From Urban Sprawl to Compact City – An analysis of urban growth management in Auckland

Joshua Arbury

For my daughter Amalia

Acknowledgements:

I would like to thank everyone who participated in the questionnaires and interviews, my supervisor Ward Friesen for providing useful insights and helpful suggestions, and particularly my mother, Jacquelyn Arbury, for her priceless help with proof-reading and editing.

Contents

Title		**1**
Acknowledgements		**2**
Contents		**3**
List of Figures		**5**
Chapter One – Introduction		**7**
Chapter Two – Urban Sprawl versus the Compact City		**14**
2.1	Introduction	15
2.2	The rise of Urban Sprawl	18
2.3	Sustainability and Sprawl	29
2.4	The Compact City	44
2.5	Critiques of the Compact City	54
2.6	New Approaches and a Focus on Urban Design	58
2.7	Conclusions	63
Chapter Three – The Auckland Region: Problems and Responses		**66**
3.1	Introduction	67
3.2	A History of Auckland's Growth	69
3.3	The Auckland Regional Growth Strategy	74
3.4	Implementing the Strategy	89
3.5	Critiquing the Regional Growth Strategy	96
3.6	Conclusions	101
Chapter Four – Implementing the Regional Growth Strategy in Auckland City: creating 'Transit-Oriented Developments'		**104**
4.1	Introduction	105
4.2	A 'Growth Management Strategy' for Auckland City	107
4.3	Transit-Oriented Developments	118
4.4	Conclusions	125
Chapter Five – Avondale's Future		**127**
5.1	Introduction	128

5.2 A Brief History of Avondale 129
5.3 A ‘Liveable Community Plan’ for ‘Avondale’s Future’ 135
5.4 Visual Interpretation of Avondale’s Capacity for Growth 143
5.5 Questionnaire and Interview Results 149
5.6 Conclusions 157
Chapter Six – Conclusions **159**
References **165**

List of Figures

Figure 2.1: The effect of evolving transportation technologies on city form
Figure 2.2: The evolving distance of a one hour commute
Photo 2.1: The spatially extensive and automobile dependent urban sprawl

Table 3.1: Desired regional outcomes to be achieved in a Regional Growth Strategy
Table 3.2: Principles that will need to be applied to achieve desired outcomes
Photo 3.1: An example of Residential 8b zone. Housing New Zealand owned development at Talbot Park in Glen Innes

Figure 4.1: Areas of stability in Auckland City's Growth Management Strategy
Figure 4.2: Areas of change in Auckland City's Growth Management Strategy
Figure 4.3: Population capacities of Auckland's 'areas of change'
Figure 4.4: Location of households in the Auckland isthmus in 2021

Figure 5.1: Ethnic composition of Avondale
Photo 5.1: The abandoned 3Guys site
Photo 5.2: Part of Avondale's shopping district
Figure 5.2: Growth options for Avondale as discussed in consultation workshops
Figure 5.3: Auckland City's 'Liveable Community Plan' for Avondale
Photo 5.3: The forever postponed Avon Plaza development
Photo 5.4: Existing housing types in Avondale
Photo 5.5: Further example of subdivided section in Avondale
Photo 5.6: Some capacity for growth in Avondale on large sections
Photo 5.7: Undeveloped land in Avondale (currently zoned Residential 5)
Photo 5.8: The most obvious site for development in Avondale: location of the old 3Guys supermarket
Photo 5.9: High density housing in Avondale
Photo 5.10: New high density development in Avondale

Figure 5.4: What attracted you to living in Avondale?
Figure 5.5: Effects of growth on Avondale
Photo 5.11: The isolated Avondale train station

Chapter One - Introduction

Since the publication of *Our Common Future* by the Brundtland Commission in 1987 (WCED, 1987), the concept of sustainable development has become increasingly significant as a target for creating a better future for the world, economically, socially and environmentally. Operating in contradiction with efforts to create a more sustainable future are factors such as an ever-increasing population, and more importantly, an almost exponential growth in the use of resources, many of them non-renewable (Elkin et. al., 1991). Within this situation, the role of the world's urban areas in determining whether sustainable development is an achievable goal is becoming increasingly significant, with the world's urban population more than doubling since 1950, and being expected to double again to reach 6.2 billion by 2050 (Rodrigue, 2005). Although most future urban population growth will come in developing world cities, especially in Asia and Africa, per-capita resource consumption rates of these cities pale into insignificance compared with developed world cities, particularly low-density 'sprawled' cities in North America, parts of Europe, and Australasia (Haughton and Hunter, 1994). It is for this reason that focusing on improving the sustainability of developed world cities is so critical, as there is much to gain and more resources available than in developing world cities to help achieve more sustainable urban futures. Of particular concern in these 'sprawled' cities is both the loss of surrounding natural land, as urban development spreads rapidly into previously productive or environmentally significant land, as well as increasing concerns about the environmental effects of automobile emissions, particularly in relation to climate change. However, as Chapter Two will elaborate upon, the negative social and economic impacts of urban sprawl also significantly impact upon its widely accepted unsustainability. Moving from urban sprawl to a 'compact city' has been proposed as one way urban sustainability can be improved upon. As Chapter Two details, the compact city hypothesis looks to limit peripheral urban development, and instead focus on using land within the existing city in a more efficient manner, especially in relation to redeveloping unused sites, or low-density areas at higher-densities (known as intensification). While this type of development can potentially have great benefits, it has also been critiqued primarily on the grounds of such a radical change to the world's cities being impossible to implement in a feasible manner that would be acceptable to existing residents. Therefore, this thesis searches for ways in which compact city approaches to urban development can be implemented in an acceptable and feasible manner while making a

difference to the sustainability of cities around the world, but most particularly in Auckland, New Zealand.

This thesis focuses on Auckland as an example of a developed world city that is characterised by many of the problems associated with urban sprawl, and looks at ways in which local government is attempting to implement policies throughout the next 50 years, at both regional and district levels, to create a more sustainable urban future for Auckland. While the overall question being asked is "How can Auckland best achieve its urban growth management goals?", the foundation of Auckland's goals is to create a more sustainable urban future. Therefore, a critical review of Auckland's efforts to work towards sustainability over the next 50 years, and to create a new type of city that '…ensures growth is accommodated in a way that meets the best interests of the inhabitants of the Auckland region' (Auckland Regional Growth Forum, 1999: 2) will provide a framework for the third, fourth and fifth chapters of this thesis. Of particular importance are efforts that will need to be made to overcome the largely negative opinion Auckland's population has towards the creation of a 'compact city' through higher residential densities in key parts of the city. For Auckland to truly become a more sustainable city, then intensification will need to be implemented in a way residents approve of to build attractive communities where people can coexist harmoniously at higher density levels than what they are currently used to. The Auckland Regional Growth Strategy, the main document outlining how growth will proceed in Auckland over the next 50 years, has identified four main principles for guiding Auckland's transition from urban sprawl to a compact city. These principles are based around creating:

1) strong supportive communities
2) a high-quality living environment
3) a region that is easy to get around
4) protection of the coast and surrounding natural environment. (Auckland Regional Growth Forum, 1999)

These four principles are what the Auckland Regional Growth Strategy defines as necessary for creating a sustainable urban future, so therefore it is Auckland's progress towards these principles that will be analysed and critiqued throughout this thesis.

Chapter Two provides an in-depth literature review of the compact city/urban sprawl debate, initially outlining how urban sprawl has come to dominate developed world cities around the world during the twentieth century, through a combination of societal and technological factors. Of particular interest is how urban decentralisation was initially a great improvement for millions of city dwellers, who during the early twentieth century were able to move away from the polluted downtown areas of industrialising cities to newly created suburbs. These suburbs were serviced initially by trains and trams, and then by the increasingly omnipresent automobile from the 1920s onwards, but most particularly after the Second World War. The relationship between urban decentralisation and an improved standard of living has perhaps been reversed in the past 30 years due to traffic congestion and an increasingly homogeneous suburban landscape, yet decentralisation remains popular and reasonably attractive at the individual level, even though its communal level effects are highly destructive. This chapter also analyses exactly what constitutes urban sprawl, identifying that it is more than just low-density development as aspects such as automobile dependency and single-use development also contribute to its unsustainability. It is the unsustainability of urban sprawl – economically, socially and environmentally – that forms the basis of Chapter Two, and outlines the need for change in the way urban areas are designed to improve sustainability. The compact city hypothesis is introduced as an alternative to urban sprawl which focuses on limiting the peripheral expansion of urban areas, and instead looks to direct development in the form of intensification, increasing the densities of existing urban areas and redeveloping underused or abandoned sites. The compact city is designed to make more efficient use of existing land resources and infrastructure, as well as reducing automobile usage as public transportation becomes more viable at higher urban densities. Furthermore, a wide variety of compact cities will be discussed, as well as variations in what actually constitutes a compact city in many different parts of the world. This leads into a critique of the compact city model, based around Breheny's (1997) questioning of its veracity, feasibility and acceptability. Finally, the chapter concludes by looking for solutions to the problems posed by urban sprawl while accepting the critiques of the compact city This section has a particular focus on the concept of 'quality urban design', which has been widely proposed in both New Zealand

and overseas cities as a way of overcoming the feasibility and acceptability issues surrounding urban compaction.

Chapter Three focuses on Auckland's response to 'urban sprawl' through new planning strategies that outline a very different urban future for Auckland than has existed in the past at the regional level. Over the next 50 years the Auckland region's population is expected to almost double to two million, which created a shortfall of almost 200,000 dwellings under previous planning provisions. In this situation, the Auckland Regional Growth Forum, a consortium of representatives from the Auckland Regional Council (ARC) and the region's Territorial Authorities (TAs), drafted a *Regional Growth Strategy* (RGS), published in 1999, to ensure that this shortfall would be accommodated in a way that could improve Auckland's future urban sustainability. Under the RGS 70 per cent of future development in Auckland would occur within existing metropolitan boundaries, clearly linked with the compact city theory. Furthermore, this intensification would be focused on town centres and transit corridors within Auckland to reduce automobile reliance (Auckland Regional Growth Forum, 1999). To achieve such a goal, the ARC has created in-depth guides for quality urban design that can help guide planners at the district level best implement intensification in ways that are acceptable to local populations (ARC, 2000). Although many of the compact city's critiques can also be applied to the RGS, its strong focus on quality design and integration between transportation and land use means that it provides an effective framework for a more sustainable Auckland in the future. Perhaps the strongest critique of the RGS has come in its implementation, as frequently applications to extend metropolitan limits have been accepted, while allowing 30 per cent of development to occur outside the existing urban area means that there remains potential for more sprawl to be built.

Chapter Four outlines how the RGS has been implemented in Auckland City, as a central part of the Auckland region that is forced to grow through intensification as there is no room for 'greenfield' development. A memorandum of understanding (MoU) between the Auckland Regional Council and the Auckland City Council required that the city council develop a Growth Management Strategy (GMS), consistent with the RGS, that will guide growth in Auckland City over the next 20 years. This chapter analyses the GMS, and in particular how

it has planned for growth through identifying 'areas of stability' (where there should not be any substantial development) and 'areas of change' (where there is potential for intensification) (Auckland City Council, 2003). The recently introduced Residential 8 zone is also analysed, as the provisions of this zone form the basis of Auckland City's framework for creating a more 'compact city'. The importance of urban design in Auckland's growth management procedures is also analysed and critiqued, specifically in regards to negative comments made in the media about 'chicken-coop' apartments and 'future slums' in areas of intensification. The chapter concludes by analysing the concept of 'transit-oriented developments', and how well this fits with Auckland's growth management strategies. Overall, Chapter Four outlines a predominantly positive view of how planning for intensification is proceeding in Auckland City, mainly due to strong urban design controls that are linked to the Residential 8 zones, but also some caution for the future of 'areas of change' if they are overly dominated by low-income residents, as is the case in Glen Innes. The chapter also questions the 'teeth' of the regulations to stop poor quality developments, which have stigmatised higher-density living in Auckland over the past decade and continue to affect the 'acceptability' of transforming Auckland into a 'compact city'.

Chapter Five analyses Auckland's growth management strategies at the neighbourhood level of Avondale. Avondale's designation as one of Auckland City's first 'areas of change' to be implemented has led to the drafting of a Liveable Community Plan (LCP) to guide Avondale's future development in a way that best suits the residents of the area as well as the overall planning goals of the city and region (Auckland City Council, 2005b). Primary research, conducted through questionnaires and interviews with local Avondale residents, as well as a series of photographs of the area, provides much of the information for this chapter, which looks to gain an insight into the opinion of local residents towards intensification in their local suburb, as well as throughout the rest of Auckland. A brief history of Avondale and an analysis of the area's LCP also form important parts of this chapter, which seeks to provide some feedback with regards to what needs to be done better for intensification to be more 'feasible' and 'acceptable' to the local population, and to better achieve the four main growth principles outlined in Chapter Three. Results from the questionnaires and interviews support assertions made in earlier chapters that local governments need to play a more

significant role in ensuring high-quality developments are built, and that for intensification to 'work', more intelligent design will be required than is visible in higher-density developments throughout other parts of Auckland.

