. Large windows have been used to add interest and activity to the building's facade. Service areas and loading bays are within the building envelope. Staff facilities and extra offices are located on the upper floor if required. The separation between each of the buildings means the anchor store can benefit from an outdoor courtyard for staff, while still remaining separate and private from the residential apartment to the west.

Service zone

The final retail zone is at the service periphery. A large structural grid provides flexibility for internal store configurations.

Parking

Customer parking is now a part of the wider centre's network of parking lanes. Parking is accessed through the shared courtyard, to either the rear parking lane, parallel parking

on Ferry Road or through the permeable ground floor of the ‘tower’ building. These parking options provide easy parking for passing traffic.

Residential living

Residential apartments on the upper floors of both the ‘tower’ and western building offer north-facing apartments with outdoor space. These apartments are accessed from either the public walkway between the pair of buildings or from the south of the tower block.

Shared courtyard

The shared courtyard provides a north-facing spill space for each of the surrounding stores. It provides a public walkway through the development, as it will be visible to Ferry Road it will attract patronage.

5.6.3 Original Nugget factory

At the beginning of this design phase, and as directed by the design criteria, it was deemed important that the new building should clearly respond to the previous building. This will acknowledge the industrial past of Woolston and the significant landmark building that existed before the earthquakes.

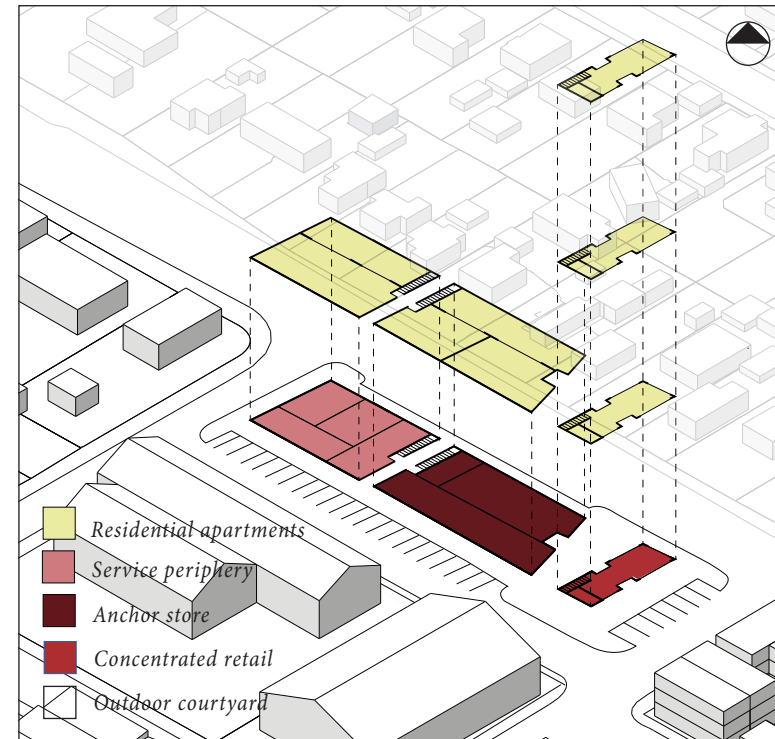


Fig. 69 Programme configuration

The original Nugget Factory has therefore been a significant influence in the design of this building. A number of features have been translated into the new factory. This process highlighted particular problems with the original building that the new one has the potential to rework. These include the small openings, limited daylight and long facade.



Fig. 17 The Nugget factory built in 1924

Of particular influence is the overall form of the original Nugget Factory, notably the sequence of low buildings, punctuated by a taller, narrower structure at the eastern edge. This form happens to respond especially to the pace at which people enter the centre. The lower horizontal form illustrates this movement before being punctuated with the taller structure, indicating a change in pace. This sequence of forms has been translated into the new Nugget Factory, discussed in the following few pages.

5.6.4 The new Nugget Factory

Building mass

Two side-by-side buildings sit at the periphery of Woolston's commercial centre, the low horizontal form responding to the speed of passing vehicles. These are punctuated by a four storey tower which provides a bookend to the concentrated retail core. In effect, this tower helps to strongly divide the long site into a sequence of smaller spaces. At the inside of this tower building, the centre condenses and the building grain becomes finer.

Facade

In the process of designing the building facade, it became apparent that it could also communicate the street hierarchy. Therefore, material changes and negative details have been used to differentiate between front and side facades. These reinforce the same hierarchical differences between the primary street and side street.

Circulation

The circulation through the building considers the location of parking areas and retail zones to direct the appropriate location of entrances and walkways. The entrance to the anchor store is located to draw movement past the concentrated retail stores at the eastern edge of the site.

Public connections

Public connections are provided through the building. This reduces the length of the city block, providing more efficient access between the parking lane and Ferry Road.

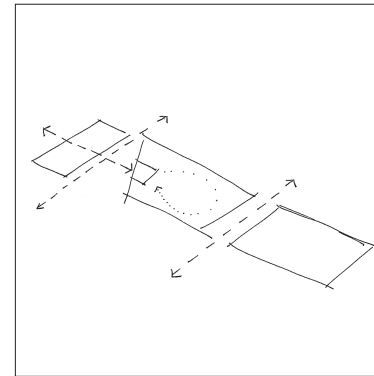


Fig. 70 Public walkways through the building, reducing the block length for pedestrian users

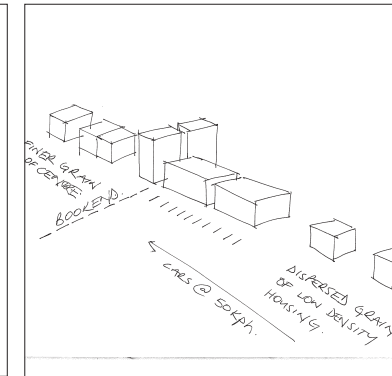


Fig. 71 Dispersed to finer grain of buildings responds to slowing of vehicle speed upon entering the centre. Strengthens the gateway by 'book-ending' the concentrated retail core