This thesis is not intended to be a damning critique of Auckland's current growth management strategies, as it is clear that the RGS, GMS and other planning documents released over the past five to ten years are a step in the right direction for a city roundly criticised for its *laissez faire* approach to urban planning throughout much of the twentieth century. Indeed, provisions made in Auckland's more recent planning strategies clearly show a shift towards advocating a more 'compact city' style of urban development, and a shift away from predicting and providing for peripheral urban expansion through motorway construction. However, it is also clear that intensification in Auckland needs to be done 'better' than it has been in the past, and that significant cultural, economic and social issues affecting the 'acceptability' of intensification will need to be overcome for it to be effectively implemented. The purpose of this thesis is to suggest ways in which this can occur, so that Auckland can contribute to a more sustainable urban future.

Chapter Two:

Urban Sprawl versus the Compact City

2.1 Introduction

The practice of urban planning has a long history, most probably dating from the earliest cities many thousands of years ago. However, the modern concept of urban planning only really began to evolve in Britain during the second half of the nineteenth century '…as a reaction against the industrialisation which had created such great inequalities in living conditions by exploiting for profit whatever did not have to be paid for directly, such as housing, air, water and workers' health' (Relph, 1987: 49). Urban planning evolved throughout the twentieth century, leading to a great variety of urban forms which often had little regard for their impact upon the environment. In the 'developed world' this disregard is most evident in the rise of 'urban sprawl' as the primary form of urban development, one which has come under increased criticism in recent years because of its negative environmental, social and economic effects (Newman and Kenworthy, 1989; Ewing, 1997; Hillman, 1996; de Roo and Miller, 2000; Burton, 2000; Jenks et. al., 1996; Breheny, 1992; Elkin et. al., 1991). This change has occurred in conjunction with an increasing awareness of human impact on the environment, and the emergence of 'sustainability' as a concept of international significance. From the 1970s onwards, ideas of sustainability began to emerge in the urban planning literature – and although somewhat 'radical' when first proposed, the 1987 World Commission on Environment and Development's *Our Common Future* (WCED, 1987), also known as the 'Brundtland Report', brought sustainability into the mainstream. Sustainability has been incorporated in urban planning theory, both through the promotion of a 'compact city' model for urban growth rather than 'unsustainable urban sprawl', and through a renewed focus on the importance of urban design, known as 'New Urbanism'.

As sustainability is a 'core element' of the Auckland Regional Growth Strategy, it is necessary to establish exactly what is so 'unsustainable' about the current urban environment, most notably urban sprawl, as well as understanding what changes can be made to create more sustainable urban futures, both in Auckland and in other cities around the world (Auckland Regional Growth Forum, 1999). Nelson et. al., (1995: 1) have summarised the various definitions of urban sprawl in the planning literature to create a working definition of the concept as: '…unplanned, uncontrolled, and uncoordinated single use

development that does not provide for a functional mix of uses and/or is not functionally related to surrounding land uses and which variously appears as low-density, ribbon or strip, scattered, leapfrog, or isolated development.' This low-density, single-use, automobile dependent type of development has come to dominate the urban environment in the past fifty years, and was brought about by a combination of regulatory, economic and cultural factors. However, urban sprawl is now viewed in a far more negative light in the planning literature, frequently implicated as causing '…excessive land consumption due to under-valuation of open space, congestion due to increased commuting, and socioeconomic segregation due to exclusionary housing markets' (Carruthers and Ulfarsson, 2002: 315). Furthermore, sprawl development is now perceived as contributing to significant fiscal costs for infrastructure providers such as local government (Burchell and Mukherji, 2003), and public health problems (Sturm and Cohen, 2004; Kelly-Schwartz et. al., 2004; Nozzi, 2003).

As mentioned above, the main proposed alternative to urban sprawl has been termed the 'compact city model'. This model differs greatly from conventional urban development (or sprawl) by focusing on urban intensification, creating limits to urban growth, encouraging mixed-use development and placing a greater focus on the role of public transportation and quality urban design. During the early 1990s, compact city policies were enthusiastically implemented by many planning authorities, particularly in the United Kingdom and throughout Europe, as they were linked to the goal of 'sustainable development', popularised by the 1987 Brundtland Report. However, at this stage there was limited critical analysis of whether the compact city could fulfil its promises in delivering sustainability. As a result, a heated debate regarding the compact city has dominated the urban planning literature since the mid 1990s, with many concluding: '…it appears that intensification policies are fraught with contradictions and difficulties' (Williams, 1999: 175).

These critiques of the compact city model have not generally advocated strongly for a return (or continuation) of urban sprawl, but rather question whether intensification can deliver on its promises of a more sustainable urban future, and also whether urban compaction is acceptable to the general public, and can be feasibly implemented (Breheny, 1997). The acceptability and feasibility issues of bringing such a radical change to the urban landscape

should not be underestimated, particularly because urban sprawl is attractive at an individual level. Surveys of Americans by Time Magazine (Lacayo et. al., 1999) and the National Association of Home Builders (NAHB, 2000) '…show that most people want to have their own homes in their own lots'. The lure of a large house on a large lot, with good automobile access to facilities (even if they are located a long way away) is unsurprisingly attractive at the individual level, even if unsustainable at the city or regional level. This creates an unstable contradiction where on the one hand sprawl is encouraged through its attractiveness for individual homeowners and property developers, in many cases supported by public funding of infrastructure to service the developments or mortgage subsidies to promote home-ownership; but on the other hand the resulting sprawl causes an almost endless list of problems for cities and regions as a whole, including traffic congestion, loss of productive land, increased air pollution and spiralling infrastructure costs among others (Duany et. al., 2000). What makes finding solutions particularly difficult for this problem is the complexity of 'compact city' or 'smart growth' proposals, and the wide variety of proposed 'solutions' to the 'urban sprawl problem'. Furthermore, there are inherent difficulties in finding an accurate definition of the 'compact city', and being able to analyse what is, and what is not, a compact urban form. Indeed, Burton (2002: 219) asserts that 'in seeking to provide empirical data to advance the debate, research on the compact city is hampered both by a lack of consensus on its meaning and by the absence of recognised indicators for measuring it.' As a result, it is necessary to understand what constitutes a compact city and how the concept varies internationally, before an accurate critique of the concept is possible. Clearly, there is more to the 'compact city' model than just an increase in population density (Burton, 2002), as it has been proposed that an increase in dwelling density (Goodchild, 1994), the advancement of mixed-use developments (Williams et. al., 1996), and a reaffirmed focus on the nature and quality of development (Elkin et. al., 1991) are all important aspects in the creation of the compact city. As such, the compact city can potentially address more of the wider issues of sustainability than simply saving land from development. However, this also means that these wider claims of sustainability, such as improvements in quality of life, can be questioned on many different levels. Indeed, as the supposed benefits of the compact city become increasingly diverse, hard empirical evidence which can back up these claims becomes increasingly sparse.

However, urban planning literature does not suggest that the 'compact city' model should be completely discarded, but that all hope of achieving a sustainable urban form should not be pinned on just the one option. As Williams et. al. (2000) conclude, 'The search for the ultimate sustainable urban form perhaps now needs to be reoriented to the search for a number of sustainable urban forms which respond to a variety of existing settlement patterns and contexts.' A successful alternative to urban sprawl will need to overcome the contradiction between what residents of the city desire at the individual level, and their aspirations for the city at the collective level. This will require the creation of future housing developments which are attractive, affordable and sustainable – socially, economically, culturally and environmentally. This chapter will discuss the evolution of urban sprawl: how and why it has occurred; why it is so unsustainable yet so popular; before moving on to focus on the compact city concept. This is discussed in relation to differences between definitions of what exactly a 'compact city' is, and how it varies through the literature related to the topic. This section will include an extended discussion about what makes a city (or part of a city) compact or not, and what the supposed benefits are from increasing the density of the urban environment. Examples from the United Kingdom, the USA, Australia and New Zealand will be referred to, in order to highlight the ways in which these countries have interpreted and implemented the 'compact city' ideology in slightly different ways. Critiques of the compact city will also be discussed, especially to focus on aspects of the concept which make it so difficult to feasibly and acceptably implement, followed by an analysis of possible adjustments that could be made to improve public opinion of urban intensification. The chapter will finish by linking the theoretical discussion with the Auckland situation, as well as discussing the potential role of quality urban design in overcoming the contradiction between the desires of individuals with the good of the community as a whole.

2.2 The Rise of Urban Sprawl

Before the Industrial Revolution, of the late eighteenth and nineteenth centuries, people mainly lived in rural areas or small villages. Even though cities had existed for thousands of years, and had been planned to some extent right throughout this period, before

the Industrial Revolution only a tiny fraction of the world's population lived in urban areas (Elkin et. al., 1991). However, technological changes from the late 1700s onwards not only encouraged greater numbers of people to live in urban areas as factory work replaced many former farm jobs, some of which later became mechanised, but also fundamentally altered the structure of the urban environment through a series of technological innovations such as trains and electric trams. Newman (1992) has identified three distinct time periods shaping the development of urban areas, and how the periods are closely linked with the available technology of the time. Traditionally cities had been characterised by a small, dense environment, often walled and generally not being much more than five kilometres from one end to the other. This form developed because of the need for all destinations to be within a reasonable walking distance, and can easily be seen in the design of most European cities, as well as the central parts of many older cities in North America, Australia and New Zealand. The technological development of passenger trains and trams in the latter part of the nineteenth century enabled cities to form a new style of development, characterised by an increasing push outwards. Trains generated sub-centres, with the train station at the heart of a number of pedestrian pockets with similar characteristics to that of the walking city; whilst trams created linear, grid-based development which followed the tram routes (Newman 1992). Cities could now spread up to twenty or thirty kilometres outwards depending on the technologies available, while where the rail lines met in the Central Business District (CBD) there was very dense activity. This technological development coincided with massive urbanisation throughout much of Europe, North America and Australasia; as a result many of the cities in these areas have been strongly shaped by trains and trams, even if those transit systems are no longer in use today. The third stage of urban development, based on the technological development of the automobile, began before the Second World War, but did not become the dominant form of development until after the war when '…the automobile progressively became the transport technology that shaped the city. Together with the bus it became possible to develop in any direction, first filling in between the train lines and then going out as far as fifty kilometres' (Newman, 1992: 287). The automobile made low-density housing feasible, as people were no longer forced to live either near their place of employment or a transit station to transport them there. City functions could be separated through exclusive zoning patterns, enabling people to 'escape' the pollution and bustle

associated with industrial or business areas. In the low-density cities of North America, Australia and New Zealand it has been this third stage of urban development which has come to dominate the city environment over the past fifty years.

There have been a number of other factors working in conjunction with the automobile to facilitate the decentralisation of our cities, throughout the past fifty years in particular. Although Lewis Mumford argued that 'the suburb becomes visible almost as early as the city itself' (Mumford, 1961: 483), it is clear that the low-density suburban sprawl our cities are dominated by today is far different to the limited nineteenth century decentralisation Mumford was referring to. Nevertheless, just as new technology leading to the Industrial Revolution was a turning point in the history of cities, technologies developed at that time – in particular those that led to the automobile – have evolved to be highly conducive to urban sprawl. As Gillham (2002: 25) elaborates: 'we owe our contemporary version of suburbs and sprawl to the Industrial Revolution of the nineteenth century. It was the rapid growth and change of cities brought about by the industrial revolution that brought us the modern suburb. Factories, mills, mass production and, above all, new forms of transportation and communication, has led us to where we are today.' Somewhat ironically, the attractiveness of suburbia to residents can be strongly attributed to the backlash against the living conditions of cities during the Industrial Revolution. Therefore, while this period of great change attracted unprecedented numbers of people to the city, it led to the city becoming an ugly place to live. The solution to this problem was the creation of suburbs, which allowed people to live in a reasonably pleasant location away from the pollution and poverty of the inner-city, but still allowed them to work in the economically booming urban areas. Advancing transportation technologies facilitated this separation between the home and work, leading to a completely different spatial structure of the urban environment: one based on the family unit rather than a productive household unit (Schaeffer and Sclar, 1975).

As mentioned by Newman (1992) above, the first step in separating the realm of the home from that of work was made possible by trains and electric streetcars (or trams). The first spatially separate suburbs, which emerged in the late nineteenth century, were not built for the masses, but instead were exclusive areas intended only for the rich. These suburbs

were accessed from the city by railway, or horse-drawn carriage, and their exclusivity helped foster the image of suburbia as being a more desirable place to live than the inner city. As Gillham (2002: 27) explains: '…the suburbs became a place you could go when you had made enough money to get out of the city.' The development of the electric streetcar in the US and Europe towards the end of the nineteenth century made further suburbanisation possible. Refinement of electrical technology during the 1880s led to the development of the electric streetcar by Frank Sprague, first implemented in Richmond, Virginia in 1888 (Brownell and Goldfield, 1977). While railway lines had created pockets of development, often highly dispersed, new streetcars allowed for much longer contiguous patterns of growth, due to their frequent stops. Ribbon patterns of growth along streetcar routes, their width defined by walking distance to each side of the route, began to appear throughout many of the older American cities such as Boston, New York, Chicago and Philadelphia; but also in many Australian and New Zealand cities. This pattern is particularly noticeable in Auckland along routes such as Dominion Road and Manukau Road, where the ribbon development is still clearly visible through the extension of shops along those streets, and the grid patterns of nearby feeder streets (Gillham, 2002). Although the railway and the streetcar helped extend the city greatly from its walkable phase, often tripling the size of the urban area, the development patterns were very distinct from those that would develop as a result of the automobile, as density remained comparatively high, uses were generally well mixed within short distances, and much of the housing consisted of two- or three-family homes. Nevertheless, this phase of urban development represented the first step towards the decentralised sprawling developments that characterise today's cities.

It was the development and then popularisation of the automobile in the early twentieth century which, more than any other technological development, made possible the dispersed urban development pattern which characterises most North American, Australian and New Zealand cities – otherwise known as urban sprawl. From being the plaything of the rich prior to the First World War, automobile ownership per capita began to increase dramatically, especially in the US but also in New Zealand. In 1920 there was one automobile for every eleven people in the US; by 1930 this had dramatically changed to one automobile for every four and a half people (Southworth, 2001); while in New Zealand the

number of automobiles increased from 37,500 in 1922 to 261,850 in 1938 (Bloomfield, 1975). Land use patterns began to evolve in response to the growing proliferation of automobiles, which was also facilitated by massive government spending on highway systems from the 1930s onwards. Street design and circulation systems changed markedly, from the 'grid' which characterised both walkable and 'tracked' cities, to a maze of winding streets and cul-de-sacs designed specifically with the automobile in mind, with a clear hierarchy of streets separating neighbourhood traffic from 'through' traffic. However, the most important effect of the automobile on urban development patterns was the total spatial disconnection between the home and the workplace, which was made possible through this new form of private transportation. The automobile made it possible to live anywhere in the city (or even out of it), yet still work wherever employment opportunities existed. Figure 2.1 below shows how city-size has developed over the past 200 years as a result of changing transportation technologies, while Figure 2.2 outlines the how the city's spatial 'limit' of a one hour commute has rapidly changed due to developing transport technology.

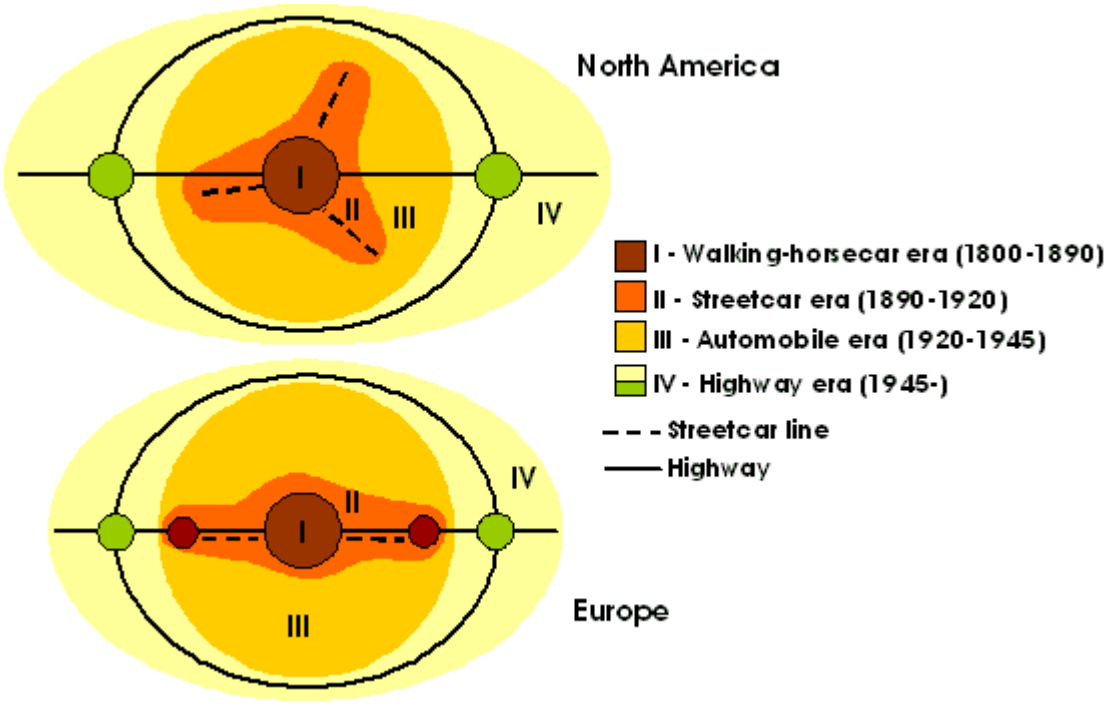

Figure 2.1: The effect of evolving transportation technologies on city form. Source: adapted from Muller, 1995: 29

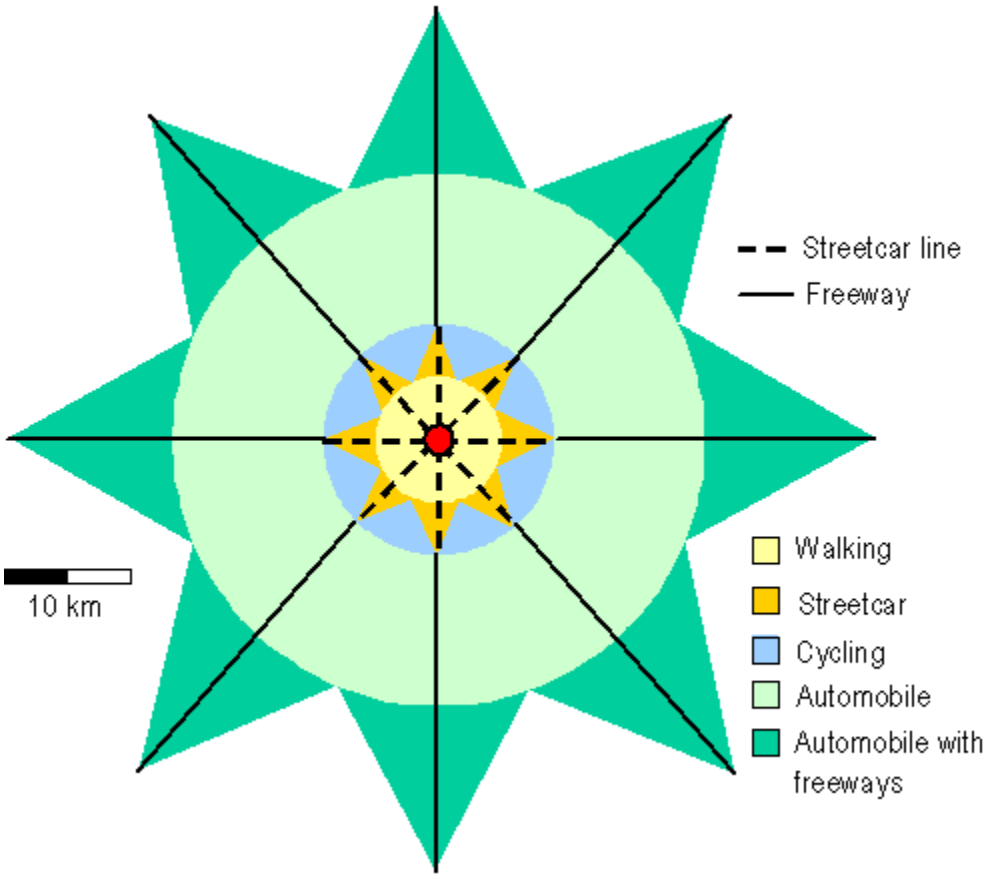

Figure 2.2: The evolving distance of a one hour commute. Source: Hugill, 2002: 213

Nevertheless, it would be naïve to state that the rise in automobile ownership alone has led to the rise of urban sprawl, as there are many other important contributing factors. Duany et. al (2000: 7) believe that above all else, 'suburban sprawl is the direct result of a number of policies that conspired powerfully to encourage urban dispersal'. The most significant contributing policies in the US have been identified as the Federal Housing Administration and Veterans Administration loan programs, which following the Second World War provided mortgages for over eleven million new homes. Intentionally or not, policies such as these discouraged the renovation of existing housing stock, and placed great emphasis on the construction of single-family, detached houses, the foundation of low-density development (Duany et. al., 2000). Working in combination with rapidly rising rates of home and automobile ownership to further entrench low-density, automobile-oriented development was federal investment in a 41,000 mile interstate highway program, which was coupled with 'federal and local subsidies for road improvement and the neglect of mass

transit, [which] helped make automotive commuting affordable and convenient for the average citizen' (Duany et. al., 2000: 8). In Auckland, this process was mirrored in the 1950s with the planned, and later built, motorway system running across the city (Auckland Regional Growth Forum, 1997). In conjunction with these regulatory activities, which encouraged the decentralisation of metropolitan areas, the emergence of 'zoning' over the past 80 years has contributed to the creation of single-use developments and the spatial separation of the home from almost all other activities which people are required to undertake on a daily basis. This is clearly another element of today's urban sprawl.

Town planning, especially zoning, emerged in response to the myriad of problems experienced in nineteenth century European and North American cities. Although some aspects of 'town planning', such as building regulations with regards to fire and safety issues, had been in effect for several centuries, throughout the second half of the nineteenth century these were greatly extended to cover much broader aspects of the urban environment, including street widths, backyard sizes and building heights (Relph, 1987). Zoning was first introduced in New York City in 1916 to bring a sense of order to the industrialised city. Gillham (2002: 26) explains that: 'these new codes were intended to bring light and air back to the city streets and homes and to bring some order to property values by providing assurance about what might be built next door.' Throughout the 80 years since zones were first introduced, they have been continuously refined into seemingly endless gradations of land use, often promoting low density development since the underlying philosophy of zoning continues to link back to its origin as a response to the excesses of the Industrial Revolution. The main effect of zoning, as already mentioned, is how it separates different land uses. In the early twentieth century this was an enormous improvement for city-dwellers, as factories and rail-yards could be confined in 'industrial zones', well separated from houses and apartments, located in 'residential zones'. The spatial separation of land uses would have improved living conditions markedly for residents by reducing air pollution, improving health through new regulations designed to combat overcrowding, as well as creating comfortable and predictable suburbs for residents to live in. Typical of urban planning throughout the early twentieth century was the 1929 Regional Plan of New York and Environs, which proposed large regional highway systems and dispersed industry into

centres throughout the regions (Wheeler, 2000). However, the practice of zoning combined with growing automobile use has created an almost exclusive reliance upon the car as the primary mode of transportation in today's cities. The high-density, mixed-use development typical of late-nineteenth and early-twentieth century cities, a highly walkable environment easily serviced by public transport facilities such as railway and electric streetcars, has been usurped by what is commonly described as 'urban sprawl', a low-density development where different facilities are often located beyond walking distance. The location of these facilities has occurred in such a dispersed manner in 'sprawled' cities that public transportation is not a viable option for people trying to reach them, leaving the private automobile as the only option available to residents.

Thus, there are many characteristics that can be associated with the term 'urban sprawl', although there remains debate in the planning literature with regards to the development of an exact definition for the term, and disagreement whether particular urban forms should be categorised as urban sprawl or not. According to Gillham (2002) there are four main characteristics of sprawl, which mirror the earlier definition given by Nelson et. al. (1995). These characteristics are leapfrog or scattered development, commercial strip development, low density, and large expanses of single-use development. Leapfrog and scattered development go beyond the urban fringe to create built-up communities that are isolated from the city by areas of undeveloped land. In many ways these can be seen as the most extreme examples of urban sprawl, with a highly inefficient use of the land, and a greater need to build highways and other infrastructure to service the outlying areas. Leapfrog development can be distinguished from 'satellite towns', a similar type of development beyond the urban fringe, by the former's much lower density and once again the almost exclusive reliance on the automobile as the method of transport for those living in such areas. 'The result is a haphazard patchwork, widely spread apart and seeming to consume far more land than contiguous developments' (Gillham, 2002: 4), and even though the open tracts of land are usually filled in eventually, leapfrog development remains an inefficient use of land. Commercial strip development, another aspect of urban sprawl, is characterised by '…huge arterial roads lined with shopping centres, gas stations, fast food restaurants, drive-thru banks, office complexes, parking lots and many large signs' (Gillham,

2002: 5). ‘Strip development’ is very low density and automobile dependent, with retail configured in long, low boxes or in small pavilions which are always surrounded by large parking lots. Trips between the different retail outlets are almost always made by car, due to the ‘spread out’ nature of the strip, and there is little if any emphasis placed on the needs of pedestrians. The third, and perhaps most commonly recognised aspect of urban sprawl, is its low density. Gillham (2002) describes the density of urban sprawl as lying between that that of the crowded urban core and open countryside, but being much lower than older towns and cities. Buildings in ‘sprawl’ developments are generally single-story, widely spaced and with intervening parking lots and roadways. Density is normally measured in terms of population density, or dwelling units per area. A population density of fewer than 25 people per hectare is generally considered ‘low density’, and would include most North American, Australian and New Zealand cities, but exclude many in Europe which have a density of around 50 people per hectare, or Asian cities which often have densities of over 100 people per hectare (Elkin et. al., 1991). However, often a more useful measure than population or dwelling density in measuring urban sprawl can be ‘floor area ratio (FAR)’. FAR is the ratio of the area built up to the total land area, meaning that built commercial space can also be measured by dividing the shop floor size by the total land area of the retail outlet. Rural farmland generally has an FAR of between 0.0005 and 0.02, indicating a very low density, with its built-up area accounting for only between 0.05 and two per cent of total land area. Suburban areas, with which sprawl is associated, generally have an FAR of between 0.05 and 0.18 which reflects their low density as less than 20 per cent of the total land area being occupied by buildings. This contrasts with inner urban densities which can range from 0.88 for townhouses right up to 5.05 for apartment buildings (Gillham, 2002: 6).