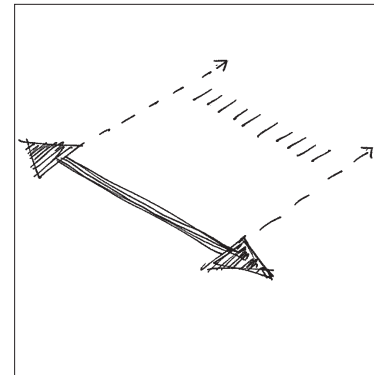


Fig. 72 Street hierarchy surrounding the site

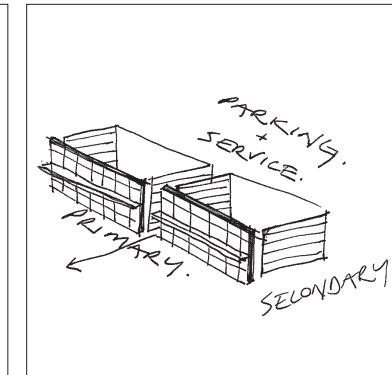


Fig. 73 Facade response to surrounding hierarchy



Fig. 74 The new Nugget Factory: Looking south towards the shared courtyard

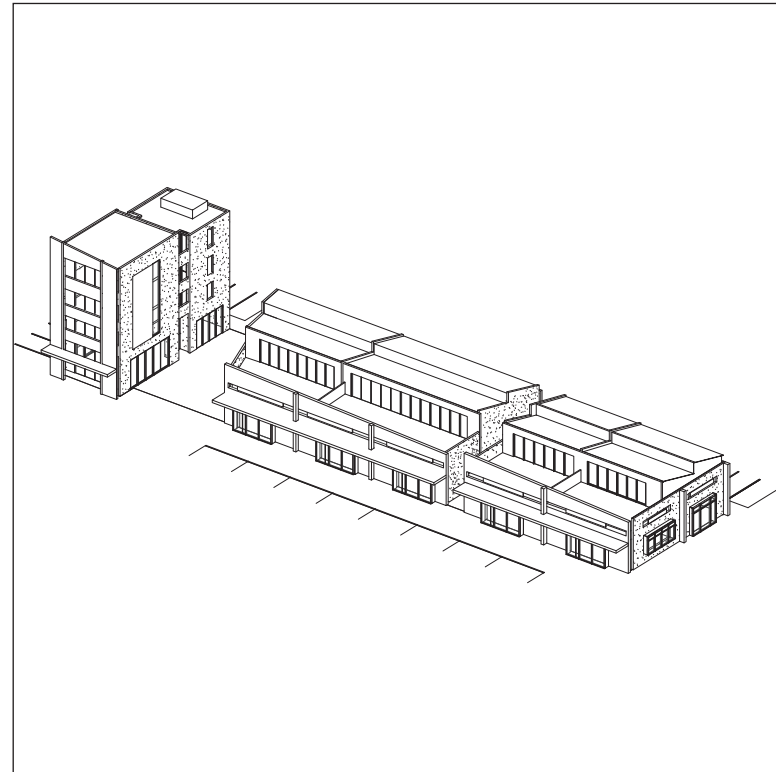


Fig.75 Isometric drawing of the new Nugget Factory

5.7 CONCLUSIONS

The master plan and building, presented in this chapter, have been designed in response to the design criteria established in the previous sections.

Master plan: Design moves

The series of design moves, illustrated in section 5.2, propose new features and strengthen existing ones within the urban structure of Woolston. The design moves both satisfy the given criteria and respond to the existing urban structure. They retain key local landscape features, both urban and natural, rather treating the site as a tabula rasa. This approach helps to retain the local identity.

Master plan: Key spaces

Within the master plan there are four key spaces which are vital to ensure the design moves set out in section 5.2 fit together. An outline of important design requirements and a visual impression of these spaces provide an indication of how these sites could develop beyond the resolution of the master plan.

It is important to note that many of the existing buildings that surround these sites are depicted as they are today. This communicates the ability these design interventions have to

sit comfortably within the existing design context, while also contributing to the character of these key spaces.

It is this phase of the design research which illustrates the relationship between the structural framework of the master plan, and the architecture that surrounds it. It is the architectural considerations that have the ability to communicate the structural features most strongly, using the facades, openings and overall form of the surrounding buildings to communicate hierarchies, corners, activity and circulation.

This phase also illustrates the importance of the softer features, such as the planting, swale systems, paving and outdoor shelter. It is these softer networks which are able to bring life to the urban structure contributing to the amenity of the centre by enhancing the quality of spaces. At the master plan scale these features appear comparatively minimal. However, when illustrated within each key space; these networks have a more significant role, defining spaces, communicating connections and providing links to nearby natural features.

Interestingly, it is these softer networks which are also the most flexible, indicating these design tools can be applied in a range of situations, and still allow the underlying structure to show through.

Building design

Using the design criteria to direct both the building and master plan design highlights how these two scales of design can integrate with one another.

The design criteria simplified the design process by providing a clear definition of the building requirements. Five aspects of the design criteria were most influential in the design of this building. The outcome of these criteria is described below.

1. The building is divided into three parts, providing public connections through the building and contributing to the permeability of the wider centre.
2. Multiple retail zones are accommodated within this single development, achieving the required retail convenience criteria.
3. The building facade responds to the hierarchy of the surrounding streets; strengthening and communicating it to enhance the legibility of Woolston's street network.
4. The form and materials of this building are configured to create a western bookend for Woolston, functioning as a gateway into the commercial centre.
5. The building aligns with the centre-wide network of parking lines, helping to stitch the building development to the rest of the centre.

Some aspects of the building design were able to fulfil parts of the master plan. Therefore, the design of this building not only benefits the users and tenants, but it can also significantly benefit the wider centre. It provides a bookend to the commercial strip, creates a gateway into the centre, provides public connections through the site, allocates the required retail zones, and accommodates residential living. These design aspects help to integrate the building as a part of the master plan system; that is the building is not just within the system, but an active part of it.

Design influences

The original Nugget Factory was a significant influence in the design of this new building. It is important to consider the impact that the existence of a previous building had on the design outcome, and in the interpretation of the design criteria. Studying the strengths and weaknesses of the original building, and the effects it had on the site, coloured the understanding of the requirements for the new building.

This understanding was most useful when considering the overall form of the building. The low buildings at the outer edge of the commercial centre provided an introduction to the site, before being punctuated by the taller, narrower structure of the original factory.

Having the original industrial building as a reference for the design also aligned with the urban amenity criteria of working with the history of the site, and using it to help establish a distinct identity.

Design limitations

Designing both the building and parking lane made clear the importance of a designated service area. In this instance, the parking lane was combined with the service area. Parking lanes require a significant amount of width to allow for a service area at the rear of the building. In this design, the width was not available because of the space required for the anchor tenant. Also, the service area placement is not ideal, as the additional traffic causes disruption to the parking lane. An alternative would have been to sacrifice some of the parking lane to form an outdoor service area.

In the following chapter, the design moves, key spaces and building design are distilled into a more general form. This process translates the key design outcomes into design strategies that can also be used in other neighbourhood centres. The flexibility of these strategies is then tested in two other sites, reconfiguring the design strategies within the existing structure of each centre.



6.0

DESIGN DISTILLATION

Research outcomes

6.0 DESIGN DISTILLATION

6.1 Introduction

Key strategies have been identified within the design case study in section 5.0. These strategies stem mostly from the site-specific ‘design moves.’ Where possible, these design moves responded to the general characteristics shared by many neighbourhood centres rather than to the specific issues of one centre alone. This made the translation process from design move to general design strategy more direct.

Some criteria demand a complex design response which can not be expressed in a design strategy. For example, ‘Amendment A.1a: Provide for medium density living of between 30-66dph’ requires multiple layers of development, whereas ‘Amendment B.4b: Provide a central gathering space’ is a simple development directive. Some criteria therefore made more appropriate strategies than others. These design strategies, and their associated design criteria, are outlined below.

6.2 Design strategies

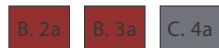
6.2.1 Network of parking lanes

Provide parking lanes perpendicular to the primary street to create a parking network that can overflow from one to the next. These lanes should also provide for swales, street trees and footpaths; which will function as a buffer zone between commercial and residential areas.



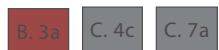
6.2.2 Distinct retail zones

Allocate retail zones, including the service periphery, the intermediate zone and the concentrated retail core. Define each zone by the surrounding building type, concentration of stores and provision of parking.



6.2.3 Activity nodes

Create activity nodes at significant intersections along the length of the primary street. These zones can help to define the retail zones and break the primary street into a sequence of spaces.



6.2.4 Sequencing spaces

Create distinctive spaces along the primary street, between activity nodes, to emphasise a sequence of defined spaces, rather than a thoroughfare. Different streetscapes and building types will encourage different uses and activities. These spaces should relate to the surrounding retail zones.



6.2.5 Central orientation space

A central outdoor gathering space can help to provide a pause along the primary street or to emphasise an important connection.



6.2.6 Integrating Public transport

Locate bus stops at the intermediate zone nodes to generate activity and convenient access at the centre, ensuring these stops do not interfere with the concentrated retail core. Cycle lanes will be provided as appropriate.



6.2.7 Secondary Street

Create a secondary street that can provide for consolidated live/work situations and allow for additional commercial zoning off the primary artery if required. Ideally, this secondary street will lead to or align with a significant public amenity such as green space.



6.2.8 Green and blue network

Neighbourhood centres often feature a concentration of hard surfaces, making them efficient locations in which to establish a network of swales and rain gardens, providing general greening to the surrounding streetscape.



6.3 Testing these strategies in other locations

To test the flexibility of these strategies, they have been used to direct a schematic master plan for two other neighbourhood centres (see fig. 76). The placement and the significance of these strategies within each site are directed by existing features. These include green spaces, anchor tenants, car parks, primary routes and side streets. Basing the design on these existing features ensures that different centres develop as distinct places.

The outcome of this test demonstrates that these strategies are flexible enough to be configured differently, responding to the underlying landscape of each centre. Ultimately these strategies will provide a range of design tools that can be used to address the three research themes of (a) residential proximity, (b) retail convenience and (c) urban amenity within these centres.

6.4 Conclusion

Some criteria are more suitable for adaptation as design strategies than others. The retail design criteria usually pointed to a strong design decision which was straightforward to implement; most of the strategies are informed by criteria from the retail convenience category.

In contrast, there is often no specific strategy to enhance

amenity; rather, urban amenity is an outcome of other strategies being implemented in a way which is most beneficial to the site.

The design moves related to residential intensification are complex and site-specific. Out of many residential design moves, only one strategy was developed for general application.

It is important to consider the value of these strategies if not all are used. Different strategies will be more suitable for different centres, depending on their existing features. The schematic plans demonstrate the flexibility of these design strategies.

For instance, in the Addington centre, a central orientation space was proposed. While the context was not ideal, the strategy was flexible enough to be applied and still yield significant benefits.

This research stage proposes that a number of design strategies can be used within different neighbourhood centres, providing a range of important features to enhance three aspects of the shopping experience: (a) residential proximity, (b) retail convenience and (c) urban amenity.