However, there is clearly more to sprawl than just low density. The final aspect of urban sprawl, the proliferation of single-use development and an almost exclusive reliance on automobiles for transportation, is just as important as density in the identification of urban sprawl, especially the negative environmental, economic and social effects that it contributes to. As mentioned above, single-use development originated as a positive response to the problems of early industrialised cities, and is often created very deliberately through zoning legislation and other subdivision bylaws. However, after World War II the separation of land

uses has been taken to the extreme, with large spatial separation between all the different facilities meaning that the only plausible method of transportation is the automobile. According to Nozzi (2003), city design today means that travelling via an automobile is a necessity, as there is no other way to transport children, groceries, and conduct other multi-destination activities, with the convenience of the 'always available' car. The mixed-use, higher-density developments of early twentieth century cities, which facilitated both walking and the use of public transport, have been usurped by spatially dispersed cities and 'bedroom communities' of exclusive residential development, realistically accessible only by car.

Clearly urban sprawl is a complex phenomenon, involving the four aspects listed above. In addition to those elements of sprawl, a lack of public space is a characteristic that truly identifies a 'sprawled' community from one that is not. As Gillham (2002: 7) elaborates, urban sprawl is distinguished by '…an unbroken fabric of privately owned land divided only by public roads. The major civic open spaces, parks and commons that grace many older urban-core areas can be few to nonexistent in much of the nation's post-war suburban world.' While this aspect of sprawl appears to have negative consequences for the city as a whole, it is important to remember that there are many positive aspects of urban sprawl, which have clearly contributed to its widespread proliferation. Burchell and Mukherji (2003) explain that urban sprawl has allowed people to gain access to less expensive, single family homes on large lots situated away from urban centres rife with crime and poverty, while still allowing residents great freedom of movement, as the vast highway systems have been built to accommodate their automobiles. Indeed, it is very important to recognise that at the individual level, there are many benefits of living in a 'sprawled' community, as a large house, large section, exclusive neighbourhood and multiple automobiles are signs of success in both North American and Australasian cultures. Cities dominated by urban sprawl have enabled the fulfilment of many keys goals both at individual and societal levels, such as '…the freedom to hold land, to live and travel wherever one pleases, to accumulate wealth, and to participate in a democratic government at both the local and national level. In many ways, suburbanisation is a celebration of individual freedom and wealth' (Gillham, 2002: 69).

Urban sprawl is also particularly attractive to developers, not only because of its popularity, but also because it is generally more profitable than inner-city redevelopments on 'brownfield' sites. Developing 'greenfield' sites means, for the developers, that they do not have to bear the costs of removing what was previously on the site nor upgrade surrounding infrastructure, as that is usually paid for by the general public through rates and infrastructure costs (Carruthers and Ulfarsson, 2002). As the negative effects of urban sprawl are mainly felt elsewhere, such as in the neglected urban core, or on the congested freeway, developers and those living on the urban fringe appear to get the best of both worlds: enjoying all the benefits of their large residences and socially homogenous neighbourhoods, while not having to deal with any of the negative effects that sprawl may cause. (The negative effects of sprawl will be discussed in more detail in the next section). The lifestyle choices of the general public, especially those who can afford to live on the attractive urban fringe, have proven to be very enduring. This is particularly true in the United States, although to a lesser extent in New Zealand cities such as Auckland, where the inner suburbs are becoming more attractive to people through gentrification. These enduring lifestyle choices have meant that elected governments have little motivation to alter policy decisions that have helped create the highly sprawled environments, as they are not willing to put their political careers in jeopardy for changes which are unlikely to be popular with their constituents (Carruthers and Ulfarsson, 2003). Yet there remains a paradox in the general public's opinion towards urban sprawl, with Cheryl Cleary, president of the New Zealand Planning Institute stating that: 'As much as some people say they want the right to choose where they live, at the same time they are likely to be saying they want the rural character on the outskirts retained. Often people don't put the two issues together. They also want shorter travelling, less air pollution, a better sense of community. They want all these benefits of contained growth' (Gamble, 2005). Some commentators, such as Gordon and Richardson (1997), have defended urban sprawl on the grounds that it is a consumer preference, which people prefer over a more compact and 'crowded' urban environment. Moreover, Easterbrook (1999: 19) argues that 'Many people who now grouse about sprawl themselves live in spacious houses, own an SUV, owe their good fortunes to the growth economy, and would be entirely outraged if there were not ample roads, stores, restaurants and parking wherever they went. They wish everybody else would get off the highway so that they can have the road to themselves.' In New Zealand, Roughan

(2005) writes: 'I love Auckland for precisely the reasons our local government is now determined to resist. This is a place to sprawl.' It is necessary to ask that if everyone appears to be living so well, then perhaps the '…harm sprawl is causing our society and our environment is simply unfounded – the inflammatory rhetoric of a disenfranchised minority of environmentalists and urban intellectuals who find sprawl aesthetically displeasing' (Gillham, 2002: 71). The next section will critique this assertion, and argue that while the urban sprawl may be attractive to homeowners and developers at the individual level, it does incur severe economic, environmental and social costs. However, because these costs are often borne by the whole community or individuals well away from the flash developments on the urban fringe, they are often hidden from view. As Burchell and Mukherji (2003: 1535) elaborate: '…market, policy and personal choices support conventional development or sprawl because resources are relatively plentiful and no one is advocating for society's needs. Individual maximisation is not societal maximisation, and in the short run individual maximisation involves bearable negative social costs.' Whether these costs are actually bearable has been questioned, especially the indirect costs of urban sprawl, which are not easily identifiable. Moreover, urban sprawl is fundamentally at odds with the concept of 'sustainability', a concept which has taken on increased importance in preserving future quality of life.

2.3 Sustainability and Sprawl

The term *sustainable,* in reference to human development patterns, first appears to have been used in the 1972 study of global resource use: *The Limits to Growth* (Meadows et. al., 1972). The authors of this work believed that the catastrophic collapse of global systems would occur midway through the twenty-first century if current growth rates and resource consumption continued, and that the only alternative was 'to alter these growth trends and to establish a condition of ecological and economic stability that is sustainable far into the future' (Meadows et. al. 1972: 24). At the time, such thinking was quite radical as the 'environmental movement' had barely emerged. However, events around this time including the 1972 UN conference on the Human Environment and the 1973 oil crisis forced many academics and policy-makers to accept that current trends could not be maintained forever,

and that drastic measures may be required to conserve natural resources for future generations. During the late 1980s and early 1990s sustainability became increasingly widely accepted; primarily due to the 1987 WCED report *Our Common Future* and the 1992 Earth Summit in Rio de Janeiro (WCED, 1987). The most commonly used definition of sustainable development, the recommendation of both the WCED report and the Earth Summit, is 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (WCED, 1987: 43). This definition recognises the importance of ensuring that the needs of the world's population *at the moment* should be met, with consideration for the needs of people in the future.

Therefore, the concept of sustainable development, which has formed the basis of environmental law in many countries around the world over the past fifteen years including New Zealand, is strongly related to the ethical norms of welfare, distribution, and democracy while recognising that nature's ability to absorb human-made encroachments and pollution is limited (Naess, 2001). Haughton and Hunter (1994) have identified three basic principles of sustainable development: the principle of inter-generational equity; the principle of social justice; and the principle of transfrontier responsibility. Each of these principles is seen as equally important in achieving sustainable development, especially when attempting to apply the concept in a situation such as designing more sustainable cities. The principle of inter-generational equity, or futurity, is what most people concentrate on when talking about sustainable development: the need to consider the effects on future generations' needs and aspirations when undertaking any human activity (Haughton and Hunter, 1994). However, equally important in the eyes of the Brundtland Commission was the principle of social justice, (also known as 'intra-generational equity'): that poverty needs to be tackled in present generations as it is a prime cause of environmental degradation. Sustainability, according to the generally accepted definition, means a more even distribution of resources, wider participation in environmental strategies and policies, and always taking into account basic needs and common aspirations. Finally, Haughton and Hunter (1994) refer to the principle of transfrontier responsibility, of a need for people to take stewardship of the global environment at a global level, which is necessary because many of the environmental problems (such as global warming) transcend national borders The principle also requires

developed countries to refrain from the exploitation of resources in other areas, which can distort regional economies and ecosystems.

However, there are major potential problems for those attempting to implement sustainability throughout the world's cities, as the concept appears to conflict with urbanism at a fundamental level. Indeed, Elkin et. al. (1991: 6) state that cities have never been sustainable, rather 'the process of urbanism in antiquity has been frequently linked with desertification in the hinterland. Cities have always exploited the surplus food and materials produced in the hinterland, and thus interfered with previously more cyclical ecological systems.' This fundamental conflict between sustainability and urbanism becomes clear when one analyses the environmental impact of urban areas. Cities house a concentration of polluters, from industry to cars, which contribute to the disruption of the earth's carbon cycle and could lead to global warming. Moreover, the vast food and energy use of the city, as discussed in the next paragraph, creates what has been termed an enormous 'ecological footprint', the amount of land needed to support the modern city (Naess, 2001). Furthermore, not only are today's cities unsustainable, but they are becoming more unsustainable all the time, as there is no doubt that the pre-industrial dense European city would have consumed far less than cities today which are characterised by urban sprawl.

Nevertheless, it is clear that while cities may be ever be able to actually achieve 'sustainability', they can become *more* 'sustainable'. Haughton and Hunter (1994) have calculated that on average each city of one million people consumes 625,000 tonnes of water, 2000 tonnes of food and 9500 tonnes of fuel, and generates 500,000 tonnes of waste water, 2000 tonnes of waste solids and 950 tonnes of air pollutants on a daily basis. While this level of resource consumption is clearly unsustainable, it remains very difficult to devise ways to reduce the levels of resource consumption while maintaining the high standard of living that people enjoy in developed nations. Although cities in the developing world are growing at a much faster rate than those in developed countries, the amount of resources used in these countries pales in comparison to the unsustainable use of resources in every large developed-world city. This means that increasing the sustainability of the world's developed cities must be a priority for policymakers, as there is both potential for great improvement and available

resources to help implement necessary changes. Furthermore, as 'intra-generational equity' is a key element to Brundtland's definition of sustainability, it is important to analyse the wider impacts of urban sprawl on today's communities, as well as how these impacts are set to develop into the future.

Environmentally, there are two main concerns related to urban sprawl: the rate at which it is consuming the landscape, and the air pollution that such a high level of automobile reliance is causing (Williams, 1999; Newman and Kenworthy, 1989; Guiliano and Narayan, 2003; Garcia and Riera, 2003; Anderson et. al., 1996; Kenworthy and Newman, 1990; Keyes, 1982; Owens, 1986). As already mentioned, the great irony of urban sprawl is its attractiveness at the individual level, in particular the spacious sections and large houses of recent developments, but its destructiveness communally. According to Burchell and Mukherji (2003), 742 out of the 3091 counties in the USA are affected by urban sprawl, and 13.1 million of the 23.5 million projected households for the period 2000 to 2025 will be constructed in areas characterised by sprawl. Therefore, at least in the USA (but also clearly in New Zealand), urban sprawl is a widespread problem affecting much of the urban development that has occurred in the past fifty years. This ubiquity means that any negative environmental impacts of sprawl are very significant, not just affecting a small proportion of the environment. It also means that the loss of land due to development is significant, with the American Farmland Trust believing that about 400,000 acres of prime farmland is being lost to sprawl each year in the USA alone (Gillham, 2002: 75). This also leads to the destruction of natural habitat for many species, which as a result have become endangered or are on the brink of becoming so, with species such as the Pacific salmon and the Florida panther being seriously threatened (Gillham, 2002). Sprawl consumes land with particular ferocity, due to its highly inefficient form. This generally includes a surprisingly high percentage of land in sprawled urban areas being devoted to the needs of the automobile, with many American cities having close to half their land area occupied by either roads, highways, parking lots or other automotive-serving facilities (Duany et. al., 2000). This compares with about ten per cent of more compact cities being devoted to the automobile, which would lead to a far smaller loss of productive land (Duany et. al., 2000). Most tellingly, Mitchell (2001: 52) writes that: 'Seventy million Americans lived in the 13,000

square-miles comprising the nation's urbanised areas in 1950. Today about three times as many people live in a total metropolitan area that is more than fifty times as large.'

The link between sprawl and air pollution is also becoming increasingly significant, with a great amount of interest being focused on the issue of global warming, and measures to reduce levels of carbon emissions. Regulation has markedly improved air emissions from industrial areas in the past thirty years, leaving the greatest percentage of emissions these days coming from automobiles. Furthermore, although each individual car now emits far less than cars made before 1970, due to cleaner fuels and better tailpipe technologies, this improvement has been almost completely negated by the rapid increase in vehicle miles travelled (VMT) throughout the last 30 years. According to Southworth (2001: 1271) 'between 1980 and 1999 aggregate US highway vehicle miles travelled is estimated to have increased by more than 76 per cent', an annual rate which far exceeds increases in population, jobs and disposable incomes. Southworth (2001) also identifies three main factors which have led to such a rapid increase in travel throughout the past 25 years: firstly, social and demographic growth and change within the population, which has led to increases in disposable incomes, the number of households and vehicle-ownership levels; secondly, changes in the cost of travel, including declining (until very recently) real fuel prices, the use of more efficiently fuelled vehicles and faster travel times due to large highway investments; and thirdly, changes in land use and the associated built environment. This third factor is a specific reference to urban sprawl, which has radically changed the types, mix, density and spatial arrangements of land, altering both trip distance and frequency. As Southworth (2001) elucidates, 'the overall result is to create greater distances between what are often single use, segregated and often geographically extensive land developments. With connections between these parcels of developed land both necessitating and encouraged by the construction of intervening highway miles, the automobile has become the only economical form of travel between many places within a metropolitan area' (see Photo 2.1). Although a growing body of research is concerned with this relationship between urban form and travel patterns, there remain many unanswered questions with regards to whether urban compaction can actually lead to a reduction in VMT. Much of the research (Banister, 1997; Cervero and Kockelman, 1997; Ewing, 1995; Frank and Pivo, 1994; Meurs and Haaijer, 2001; Naess and Sandberg,

1996; Newman and Kenworthy, 1989; and Stead, 1997) does support the link between various aspects of land use and travel patterns or behaviour, although often only with respect to lower densities increasing VMT, rather than the opposite pattern. Indeed, even when travel costs increase through further decentralisation, increased traffic congestion or rising fuel prices, people are much more willing to adapt their travel patterns to suit where they want to live, rather than change where they live and what type of residence they have to suit their travel patterns. These issues will be discussed further when the compact city is critiqued, even though the relationship between sprawl and increased VMT does appear to be fairly universally accepted.

Photo 2.1: The spatially extensive and automobile dependent urban sprawl. Photo of Calgary, Canada taken by author: 6/7/05.

The environmental impacts of such a rapid increase in VMT are immense. 'The US Environmental Protection Agency indicated that in 1997, motor vehicles emitted over 50

million tons of carbon monoxide into the air, over seven million tons of nitrous oxides, over five million tons of volatile organic compounds, 320 tons of sulphur dioxide, and almost 15 million tons of road dust into the nation's air' (Nozzi, 2003: 2). Nozzi (2003: 2) goes on to state that: 'in 1991, air pollution from motor vehicles resulted in 50 to 70 million respiratory-related restricted activity days, over 850 million headaches caused by carbon monoxide, 20,000 to 46,000 cases of chronic respiratory illnesses, 530 cases of cancer, and over 40,000 premature deaths.' Moreover, these costs are borne by the general public, in particular pedestrians and cyclists, rather than those doing the actual driving. Air pollution is also generally worst in the inner-city, because of the natural concentration of activity and therefore traffic, which once again is inconsistent with the source of the pollutants: most likely to be suburban commuters. Building more roads to reduce traffic congestion, which is commonly misconceived as polluting more than fast-moving traffic has no positive effect on pollution levels, with the most car-friendly cities in the USA such as Phoenix, Detroit, Denver and particularly Houston having toxic air emissions just as bad, if not worse, than most other cities (Nozzi, 2003). In 1998, Houston's toxic air emissions equalled 90 per cent of the total emitted by the whole state of California, while in 1999 its smog exceeded federal standards on 52 days (Nozzi, 2003). Reducing congestion has a far smaller effect on air quality than the number of vehicle trips and the length of those trips, and building more roads only encourages more car travel, therefore more air pollution. Nozzi (2003) concludes that urban dispersal is a major factor in causing air pollution, and that dispersed developments cause 20 to 50 per cent more air pollution than compact ones.

Economically, urban sprawl has been shown to be highly inefficient, especially in the provision of services and infrastructure by local governments. However, once again there is a strong mismatch between the individual economic effects of sprawl, and those on society. Deal and Schunk (2004: 81) summarise this conflict by stating that : '…current low density sprawl development patterns are preferred because they are relatively cheaper for the developer and individual purchaser at the expense of the broader community and society as a whole.' Water and sewer infrastructure costs are one particular aspect of urban sprawl which can prove to be prohibitively expensive for local governments. Burchell and Mukherji (2003) state that under conventional (sprawl) development in the US between 2000 and 2025 there is

a projected expenditure of about $190 billion in providing necessary water and sewerage infrastructure expansion to primarily single-family detached subdivisions. Although much of this investment would still need to occur under a more compact-type development, multifamily units require fewer laterals, fewer outdoor sprinklers and generally use less water than single family homes. Indeed, Burchell and Mukherji (2003) believe that roughly 150 million gallons of water and sewer demand per day could be saved through more compact development, without depriving users any of these fundamental facilities. Roading infrastructure is another area where significant cost savings could be made by focusing development in a more compact manner. 'Under conventional development, the US is projected to spend more than $927 billion during the period 2000-2025 to provide necessary road infrastructure, amounting to an additional two million lane-miles of local roads' (Burchell and Mukherji, 2003: 1537). While there would still need to be significant investment under a 'managed growth' policy, the difference over the time period could be around $110 billion, or an 11.8 per cent saving in local road costs.

As well as basic infrastructure costs, sprawl is also economically inefficient with regards to the cost of local public services. As development does not usually pay for itself, and required services include schools, hospitals and other government services, there is a significant cost to the public sector for urban development. Costs are generally lower in denser areas close to urban centres as economies of scale and absorption of existing excess capacity can reduce the need for expensive new developments (Burchell and Mukherji, 2003; Auckland Regional Growth Forum, 1999). Under conventional sprawl development, Burchell and Mukherji (2003) estimate that the US is expected to spend $143.2 billion annually on the provision of public services, of which only $99.4 billion would be recouped through the revenues from developments. This leaves a fiscal impact deficit of $43.8 billion annually in the provision of public services, a figure which could be improved by $4.2 billion if a more compact urban form existed. Furthermore, these costs are only the 'semi-direct' fiscal impacts of urban sprawl. Once more indirect costs, such as those relating to the economic impact of air pollution or traffic safety are taken into account; the costs of sprawl appear seemingly limitless. Nozzi (2003) estimates that in 1991 (but given in 1999 dollars) motor

vehicle air pollution created up to $531 billion in health damage, $5 billion in crop damage, $44 billion in visibility damage, and $365 million in building damage.

Urban sprawl is also clearly economically unsustainable for many businesses, especially those located in central areas which have suffered from a 'dispersal of investment' towards the urban fringe. As their customers have moved away from the inner-city, businesses have begun to follow them – as investing in older, decaying areas is simply a risk that not many investors are willing to take when the appealing urban fringe is open for development (Gow, 2000). Both the central city and the inner suburbs in many US cities are now seen as 'blighted', occupied only by those who cannot afford to move to the suburbs – a disenfranchised population riddled with crime and poverty (Deal and Schunk, 2004), and continuing the cycle of disinvestment in the existing built-up areas. From an economic perspective, it is highly inefficient, wasteful and unsustainable to build new roads, schools, sewers, and waterlines at the urban fringe while leaving old ones in the inner city to deteriorate (Gillham, 2002). For many local governments, the plight of their inner-cities has been the most telling impact of urban sprawl, as these once bustling centres have been reduced to homogeneous parking lots and faceless office buildings, without street level retail activities, which are almost completely abandoned outside of office hours.

While the societal effects of urban sprawl are very difficult to measure accurately, they are also perhaps the most damning evidence of its unsustainability. Reduced social equity, negative health impact, a loss of community, segregation, polarisation and an inability to adapt to changing lifestyles and family structures are just some of the ways in which urban sprawl is said to adversely affect social sustainability (Gillham, 2002; Hillman, 1996; Deal and Schunk, 2004; Kelly-Schwartz et. al., 2004; Sturm and Cohen, 2004; Song and Knaap, 2004; Le Goix, 2005; Calthorpe, 1993; Nozzi, 2003, Duany et. al., 2000). Social equity is negatively impacted in many ways by sprawl: limiting transport options of the poor due to the high costs of car ownership and poor public transport; increasing the likelihood of poor people living in less desirable neighbourhoods; increasing fear and anxiety generated by high traffic volumes; greater exposure to air pollution and resulting poor health; and losing 'a sense of community' as most people travel beyond the local neighbourhood to conduct their

daily activities (Hillman, 1996). In the most extreme form of urban sprawl, the 'gated community', there is complete social exclusion of 'undesirables' through the loss of public space, including streets. In many respects, the gated community is the culmination of processes that have created sprawl, as Le Goix (2005: 323) describes them as '…a physical and obvious expression of the post-industrial societal changes (fragmentation, individualism, loss of communities), as part of a commoditisation of urban public space, and as a penetration of ideologies of fear and security supported by economic and political factors.' Gated communities are increasingly widespread; according to Blakely and Snyder (1997) there are approximately 20,000 such communities containing more than three million housing units. Furthermore, Blakely and Snyder estimate that eight out of every ten new urban projects are gated. Yet the problem with gated communities is not so much related to the gate, although the loss of public space is an important concern, but what the gate encloses. The exclusivity of gated communities creates a self-perpetuating segregationist pattern, with children who grow up in such communities being less likely to develop any sense of empathy with those living outside the gate, and perceiving them as *other,* with suspicion and contempt (Duany et. al., 2000). Indeed, 'the more homogeneous and "safe" the environment, the less understanding there is of all that is different, and the less concern for the world beyond the subdivision walls. It works both ways: the poor also have little understanding of the middle class, whom they consider to be in no way like themselves, and universally insensitive to their hardships (Duany et. al., 2000).

However, socioeconomic segregation extends well beyond gated communities in today's suburbanised cities. Housing clusters, or 'pods' often consist of houses entirely of a certain value, be it high, medium or low – even if they are not gated. Developers have encouraged this segregation according to housing-type by using the 'exclusivity' of the more expensive clusters to add value to their subdivisions. Maintaining the 'value' of the area becomes a primary concern for local residents, who will strongly oppose any plans to build more affordable housing in their neighbourhood because of the adverse effects it may have on the value of their property value (Duany et. al., 2000). However, the homogeneity of the houses in a subdivision means that if someone's position in society changes, they may feel forced to relocate to a completely different community, abandoning neighbours, community

groups, friends and schoolmates. More traditional neighbourhoods, in contrast to the suburbs of urban sprawl, included a wide range of housing types, which both encourage social equity through the interaction between people of different income levels in an informal, equal environment, and also allow people to move up or down in the housing market throughout their lives so they do not feel forced to relocate to another area. Furthermore, distributing affordable housing for the poor in a widespread fashion amongst more expensive houses, avoids the social problems associated with large tracts of inexpensive housing in many cities, both in the US and New Zealand, further entrenching crime and poverty. If the affordable housing is designed in a way that does not greatly distinguish it, and thus stigmatise it, from the surrounding residences, then there is likely to be little negative impact on the value of those properties.

While social impacts such as a 'loss of community' or 'a sense of exclusion' can be critiqued as being very vague, the health impacts of the 'sprawled society' clearly reveal a significant social cost, in addition to the economic costs already mentioned. The effect of automobiles – the overwhelmingly dominant mode of transportation when urban sprawl exists – on health and well-being, leads to some very sobering figures. As Nozzi (2003: 4) notes: 'The number of people who die on US highways every year is the equivalent of a fully loaded Boeing 747 aircraft crashing every three days, killing everyone aboard. In 2000, almost 6.5 million motor vehicle crashes killed 41,821 people and injured more than three million.' Due to these figures, motor vehicles accidents are the leading cause of death for people in the US of every age between four and 33. Furthermore, it is claimed that the physical structure of sprawl development, through its greater reliance on the automobile as the primary method of transportation, discourages walking and other physical activities, therefore increasing the possibility of many physical ailments such as hypertension, heart disease and type-two diabetes (Kelly-Schwartz et. al., 2004; Badland and Schofield, 2005). Kelly-Schwartz et. al. (2004) sought to clarify this relationship between urban form and health impacts, specifically between different urban forms and levels of physical activity, and found that in general there was evidence to support the hypothesis that sprawl was related to health, but that the relationship was highly complex. Specifically, there was a fairly strong relationship between a highly accessible and gridded street network (a rarity in urban sprawl)

and improved health levels, but a positive relationship also existed between low-density development (common to urban sprawl) and improved health levels. What the study does highlight is the importance of recognising urban sprawl as being much more than simply low density development. Thus, while higher-density living may have negative health impacts, those are likely to be the result of other aspects of the residence, such as being part of a segregated 'ghetto', being located next to a polluting highway, or through poor construction, rather than simply its high density. Similarly, just because an area is characterised by low-density development may not mean that is it 'sprawled'. Walkability, mixed-use developments and a reduced need for the automobile are arguably more important determinants of whether an area is 'sprawled' or not than its pure density. If sprawl is approached in this manner, it can be clearly seen that more compact traditional neighbourhoods are likely to lead to better health levels than ones dominated by urban sprawl.

Calthorpe (1993) takes a different approach to criticising urban sprawl compared with many of his colleagues. The incompatibility of sprawl and sustainability remains paramount, as he describes the automobile era as creating a situation where: '…the city and suburb are now locked in a mutually negating evolution towards loss of community, human scale, and nature. In practical terms, these patterns of growth have created on one side congestion, pollution and isolation, and on the other urban disinvestment and economic hardship' (Calthorpe, 1993: 9). However, what make Calthorpe's argument different is his belief that urban sprawl has 'had its day', and that the traditional suburban dream is becoming more and more incompatible with today's culture, because of changing household structures, family types, workplace environments and increasing environmental concerns. Despite these changes, 'we continue to build post-World War II suburbs as if families were large and had only one breadwinner, as if the jobs were all downtown, as if land and energy were endless, and as if another lane on the freeway would end traffic congestion' (Calthorpe, 1993: 15). Increasing numbers of working mothers undermines the suburban lifestyle, as they are not available to chauffeur children for every trip that is required, or be at home when the children finish school. This breakdown of post-World War II society has led to concepts such as 'latch-key kids' and 'bedroom communities', which highlight the mismatch between our

culture and our suburban landscape. According to Calthorpe (1993), widespread traffic congestion and unaffordable housing are two of the main indicators which show how urban sprawl is no longer compatible with today's society. An alternative model of growth, proposed by Calthorpe (1993), is based upon adapting the design principles of 'traditional' towns to the modern life style so that finely integrated walkable communities with a strong local identity and most of all a focus on the pedestrian rather than automobile, can be created. Through reducing reliance on the automobile, and mixing people of different incomes, social segregation and polarisation can be minimised to a much greater extent than is the case with an urban landscape dominated by sprawl.