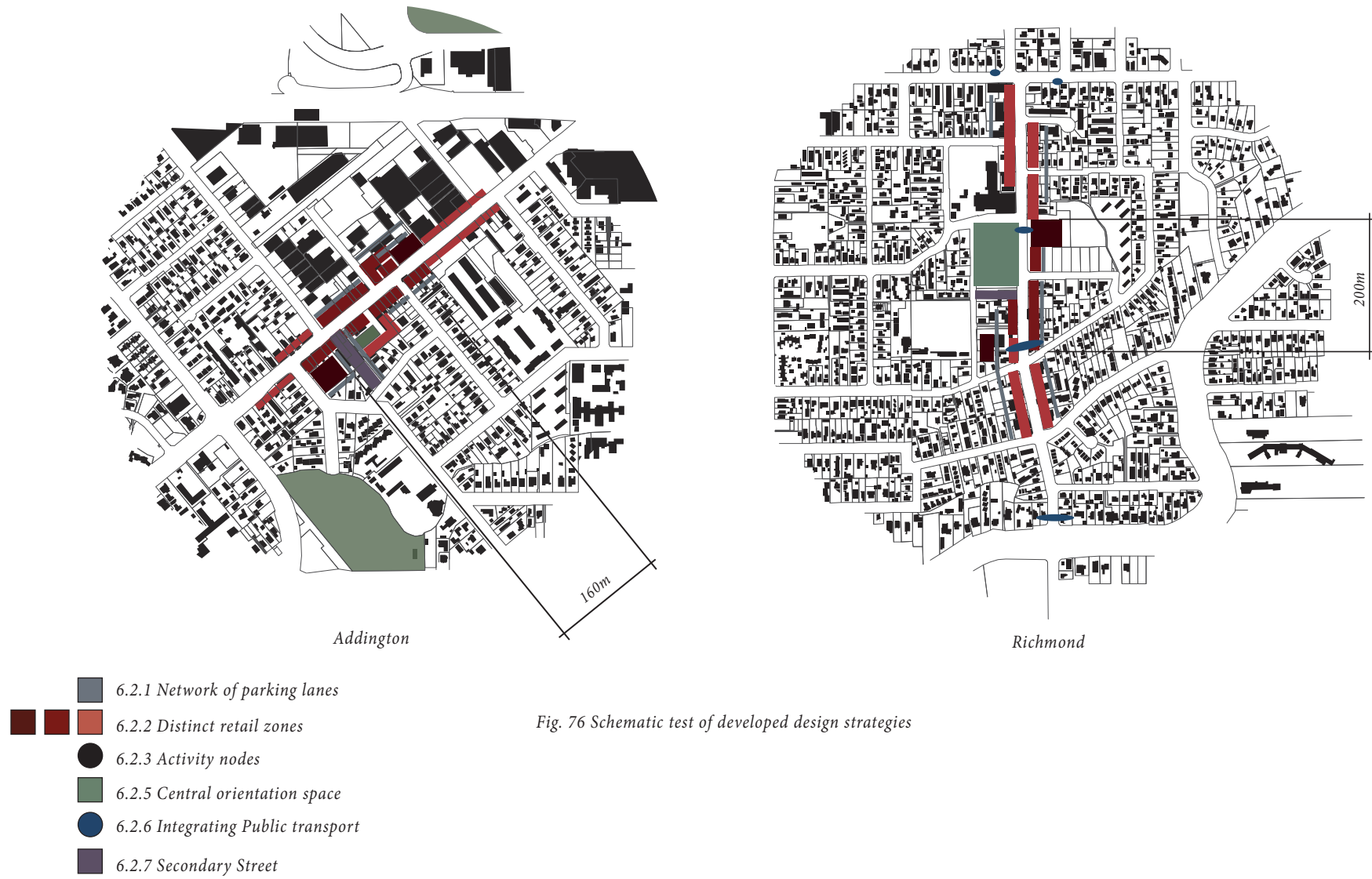


Fig. 76 Schematic test of developed design strategies



7.0

RESEARCH CONCLUSIONS

7.0 RESEARCH CONCLUSIONS

This research has produced a list of focused design criteria and a range of flexible design strategies which can be used to enhance the future viability of other neighbourhood centres.

Research process

Initial literature research identified three aspects of the shopping experience – (a) residential proximity, (b) retail convenience and (c) urban amenity – as important priorities for neighbourhood centres, if they are to compete with other retail environments. Further literature research informed a set of initial design criteria. The subsequent comparative analysis and site analysis prompted a number of criteria amendments. This focused list of criteria, and significant site knowledge, meant the design work became a relatively simple matter of implementing the previously established requirements. This process produced both a master plan and building design for Woolston.

In order to achieve design outcomes which could be applied in other centres, the list of criteria has been intentionally kept site-independent. Rather than containing spatially significant instructions, they prescribe a list of necessary features to be included in the design. The outcome of this research process is

a set of design strategies which are capable of being applied to the existing urban structure of other neighbourhood centres.

Using the design criteria

The retail convenience literature and thereby the design criteria were particularly prescriptive, often discussed in spatial terms. These criteria were therefore easily incorporated into the design.

Conversely, the literature dealing with urban amenities was less tangible and more conceptual; it suggested few concrete design directives which could be applied in a generalised context. An intimate understanding of the particular challenges posed by a site is required in order to implement such abstract criteria; for instance, those which concern connectivity and integration.

Most of the strategies produced in this research are based on the more prescriptive criteria, for two reasons. Firstly, they are more applicable to the general case and less reliant on site-specific understanding. Secondly, it is easier to demonstrate that they are being fulfilled.

A potential risk of having so many criteria, amendments, features, strategies, and tools is that the outcome of the research will be rigid. However, the strategies developed in

this research can be differently configured depending on the context into which they are being applied. The research outcome is therefore not a single suggested blueprint for neighbourhood centres, but rather a tool box of components that can be used on any site, in a range of combinations to respond to the existing structure.

Research limitations

One of the most significant limitations of this research has to do with the allocation of retail zones. Retail zones can be encouraged by varying the building type and overall size. However, if an existing building significantly disrupts the intended zone, removing or relocating it is not a simple task. Obstacles of this type can be insurmountable if they are not taken into account early in the process.

Essentially, what this limitation reflects is that neighbourhood centres are most often an intricate mix of land parcels with different owners. These centres do not benefit from the single ownership or management that malls do. Therefore, implementing these retail zones in existing situations can be significantly disrupted by existing buildings.

Further Research

To improve the applicability and utility of these strategies, appropriate systems to identify the unique underlying structure of different neighbourhood centres would be beneficial. This presents a productive route for further research.

Final statement

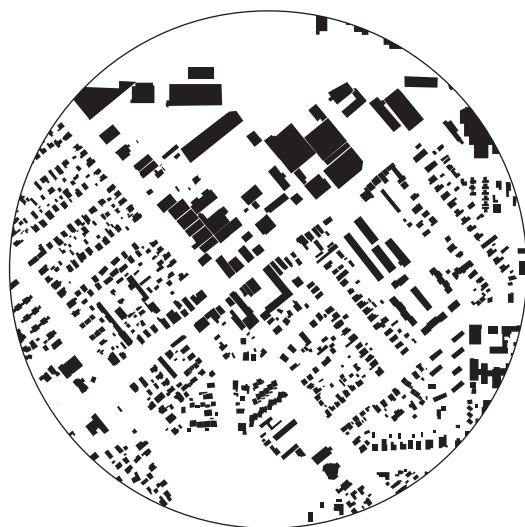
This research has produced a list of focused design criteria and a range of flexible design strategies. Ultimately, this research can be used to enhance the future viability, not just of Woolston, but of other neighbourhood centres, to ensure they develop as distinct places where people want to work, live and visit.



APPENDIX. A

Urban Characteristics

Figure ground introduction



Addington



Richmond



Woolston

APPENDIX. A

Urban Characteristics

Street heirarchy



Addington



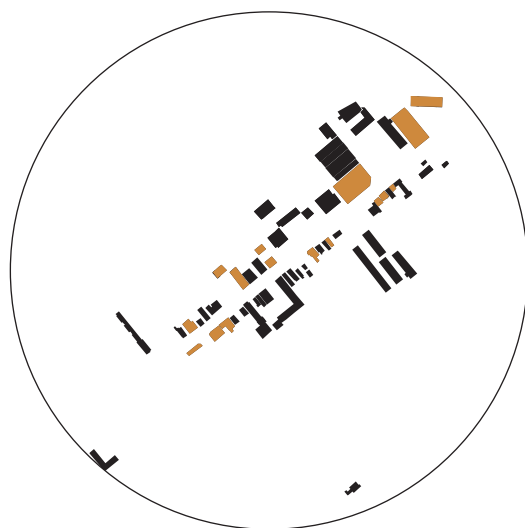
Richmond



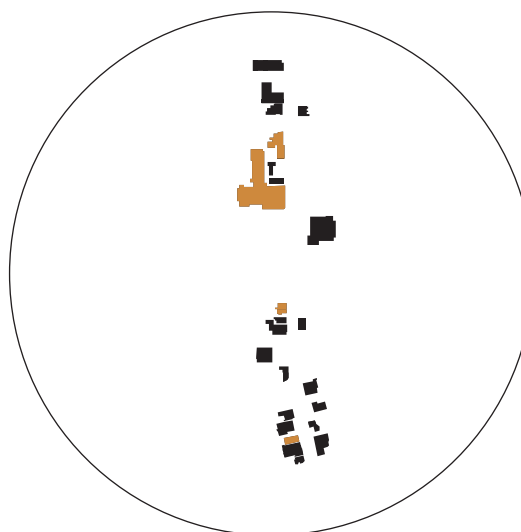
Woolston

The primary commercial streets of both Addington and Woolston connect to significant city arteries.

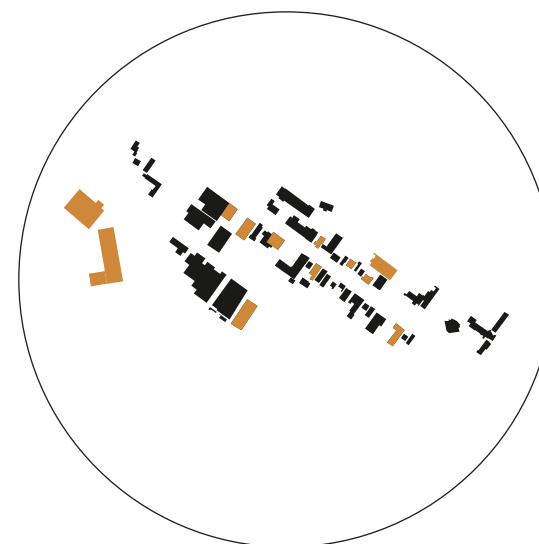
APPENDIX. A
Urban Characteristics
Building heights



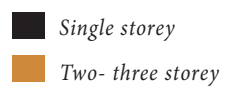
Addington



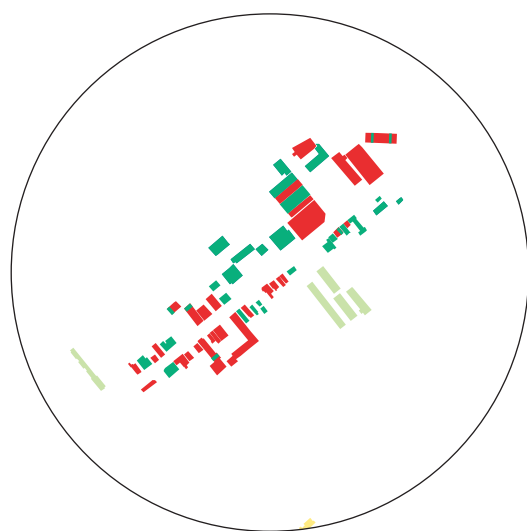
Richmond



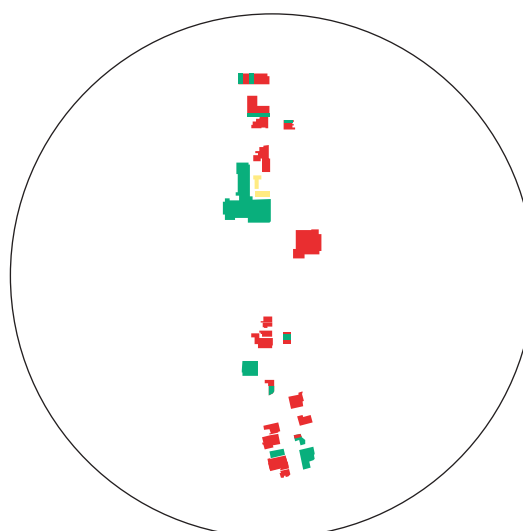
Woolston



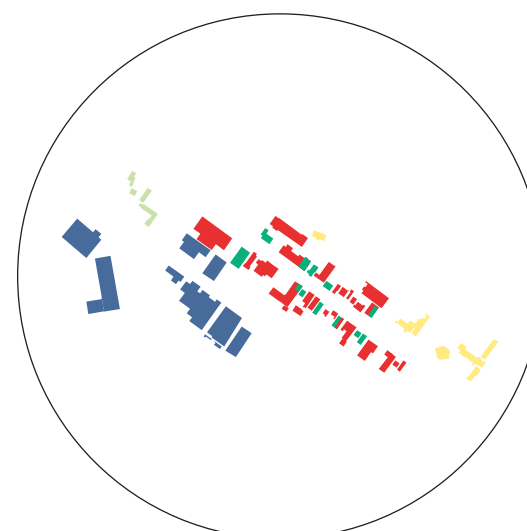
APPENDIX. A
Urban Characteristics
Building and land use