The need for every family in the 'sprawled city' to own at least two automobiles means that buying a median-priced house is pushed beyond the reach of many. Duany et. al., (2000) state that in 1970, around fifty per cent of families could afford such a home, yet by 1990 this number had dropped to below 25 per cent, despite the rising number of households with two incomes. As housing becomes increasingly unaffordable, the segregation and polarisation of the urban landscape becomes increasingly severe: the growing number of people unable to afford reasonable housing become clustered in derelict ghettos rife with poverty and crime; while the rich themselves retreat behind the walls of their gated communities, perpetuating further segregation. The impact of automobile ownership on the purchasing power of prospective homeowners is surprisingly large: as Duany et. al. (2000) report that cars generally cost at least six thousand dollars a year, which they translate into more than sixty thousand dollars of purchasing power at conventional mortgage rates. Therefore, for many families the need for two cars to fulfil their suburban lifestyle comes at the cost of owning their own home. Furthermore, those affected by a loss of homeownership are not the urban poor, but the middle-class with respectable jobs, creating what Duany et. al. (2002: 57) call the 'middle-class housing crisis', further evidence of social polarisation.

As outlined above, the negative environmental, economic and social effects of urban sprawl are widespread, diverse and clearly at odds with the concept of sustainability. This is not particularly surprising, given Elkin et. al.'s (1991) assertion that urbanism fundamentally conflicts with sustainability. However, what is clear from the above analysis of urban sprawl

is that improvements can be made with regard to the sustainability of our cities. Furthermore, improvements *need* to be made, especially in developed world cities, where on average citizens in North America (a highly urbanised society) consume sixteen times more energy than those in Africa, and over eight times more than citizens in Asia or South America (far less urbanised societies) (Jenks et. al. 1996). To look at the situation more optimistically, developed world cities offer a tremendous opportunity to make significant sustainability gains, '…because that is where the most intense environmental damage is taking place, and it is there that many improvements can effectively be made' (White, 1994: 109). Jenks et. al., (1996: 4) expand on this, stating that 'with such a large proportion of the population, the concentration of environmental problems, and consumption of resources, cities clearly appear to be the most important location for action to help the goals of sustainable development'.

Therefore, achieving urban sustainability has been identified as a key part of any shift towards achieving sustainable development on a global scale. Due to this challenge, much of the planning literature throughout the 1990s has concentrated on the question of how to design the urban environment in a more sustainable way, and to look for alternatives to the ubiquitous sprawl that has dominated most urban development since the Second World War. Firstly, there is the need to identify what urban outcomes can be said to contribute to sustainable development. In response to this need, Naess (2001: 506) has identified five elements of urban development and spatial planning deemed necessary for sustainable development to occur. They are:

1) A reduction of the energy use and emissions per capita in the city to a level compatible with the ecological and distributional criteria for sustainable development at the global level;
2) A minimising of the conversion of and encroachments on natural areas, ecosystems and soil resources for food production;
3) A minimising of the use of environmentally harmful construction materials;
4) A replacement of open-ended flows, where natural resources are transformed into waste, with closed loops relying to a greater extent on local resources; and
5) A sound environment for the city's inhabitants, without pollution and noise damaging to the inhabitants' health, and with sufficient green areas to give

opportunities for the population to experience and become emotionally related to nature.

Clearly, a fundamental shift in the form and function of the city will be required to meet any of these criteria for sustainability. Urban sprawl clearly conflicts with most, if not all, of the elements of sustainable development listed above. The UN's Agenda 21 and Habitat Agenda both suggest that the objectives of urban sustainability should include: 'a compact urban form; the preservation of open space and sensitive ecosystems; reduced automobile use; reduced waste and pollution; the creation of liveable and community-oriented human environments; decent, affordable, and appropriately located housing; improved social equity and opportunities for the least advantaged; and the development of a restorative local economy' (cited in Wheeler, 2000: 134).

However, the concept of sustainable development itself has been widely critiqued, and as will be shown below, many of the general critiques of sustainable development are also applicable to its application in the urban environment. Somewhat ironically, a very strong critique of sustainability is based on the notion that the concept is 'too' popular, and impossible to disagree with. According to Naess (2001: 504) '…a manifold range of strategies and projects are promoted with the claim that they are derived from the very concept of sustainable development. It has become practically impossible not to be a supporter of a sustainable development, so there is a clear danger that the concept will be watered out.' Moreover, the broad nature of sustainability – there is heated debate surrounding the questions of what we hope to sustain and what is meant by development (Grant et. al., 1996) – means that while there is widespread support for the idea, it is unclear how, if or when sustainability can or will be achieved. With all of this faith being placed in such a broad, difficult to define concept, it is no wonder that some people are sceptical about huge changes to their lives in the hope of improving 'sustainability'. Grant et. al., (1996: 333) summarise what those attempting to implement more sustainable practices confronted with, by stating that: 'Traditionally, many North Americans have defined success in terms of a big house on a big lot. Such cultural attitudes about landscapes, privacy, and leisure may inhibit the willingness to adopt sustainable practices that require social responsibility, and that entail significant spatial and behavioural changes. A sustainable society operates

differently from the one we know now.' For sustainability to be successfully implemented in future urban developments, either these cultural attitudes will need to dramatically change (which appears unlikely in the near future), or developments will need to be carefully designed to be more environmentally, economically and socially sustainable, but at the same time appeal to consumers as attractive places to live. The compact city concept attempts to provide a more sustainable alternative style of urban development to sprawl.

2.4 The Compact City

Much of the planning literature from 1990 onwards focuses on the compact city: a concept designed to implement sustainable development within the urban environment and to counteract the perceived negative social, economic and environmental impacts of urban sprawl. There have been many attempts to define exactly what a compact city is, '… but in general [it] is taken to mean a relatively high-density, mixed-use city, based on an efficient public transport system and dimensions that encourage walking and cycling' (Burton, 2000: 1970). Through intensification of development within the city, many problems related to urban sprawl have the potential to be overcome, reversing the unsustainability of sprawl-type developments. Compact city policies have often been designed primarily to reduce the use of private cars and to minimise the loss of open countryside. However, proponents of the concept claim more than just environmental benefits can be gained from intensifying urban areas; in fact 'higher density settlements are argued to be more socially sustainable because local facilities and services can be maintained, due to high population densities, and therefore accessibility to goods and services is more equitably distributed' (Williams, 1999: 168). Furthermore, '…high density urban living is seen as a prerequisite for vitality, vibrancy, cultural activities and social interaction' (Williams, 1999: 168). The rejuvenation of local economies, particularly in downtown areas neglected by urban decentralisation and sprawl, can potentially also be achieved through intensification. Therefore, at least theoretically, it appeared that a solution to the sustainable city problem had indeed been discovered in planning literature by the mid 1990s, although with scepticism from some such as Breheny (1992, 1996) and Gordon and Richardson (1997). Contention over exactly what a compact city is, and how a great variety of urban forms have been promoted as being 'compact' has

proliferated throughout literature concerned with urban sustainability over the past fifteen years. According to Thomas and Cousins (1996: 54), initial impressions of the compact city '…invoke an intense medieval city, whose limits are clearly visible, and where the hubbub of activity is confined within the city's walls'. While it is highly unlikely that urban planners advocate rebuilding walled cities, it is a confinement of urban activity that appears to be most desired by the supporters of the compact city theory. Indeed, Lock's (1995: 173) definition of a compact city as the process of ensuring '…that we make the fullest use of land that is already urbanised, before taking green fields'; or Naess' (1993: 309) definition of encouraging development to where 'technical encroachments on nature have already taken place' typify the approach of the compact city advocate.

However, although there may be consensus that the compact city is clearly distinct from urban sprawl, there still remain many questions surrounding exactly *how compact* the compact city should be, and to what extent it extends beyond a simple population density increase in the urban environment. Scoffham and Vale (1996) argue that it is highly important to ask these questions about what the compact city is; whether buildings should be brought closer together; whether the number of people living in buildings should be increased; whether it is dwelling density or activity density that needs to be 'compacted'; and what role a mix of urban uses has in the compact city debate. According to Pratt and Larkham (1996: 279) 'One of the key problems with the compact city hypothesis is that it brings very diverse concepts together under a potentially misleading banner. Moreover, these concepts vary from polemics based on rather utopian ideologies through to minutely detailed empirical research.' Throughout the rest of this section, a detailed examination of the compact city literature will be undertaken in an attempt to answer some of the questions raised by Scoffham and Vale (1996), and to analyse whether the wide variety of concepts referred to by the 'compact city' hypothesis can be brought together into a sound theory.

Burton (2002) has identified that the task of measuring urban compactness involves three processes: firstly identifying and defining the various aspects of urban compactness; secondly developing indicators for measuring each of these aspects; and thirdly calculating and reviewing the measure of indicators for a range of towns and cities. The first process will

be the focus of this section, although a range of density indicators will be compared on an international scale to understand how the compact city theory varies across European, North American, Australian and New Zealand cities. Generally three aspects of the compact city are identified: a high-density city, a mixed-use city, and an intensified city (Burton, 2002). The first two aspects are related to the form of the compact city, while the third focuses on the process of making the city more compact. This third point is critical because there are few opportunities for a compact city to be created from scratch, which in any case would appear highly contradictory given the aims of urban compaction. Thus, '…more compact cities can only be achieved through a process of making existing cities more dense, of encouraging more people to live in urban areas and of building at higher densities: of intensifying cities' (Williams et. al., 1996: 83).

Therefore, there is general agreement that the 'compact city model' is based around an increase in density from current levels. Given that a main goal of the compact city model is to reduce the impact of urban development upon the countryside, most future urban growth will need to occur within existing city boundaries (Williams, 1999). In an attempt to replicate the 'supposedly desirable' densely developed cores of old European cities, many different methods of intensification have been proposed, such as 'the development of previously undeveloped urban land; redevelopment at higher densities of existing buildings or previously developed sites; sub-division and conversions; as well as additions and extensions' (Williams, 1999: 168). However, the nature of this density increase, the role of 'mixed-use' development, and the wide variety of international interpretations of the compact city concept are still contentious issues in the urban development literature. Lock (1995) claims that there is no technical or professional agreement on how best to measure density, and that few planners are comfortable in distinguishing between net and gross residential density, or overall town density. This disagreement makes it difficult to draw out the components of urban intensification and to identify what types of intensification should be encouraged, and what should be avoided. The nature of urban compaction has been deemed very important (Burton, 2002; Breheny, 1996) because certain types of development are generally thought of as being more desirable than others – high-rise apartment buildings are often associated with crime, overcrowding and the 'failure of tower-block living' (Williams,

1999; McLaren, 1992); while high-density that is not characterised by high-rise is often thought of as 'town-cramming' (Williams et. al., 1996).

Measures of 'dwellings-per-hectare', 'habitable rooms per-hectare' or 'bedspaces-per-hectare' have been used, especially in the UK, in an attempt to find an optimum density of development which is both more compact than current levels – therefore helping to reduce the strain on the urban fringe for future development while also potentially creating other social and economic benefits attributed to the compact city model – but it also low enough to find acceptance with the local population, who continue to express a preference for spacious low density living (McLaren, 1992). Ebenezer Howard's Garden City, considered to have a very low dwelling density at the time, was intended to be built at 180 bedspaces-per-hectare when it was first proposed (Burton, 2002). By comparison, in the inter-war years in Britain a standard of 120-150 bedspaces per hectare was adopted, and since the Second World War the density of new towns developed has been calculated at around 68 bedspaces per hectare (Burton, 2002). These figures appear to indicate that dwelling densities could be increased substantially before they would reach an undesirable level. Goodchild (1994) confirms this argument through identifying surveys by the UK government suggesting that residential dissatisfaction only appears to increase when density levels exceed 200 bedspaces per hectare, while Rydin (1992) argues that the optimum density for sustainable development is generally in the range of 150-180 bedspaces per hectare, well short of the 'above 200' danger zone, but higher than the 'below 100' zone of unsustainably dispersed suburbia. Therefore, it appears that substantial savings in land consumption can be made, through avoiding the very low density development (of around fifty bedspaces-per-hectare) which characterises urban sprawl, without reaching density levels unacceptable to local residents.

In Britain, as well as attempting to identify an optimal housing density, intensification theory and policy has also focused on redeveloping existing buildings at higher densities and increasing the 'activity density' of buildings through programs such as 'living above the shop' to ensure a more efficient use of existing buildings (Williams et. al. 1996). Moreover, British central government developed an urban development policy clearly favouring urban intensification, in the report *Sustainable Development: The UK Strategy,* which states: 'The

Government's objective for 2012 is to continue to make the best use of the land resource by maximising the use for development of urban land, especially where it is vacant, derelict or contaminated land, and protecting the open countryside and open land of importance in urban areas' (cited in Williams et. al., 1996: 85). The UK government further suggested that 50 per cent (since raised to 60 per cent) of all development should take place on reused sites (Williams et. al., 1996), an approach which has also been used by the Auckland Regional Council in its Regional Growth Concept, as 70 per cent of growth over the next 50 years in Auckland will be through intensification (Auckland Regional Growth Forum, 1999). The pattern of density across the city has also been identified as an important indicator of the city's 'sustainability', as support for local services and facilities rely on high residential densities rather than a uniformly high density across the city. Various methods have been employed in the literature to discover types of development that increase density whilst avoiding the stigma associated with infill housing and high-rise buildings. Haughton and Hunter (1994) describe their optimal urban development as 'decentralised concentration', defined by Burton (2002: 222) as '…the development of higher density development along public transport corridors or the creation of high-density 'nodes' or sub-centres, which concentrate traffic flows sufficiently to encourage public transport provision'. It has further been argued that the method of urban intensification is often of more importance for both acceptability and sustainability than absolute densities, and recent writers on the compact city (Burton, 2002; Garcia and Riera, 2003) have tended to agree that '…the high-density forms most appropriate for the compact city adopt traditional urban land-use patterns such as streets and squares and medium-rise or low-rise high-density housing. Through these forms, it is possible to provide each dwelling with its own front door onto a public street, and to provide gardens for all family dwellings' (Burton, 2002: 222). Thus, the 'compact city' appears to be a highly complex concept not only related to an increase in density, but also a variety of densities across the urban landscape in order to achieve its 'benefits'.

To further add to its complexity, a mix of urban uses has been identified as another important aspect of the compact city. Mixed-use development supposedly further reduces travel times by locating businesses among residential areas, a shift away from the 'bedroom communities' and 'office parks' of sprawl development, which means more people are able

to walk or cycle to work, while the distance travelled to conduct daily activities would be reduced in comparison to single-use dominated cities. Mixed-use development can also increase economic sustainability for local businesses, as they are located within close proximity of a greater number of people, therefore increasing 'foot-traffic' and improving social equity through decreasing the need to own an automobile to access many of the destinations required by local residents. While different types of mixed-use development have not been particularly well explored by the urban planning literature, Burton (2002) identifies that there could be a horizontal (where individual developments of different uses sit side-by-side) or vertical (a variety of use within the individual building) mix of uses within the same development. Both methods are based on creating residential and commercial developments within close proximity to each other, coupled with an increased proximity to educational and research establishments, potentially improving economic performance through better access to the latest technological advances and innovations. Furthermore, mixed-use development is often linked with an increase in the activity density of an area: 'the increased use of existing buildings or sites; changes of use, which lead to an increase in activity; and increased in the numbers of people living in, working in, or travelling through an area' (Williams et. al., 1996: 84). However, the activity increase advocated by British policymakers in 'The Housing White Paper', *Our Future Homes* (DoE, 1995) could lead to a crowded feeling unpopular with local residents, as Burton (2002) states that often it is the density of activity rather than the actual density of dwellings which influences how crowded a neighbourhood 'feels'. Therefore, as is the case with increasing densities, it would be necessary to carefully examine the best ways possible to implement mixed-use development. The disastrous results of mixing high-density housing and polluting factories in nineteenth century industrialising cities, which led to the introduction of zoning laws that facilitate single-use development, continue to stigmatise mixed-use development to some extent.

As identified above, the compact city literature is fairly well developed in Britain, with writers such as Breheny (1992, 1996, 1997), Burton (2000, 2002), Williams (1996, 1999, 2000) and Jenks (1996) writing extensively on the topic, generally in the British context. Internationally, while the notions of urban intensification have also influenced planning policy, such as in Auckland (Fookes, 2000; Dixon and Dupius, 2003; Auckland

Regional Growth Forum 1999; Auckland City Council, 2003), the literature is not nearly as extensive. However, even by comparing what has been written on the compact city, or other terms used for improving urban sustainability through intensification in the USA, Australia and New Zealand, it becomes clear that there is some difference in the meaning of a 'compact city', and different ways that policies have been implemented. This discrepancy is not too surprising, considering the highly varied forms of urban development which these countries currently exhibit, and their different patterns of urban growth, especially over the past fifty years. Elkin et. al., (1991: 4) outline the comparative densities of many large cities around the world:

Amsterdam: 58 people per hectare
Hong Kong: 293 people per hectare
London: 56 people per hectare
Los Angeles: 20 people per hectare
Melbourne: 16 people per hectare
Tokyo: 105 people per hectare

Clearly, planners approaching urban intensification in London will be likely to have a different target to those in Melbourne, and as a result it is likely that different policies will be implemented to achieve the varying aims.

In the U.S., the term 'compact city' is not generally referred to particularly often, although there is a strong debate between proponents of intensifying cities (Ewing, 1997) and those who advocate continuing to allow them to follow a dispersed pattern (Gordon and Richardson, 1997). North American cities are among the most dispersed in the world, with Newman and Kenworthy (1989) reporting that in 1980 Boston had a population density of 12.1 people per hectare, Chicago 17.5, Detroit 14.1, Denver 11.9, Houston 8.9, New York 19.8, Phoenix 8.5, San Francisco 15.5 and Washington DC 13.2. This compares with most European cities' population density of around fifty people per hectare, and many Asian cities with a density of well over one hundred people per hectare. Writers have attributed such low densities to consumer preference, changes in cultural and economic trends, competition for net fiscal contributors within politically fragmented metropolitan regions, ineffective metropolitan-wide planning, and a prevailing transport-land-use dynamic centred on the

private automobile (Filion, 2003; Baldassare, 1992; Gottdiener and Klephart, 1991; Kasarda, 1980; Kling et. al., 1991; Lloyd, 1991; Rolleston, 1987; Soja, 1989; Venkatesh, 1991). The U.S. literature surrounding the negative effects of urban sprawl is very well developed, as can be seen in earlier parts of this section, mainly because this is where sprawl is most highly developed, and seen in its most extreme forms. Some attempts to overcome the situation include the imposition of an Urban Growth Boundary in Portland Oregon, which has proven to be a very effective tool in revitalising the city and earning it a reputation for liveability (Gibson and Abbott, 2002), as well as the increasingly popular planning paradigm of 'new urbanism'. According to Berke (2002: 26) 'new urbanism refers to a design-oriented approach to planned development. Compared to low-density sprawl, new urban developments require considerably less open space and have been touted as enhancing a sense of community, reducing automobile dependency, and protecting the open space.' While not called 'urban compaction', there are clearly strong links between the ideas of new urbanism, generally attributed to Duany and Plater-Zyberk (1991), and the compact city, as it is known in the British literature.

In Australia, the term 'consolidation' has been used for the process of urban intensification. According to Newman (1992: 285) 'Australian cities have sprawled further and faster than any other cities in the world' and are even more space consuming than Californian cities often ridiculed for sprawl. Although the central parts of older Australian cities, such as Sydney and Melbourne, retain some of the 'walking-city' characteristics of European ones, beyond this very limited area, growth in all Australian cities has been of a highly dispersed nature. In response to this situation, Australian policymakers have focused on the process of urban consolidation, describing '…processes such as medium and high density infill housing development, building on large parcels of land that are currently not built on, and development where there is a greater emphasis on town-houses, apartments and terraced housing' (Williams et. al., 1996: 84). Therefore, in Australia the focus is more upon the style of housing built rather than population density and land redevelopment. This is likely to be the case because of Australia's low urban densities, where the emphasis is not so much on fully utilising all possible space (there is much more available space in Australia than in the UK or Europe) but rather ensuring that future developments are designed in ways

that are more sustainable. Newman (1992) realises that Australian cities cannot be transformed overnight into European cities, but that planners need to address the sprawling layout in a way that suits local conditions to create sustainable and acceptable long-term solutions for urban sustainability in Australia.

New Zealand cities, especially Auckland, face similar issues to cities in Australia. New Zealand's urban housing market has traditionally been dominated by owner occupied, detached buildings built on relatively large sections (Dixon and Dupius, 2003). However, housing form is becoming highly problematic in the Auckland region, due to a large population increase from 700,000 to 1.2 million over the past thirty years. 'Until recently, this growth has been accommodated largely by outward expansion and the formation of further new suburbs of detached houses. Transport for these new areas followed the well-established pattern of motorway and arterial highway construction, thus continuing Auckland's dependency on cars' (Dixon and Dupius, 2003: 353). With a net population density of 18.9 people per hectare, relatively similar to that of Sydney and Melbourne, Auckland is facing many problems related to urban sprawl such as traffic congestion and unsustainable land use. Policymakers have adapted a variety of approaches from around the world in an attempt to create the most sustainable urban solution for Auckland – designed and implemented through the Auckland Regional Growth Forum (1999). This strategy, according to Fookes (2000), is for regional urban containment (a British or American policy) to be matched by urban intensification at the local level, which is clearly linked to both Australian and British concepts of urban sustainability. Furthermore, the Regional Growth Forum advocated developing medium density housing, two or three floored terraced housing and low-rise apartments up to four levels with a gross density of 25-70 dwellings per hectare, all clearly modelled on the Australian concept. Under the *Growth Strategy,* 70 per cent of proposed new dwellings would be built within the existing metropolitan area, especially around town centres and major public transport routes, a policy closely connected to the UK's strategy of ensuring that 60 per cent of new development occurred on 'brownfield' sites (Dixon and Dupius, 2003). Thus, the 'compact city' model has been adapted in a rather patchwork fashion in New Zealand, with policies having links to Britain, the US and Australia. Intensified development has been criticised in Auckland, with residents fearing

that such areas will become the slums of the future, while valid technical claims surrounding the poor quality of construction of some new developments has raised questions about whether urban intensification is the best way to improve urban sustainability. This will be discussed in much more detail in later chapters of this thesis.

As compact city policies were quickly implemented in the early to mid 1990s, particularly in the UK and parts of Europe, a somewhat unusual situation arose where the policymakers moved ahead of academics in implementing new measures to improve the sustainability of cities. Indeed, throughout this time many researchers such as Breheny (1992, 1996), Stretton (1996) and Gordon and Richardson (1997) remained sceptical about the benefits of the compact city, while also questioning whether such an approach could be feasibly and acceptably implemented. Much of this scepticism was founded on the realisation of how entrenched urban sprawl had become, particularly in the U.S., and its strong links to consumer preference (enabling people to have greater choice over the location and size of their dwellings from the mid-twentieth century onwards) has led to the suburbanisation and decentralisation of most developed world cities. Indeed, in the U.S. the widespread preference for larger lots and homes has been shown through an inverse relationship between residential density and satisfaction level in many studies (Adams 1992; Audirac and Smith, 1992; Leung, 1993; Wilson and Baldassare, 1996). What became obvious to urban planners in the mid 1990s was a realisation that the compact city was a radical shift in urban design for most cities in the US, Australia and New Zealand especially, and that as such it would be naïve to expect such radical changes to be easily implemented (Williams, 1999; Burton, 2000; Jenks et. al. 1996; de Roo and Miller, 2000; Gordon and Richardson, 1997; Breheny, 1996 & 1997). The notoriously vague nature of sustainable development would also make it difficult to discover whether the supposed benefits of urban compaction were actually occurring. As a result, the planning literature began to question whether the gains to be made from intensifying urban areas were really worth the pain of implementing such policies.

2.5 Critiques of the Compact City

Throughout the early and mid 1990s there was widespread faith in the compact city model's ability to provide urban sustainability. This approach was apparently 'so dominant that it seems inconceivable that anyone would oppose the current tide of opinion towards promoting greater sustainable development and the compact city in particular' (Smyth, 1996 cited in Guy and Marvin, 2000: 10). However, where compact city policies had been implemented, follow-up studies began to show that the predicted benefits were not happening as they should have been, and that the claimed benefits of urban compaction '…are at the very least romantic and dangerous, and do not reflect the hard reality of economic demands, environmental sustainability and social expectations' (Thomas and Cousins, 1996: 56). Furthermore, there was found to be a significant difference between the romantic, vibrant, traditional city and the reality of traffic congestion, poor environmental quality and 'town cramming'; in other words 'the city' was something which many people wished to escape from, through suburbanisation and rural living, rather than embrace (Williams, 1999). As a result of the increased uncertainty surrounding the compact city concept, a clear critique can be developed, focused upon on the compact city hypothesis' veracity (whether compaction actually delivers the environmental, social and economic benefits that it is supposed to); feasibility (whether compaction defies the market and *can* be properly implemented); and acceptability (whether urban compaction will lead to a political backlash from local residents) (Breheny, 1997).

The environmental arguments for the compact city, notably that it 'saves' the countryside from greenfield development and that the number of car trips per person are reduced, have been questioned by empirical evidence. Williams (1999: 172) states that 'recent research in three London Boroughs which had been intensified over a ten year period showed no reductions in car use. Travel patterns were so complex, due to lifestyle shifts such as cross-London commuting and increased journeys for leisure, that no relationship could be found.' Furthermore, the environmental gains made from not developing beyond the urban fringe are often negated by 'the subsequent loss of urban open space [that] may mean a reduction in ecologically important land, and a loss of space for trees and other greenery'

(Williams, 1999: 172). Indeed, although traffic emissions may be reduced by the compact city, there is the potential for more people to experience remaining emissions because of higher population densities. Garcia and Riera (2003: 1926) also claim that 'taking into account available studies, despite the straightforward intuition behind it, there seems to be no conclusive evidence clearly supporting the view that compact cities better accomplish certain environmental goals.' Moreover, empirical evidence from a variety of studies (Handy, 1992; Ewing et. al., 1994; Frank and Pivo, 1994) suggests that while mixed-use development, a crucial aspect of the compact city, reduces vehicle trip rates, this can be in widely varying degrees – as increased walk-trips in mixed-use neighbourhoods often supplement, rather than replace, auto trips. It is also unclear whether mixed-use development exerts more of an influence on shopping or non-work trips, compared to commuting – although Frank and Pivo's (1994: 362) study found that 'mixed-use neighbourhoods were most strongly correlated with walk trips to work, but rather surprisingly they had no influence on mode choice for shop trips'.