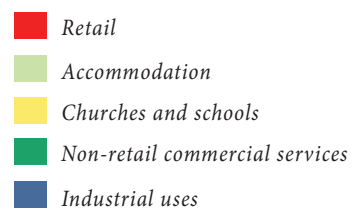
Addington



Richmond



Woolston



APPENDIX. A

Urban Characteristics

Gateways



Addington



Richmond



Woolston

-  Gateway building
-  Perpendicular street communicating edge of centre

APPENDIX. A
Urban Characteristics
Building mass on site



Addington



Richmond



Woolston

APPENDIX. A

Urban Characteristics

Public transport and cycleways



Addington



Richmond



Woolston

● *Bus stop*

APPENDIX. A
Urban Characteristics
Parking spaces



Addington



Richmond



Woolston



APPENDIX. A
Urban Characteristics
Green space



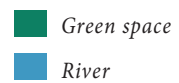
Addington



Richmond



Woolston





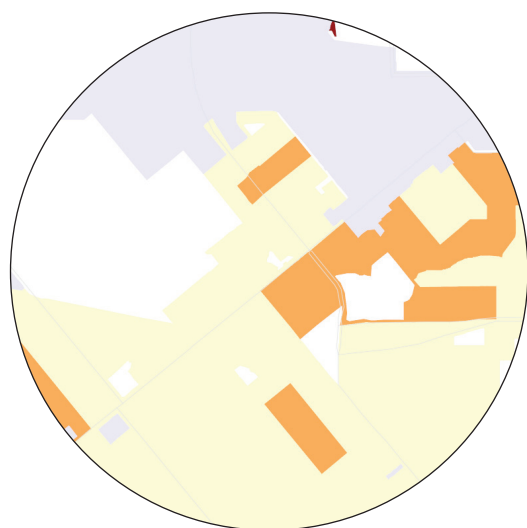
appendix. B

RESIDENTIAL CHARACTERISTICS

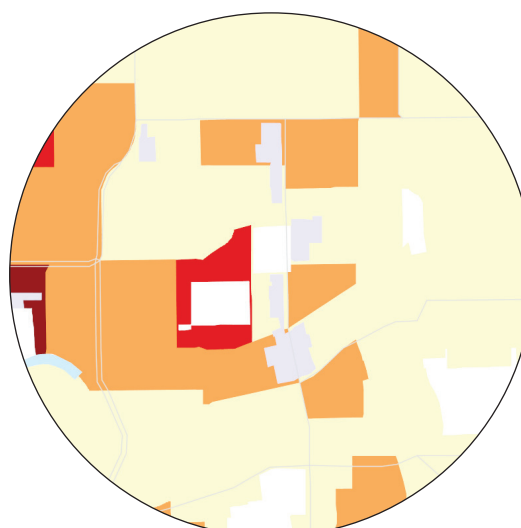
APPENDIX. B

Residential Characteristics

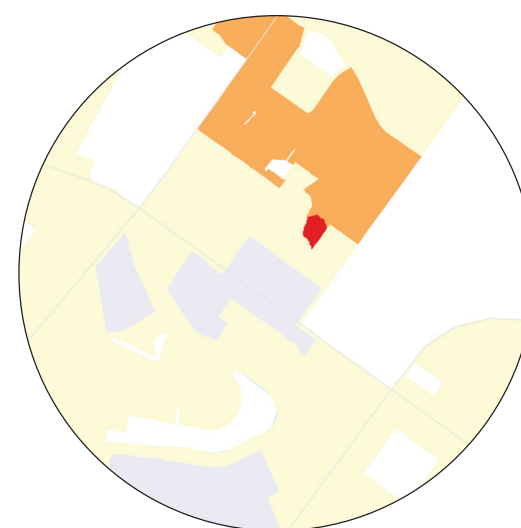
***Population densities: Net Dwelling Density 2001
(dwellings per hectare at meshblock level)***



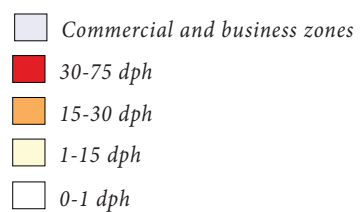
Addington



Richmond



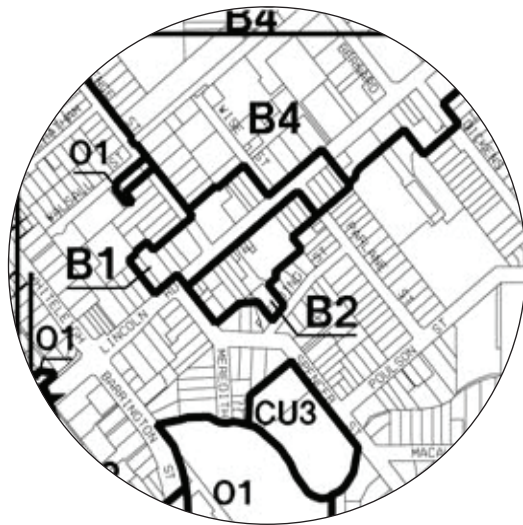
Woolston



APPENDIX. B

Residential Characteristics

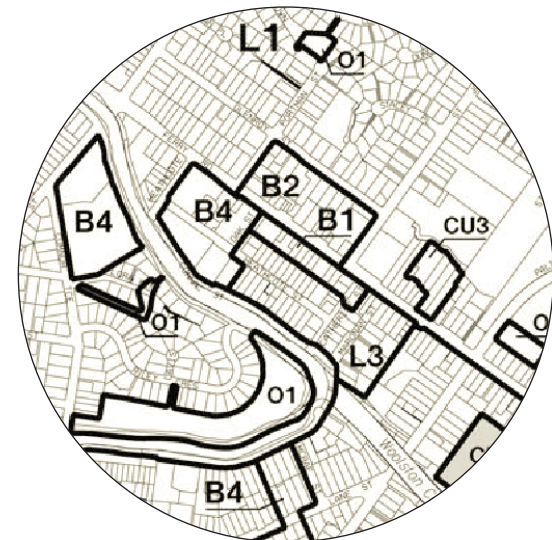
Land use zoning



Addington



Richmond



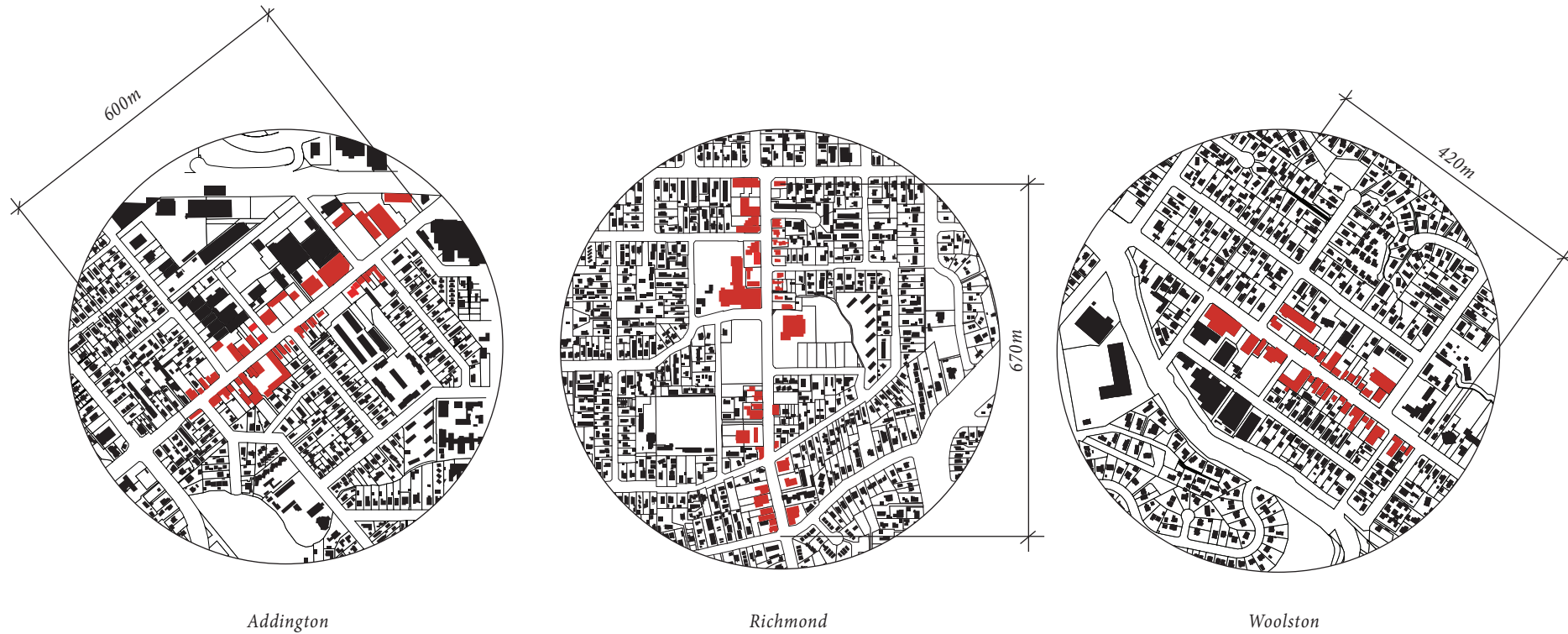
Woolston



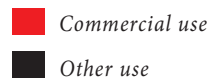
APPENDIX. C

Retail Convenience Characteristics

Length of commercial zone



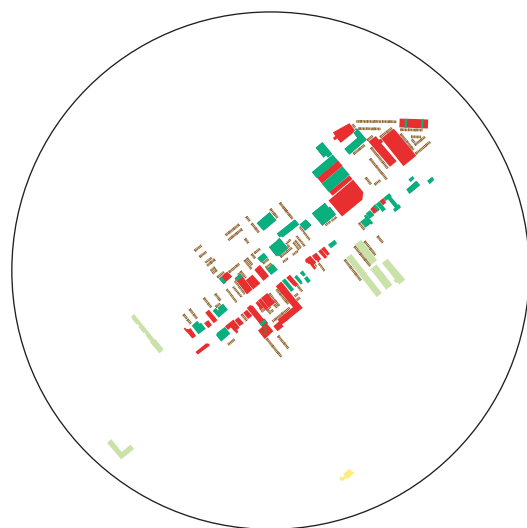
Commercial zone terminates with either a perpendicular street, river, or landmark building.



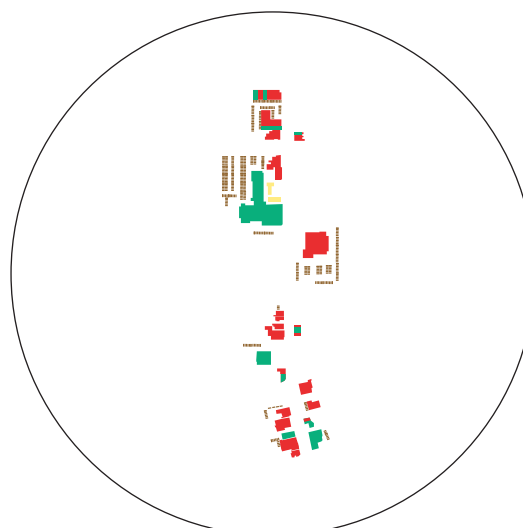
APPENDIX. C

Retail Convenience Characteristics

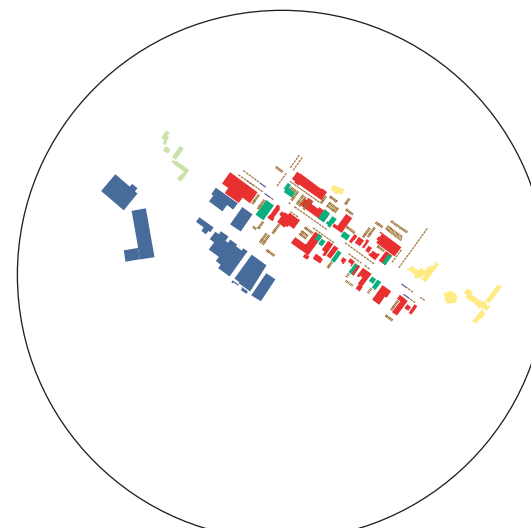
Service types and parking locations



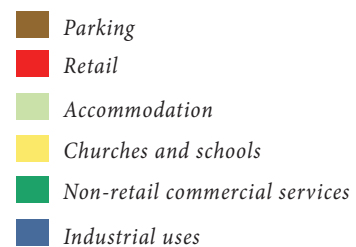
Addington



Richmond



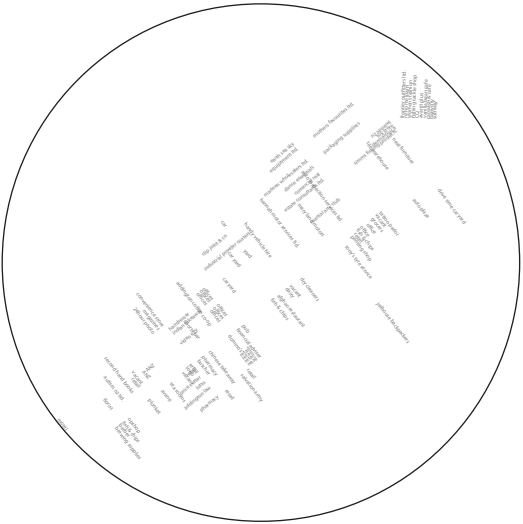
Woolston



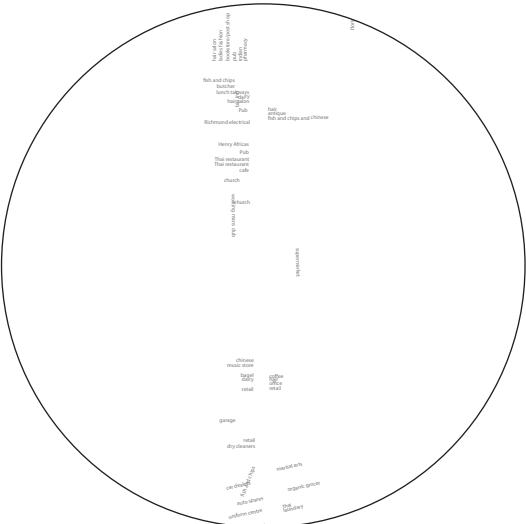
APPENDIX. C

Retail convenience Characteristics

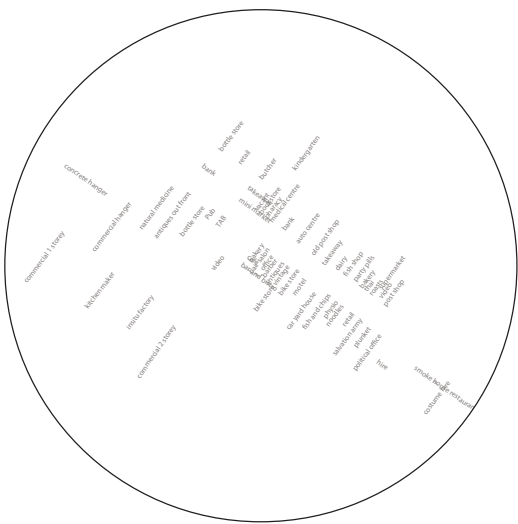
Retail concentration: Concentration and orientation



Addington



Richmond

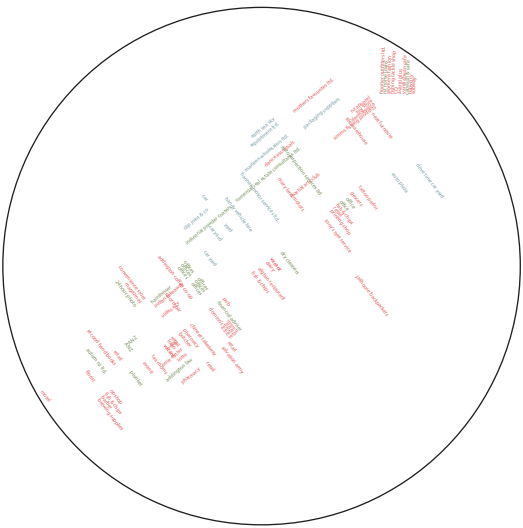


Woolston

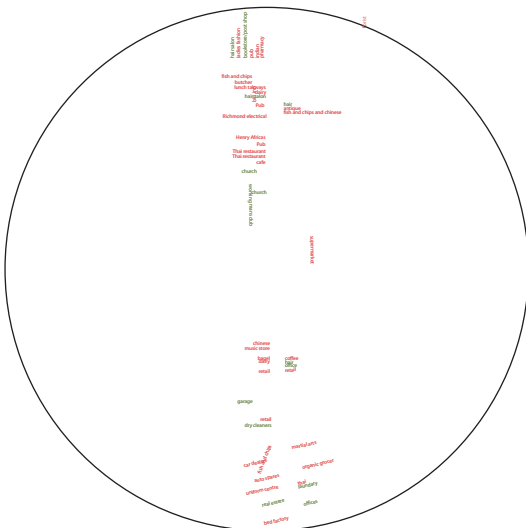
APPENDIX. C

Retail convenience Characteristics

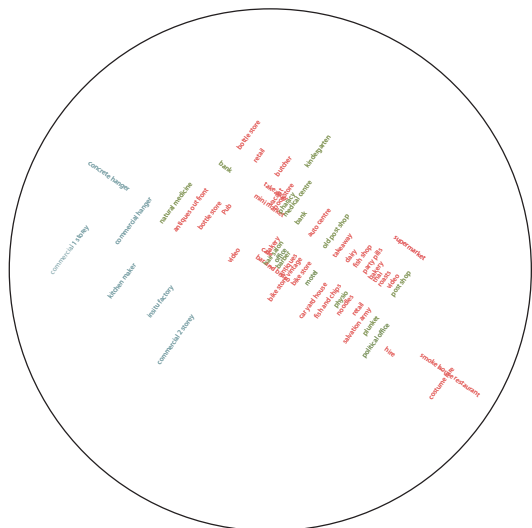
Retail concentration: Concentration of service types



Addington



Richmond

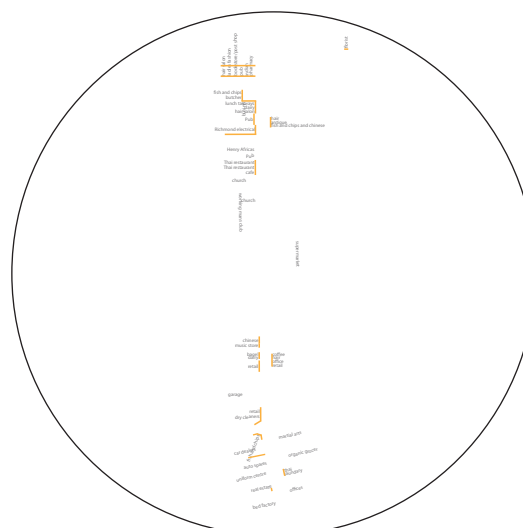


Woolston

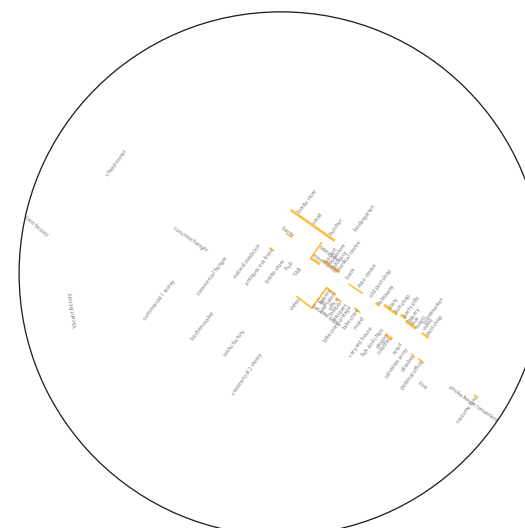
Retail services

Non-retail services

Industrial services



Richmond



Woolston

164



APPENDIX. C

Retail Convenience Characteristics

Anchor tenants



Addington



Richmond



Woolston

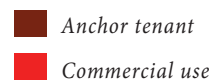




Table 7 Woolston design criteria

WOOLSTON SPECIFIC DESIGN CRITERIA	
W. 1	Use the Smokehouse factory and Nugget factory sites to 'bookend' Woolston's commercial identity
W. 2	Locate second retail anchor further than 200m from first
W. 3	Locate retail zones. Existing supermarket determines eastern intermediate zone
W. 4	Reconfigure existing on-street carpark to create central orientation/gathering space
W. 5	Provide consistent shelter along Ferry Road
W. 6	Maintain store visibility with stores facing Ferry Road. Locate street trees on corners and side streets.
W. 7	Locate bus stops in intermediate zone near commercial activity without disrupting retail core
	Create a network of parking lanes that contribute to both retail convenience and urban amenity
W. 1a	Consolidation and dispersal: consolidate intensification at river front and in existing medium density zones near commercial strip
W. 2a	Consider context: utilise industrial site history to create a distinct identity
W. 3a	Connectivity and integration: enhance connections to riverfront and increase site permeability.
W. 4a	Achieve diversity: Use a diversity of building types to locate different activities and achieve retail zones
W. 5a	Design for adaptability: Future proof at all scales, consider both infrastructure and buildings
W. 6a	Strengthen legibility and identity: communicate existence of the river on main street, and enhance industrial site history
W. 7a	Provide places for people: provide spill spaces from shops and public spaces for recreation along river front.
W. 8a	Environmental sustainability: introduce a network of native planting and storm water treatment.





Fig. 64 Proposed supermarket lane: Looking north across Ferry Road



Fig. 64 Intersection of commercial axis and secondary street. Central orientation space seen to the left.



Fig. 66 Proposed river edge apartments and Heathcote River Cycleway



Fig. 68 The proposed new Nugget Factory

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