The economic benefits of urban intensification have also been questioned: plans to rejuvenate downtown areas through intensification frequently fail according to Gordon and Richardson, (1997) while there has been little empirical evidence to show that higher population densities lead to economic growth. However, a recent study by Carruthers and Ulfrasson (2003: 506) across 283 metropolitan areas in the US 'suggests that per capita spending on infrastructure declines at greater densities and increases with the spatial extent of urbanised land area.' Therefore, while some efficiency gains may be possible for the provision of services through increasing population density, the complexity of the whole compact city concept means that in many cases no direct parallel can be easily drawn between economic growth and intensification. Improvements to social equity from the compact city model have also been questioned by researchers. Reductions in dwelling sizes due to increased densities; health risks associated with residential overcrowding or the closer proximity of residential areas to industrial areas in 'mixed-use' developments; higher crime rates commonly linked with high density living; as well as potentially negative impacts on social segregation and housing affordability are all clearly undesirable social outcomes that could potentially arise from the compact city model (Burton, 2000). Burton (2000: 1983)

concludes that 'when looked at in its entirety – that is, as a combination of all the different indicators – social equity has a limited relationship with compactness.'

Clearly, the veracity – whether supposed benefits will be delivered – of the compact city model has been seriously questioned in the literature since the mid 1990s. Moreover, Breheny (1996 and 1997) questions whether the compact city model, even if theoretically manipulated in such a way to deliver on its potential benefits, can be feasibly applied in a way acceptable to the general public. He claims that because decentralisation has been the dominant model of economic activity since the Second World War, it may be very difficult if not impossible to impose a new centralised logic that would effectively 'require industry to return to the very places it has abandoned or ignored' (Breheny, 1997: 212). Moreover, because so many inner-city areas have been abandoned or neglected they have been stigmatised by high crime rates and poor housing conditions. As a result, it may prove naïve to expect residents or businesses to return to these areas, a necessity if urban intensification is to occur (Williams et. al., 1996). Closely linked to whether urban compaction can be implemented are doubts over whether this will be acceptable to local residents. Perceptions of 'over-development' have led to communities feeling '…that their neighbourhoods are being over-crowded, and are losing amenity. This leads to battles to stave off development, usually on backland sites, or well-loved amenity space such as playing fields or sports grounds' (Williams et. al., 1996: 86). Critiques of the compact city's feasibility are very well founded on the grounds that such policies would have wide-reaching consequences on the very nature of western-cities, and as such may be difficult to implement. As Breheny (1995 82) explains: 'the implications of the compact-city policy are… profound. Potentially they involve considerable collective disruption, the introduction of draconian policies and massive but unknown redistributions of gains and benefits'. Surmounting the fragmentation of local government, as well as overhauling highly entrenched planning policies discouraging mixed-use development and reinforcing automobile dependency are other significant feasibility issues that would need to be overcome for the successful implementation of compact city policies. Overall, the need to reverse the process of decentralisation, which has dominated urban development since the nineteenth century, will be one of the most difficult obstacles for the compact city to overcome. This is not only because of the institutionally entrenched

process of urban decentralisation, but also due to a widespread cultural preference for '…the cherished high land-consuming, high-mobility lifestyle' that characterises most developed-world cities (Breheny, 1995: 82).

Thus, even if urban compaction policies are implemented successfully, they may not be acceptable to large tracts of the population, resulting in the reversal of such policies by locally elected councillors keen to retain their jobs. Breheny (1997: 213) claims that 'generally, marketing surveys carried out by house-builders reveal a strong preference for houses with gardens and as much space in both as possible', an urban form that contradicts compaction. Moreover, developments requiring shared driveways, smaller units, multiple extensions turning detached houses into terraced housing, and other methods used to increase the density of use among the urban environment, have led to a perceived reduction in quality of building stock, especially in the UK (Williams et. al., 1996). Filion et. al., (1999: 1319) summarise many of these problems by stating that: 'One cannot escape noticing that policies inspired by such criticism [of urban sprawl] have had little influence on urban development which remains predominantly low density and car dependent. Proposed correctives have been stonewalled by a deep-seated consumer taste for low-density living and by vigorous anti-intensification NIMBY (not in my back yard) sentiments.' Furthermore, even massive transit investment, suburban downtowns, and urban regeneration projects have failed to alter the heavy car reliance typical of suburban forms of urbanisation. (Filion et. al. 1999).

Clearly, valid questions have been raised in the literature over the past eight to nine years about the veracity, feasibility and acceptability of the compact city as a tool for promoting urban sustainability. Not only has the literature focused on the shortcomings of certain types of urban compaction, but the whole concept of increasing urban sustainability through intensifying activity within a more confined area has been questioned and found wanting. As a result, many researchers have begun to look at new approaches to promoting urban sustainability: if urban sprawl is clearly unsustainable, but urban intensification is only questionably sustainable and riddled with issues and complexities, what methods should be used in the search for a sustainable urban form? (Jenks et. al. 1996) The burning question in most urban sustainability researchers' minds has become whether to focus on finding the best

way to implement urban intensification policies, and to monitor their progress with utmost care; or whether to abandon the whole 'compact city' concept and instead move towards developing new methods of attaining a more sustainable urban future.

2.6 New Approaches and a Focus on Urban Design

In their book *Achieving Sustainable Urban Form,* Williams, Jenks and Burton (2000) claim that '…until fairly recently there was some consensus that compact urban forms offered the most sustainable future.' However, more recent research has raised important issues surrounding the complexities of the urban environment which may lead to urban intensification policies having consequences far removed from the goal of more sustainable cities. Williams et. al. (2000) propose that instead of concentrating on one particular solution, there is a need to recognise that a diversity of urban futures are likely to exist within a city and that urban compaction should only be seen as *one way* of achieving sustainable urban form. Furthermore, intensification policies are most likely to be successful when adapted to the existing urban landscape of the particular neighbourhood where they are being implemented. As we have seen above, there is a wide variety of urban environments throughout the world, as Phoenix's gross population density of eight people per hectare is a different world to Hong Kong's 293 (Newman and Kenworthy, 1989). To expect the same hypothesis to improve sustainability in both these environments is rather naïve, especially when considering the need to implement feasible and acceptable policies for local residents.

However, recent literature does not propose a return to the days of urban sprawl, as Hasse and Lathrop (2003) and Carruthers and Ulfrasson (2003), among many others, have reiterated the negative impacts of sprawl on the cost of public services and land resources. Both works, as well as that of van der Burg and Dielmann (2004), stress the complexity of the relationship between urban form, function and sustainability, with a greater focus on the function of the city and how that affects sustainability rather than simply its form. The 'design' of the city, at neighbourhood and community levels, has also become an important consideration for creating successful urban environments. A focus on this 'urban design' has strong links to New Urbanist concepts referred to above, and is considered an important tool

in overcoming the feasibility and acceptability problems of urban intensification. By focusing at the micro level, urban design can potentially address the complex relationships between urban form, function and sustainability. As later chapters will show, urban design has become a crucial aspect of planning documents in New Zealand, at the national, regional and district level (ARC, 2000; MftE, 2005). Strong urban design controls can help overcome the negative stigma associated with urban intensification, and therefore move towards a situation where higher density housing can be individually attractive, in a way similar to urban sprawl, but because of its higher densities be far less communally destructive.

Nevertheless, there remains debate over exactly what 'urban design' is, and what should be included in urban design controls. Sternberg (2000: 265) argues that although urban design is the most traditional field of planning, as it is visible in many of the world's oldest cities, it lacks a cohesive theoretical foundation and it often reliant upon 'rules of thumb, analytical techniques, and architectural ideas whose theoretical justifications are unclear.' By lacking a theoretical foundation, it can be easy to simply state that urban design is important but at the same time not truly understand how it can affect towns and cities around the world. Sternberg (2000: 265) proposes that '…the urban designer's task is the shaping of human settlements' physical features at scales larger than a single building or plot of land. He or she does so through manipulation of the concrete elements of distance, material, scale, view, vegetation, land area, water features, road alignment, building style, and numerous other items that make up the natural landscape of the built environment.' This definition of what an urban designer should do provides a sound foundation for developing a clear definition of what urban design is, and what should be included (and excluded) from urban design standards or controls. Urban design can be seen as similar to architecture, but at a larger scale that transcends the individual land parcel or property, and takes into account the public realm. Therefore, 'Urban design inquires into the human experience that the built environment evokes across private properties or in the public realm' (Sternberg, 2000: 266). By transcending individual properties, urban design generally needs to be initiated by local governments to ensure that at the neighbourhood level, new developments have a positive impact on the human experience of the built environment. Furthermore, Porta and Renne (2005) outline the effect urban design can have on the sustainability of neighbourhoods, and

show that improving sustainability at the level influenced by urban design can have much wider impacts at city and regional levels if enough communities enjoy urban design standards promoting sustainability.

Porta and Renne (2005) highlight eight 'urban fabric indicators' which they believe help determine the sustainability of communities, including: accessibility, land-use diversity, public/private realm, natural surveillance, permeability/street connectivity, employment density, number of buildings, and number of lots. From these broader indicators, more in-depth 'street indicators' were also developed by Porta and Renne to measure the sustainability of particular urban designs. The importance of micro-level street indicators such as sky exposure, façade continuity, softness, social width, visual complexity, the apparent number of buildings, and sedibility (seating opportunities) highlight many aspects of urban design which can influence the broader urban fabric indicators that affect sustainability (Porta and Renne, 2005). Furthermore, by creating attractive, higher-density urban environments through maximising the positive aspects of various urban design indicators, the stigma of urban intensification can be reduced. From their comparative studies of Freemantle and Joondalup in Western Australia, Porta and Renne (2005: 59) have drawn ten general conclusions about what constitutes attractive urban design:

1) Design streets as narrow as possible to accommodate the pedestrian over the automobile.
2) Do not isolate buildings in lots; instead they should line the streets.
3) Do not allow setbacks: buildings should be as continuous as possible along the street.
4) Construct many small buildings instead of a few large ones.
5) Design retail at the ground floor wherever possible.
6) Avoid large barren parking lots: on-street parking is much better as it integrates with the rest of the urban landscape.
7) Design porticos, arcades, low fencing, stoops, shelters and the like: everything that can provide a soft transition from the street to the building.
8) Avoid blank walls, large billboards, large on-street dumpsters and high light poles.
9) Plant trees on wide streets to create a better sense of enclosure.
10) Places for sitting are crucial, therefore provide sedible arrangements where possible.

Although these recommendations are largely related to downtown shopping areas, the level of detail that should be influenced to help create more attractive and sustainable communities is reflected in Auckland City's planning documents, particularly in the urban design controls required in higher-density Residential 8 zones, which is discussed in more detail in Chapter Four.

Similarly, but at a broader level, New Zealand's Ministry for the Environment has developed an *Urban Design Protocol* that reflects many of the 'urban fabric indicators' Porta and Renne claim have significant effects on the sustainability of urban areas. According to the Ministry for the Environment (2005: 4) 'The *New Zealand Urban Design Protocol* provides a platform to make New Zealand towns and cities more successful through quality urban design'. Importantly, the protocol is designated as a key aspect in the government's programme of action for implementing sustainable development, immediately making a link between quality urban design and improved sustainability. The protocol outlines that urban design seeks to make sure the design of buildings, places, spaces and networks that make up our towns and cities can work for all of us both now and in the future. More specifically, it introduces guidelines for councils to ensure that future development is undertaken in a more sustainable way than has occurred in the past (MftE, 2005). Seven essential design qualities that together create quality urban design are identified by the protocol:

1) Context: seeing buildings, places and spaces as part of whole towns and cities
2) Character: reflecting and enhancing the distinctive character, heritage and identity of our urban environment
3) Choice: ensuring diversity and choice for people
4) Connections: enhancing how different networks link together for people
5) Creativity: encouraging innovative and imaginative solutions
6) Custodianship: ensuring design is environmentally sustainable, safe and healthy
7) Collaboration: communicating and sharing knowledge across sectors, professions and with communities.

While initially it may appear as though these urban design guidelines have little in common with the eight urban fabric indicators proposed by Porta and Renne (2005), closer analysis of the *New Zealand Urban Design Protocol* reveals many similarities, with several of the

specific recommendations helping to form a sound theoretical basis for what quality urban design actually is. For example, the 'choice' design quality proposes a diversity of activity within neighbourhoods, including mixed-use development, similar to Porta and Renne's 'land-use diversity' indicator; while 'connections' has many similarities to 'accessibility' and 'connectivity'; 'custodianship' refers frequently to natural or 'passive' surveillance; and 'context' stresses the importance of both the public and private realms to create cities which are consistent and coherent.

By developing an urban design protocol, the Ministry for the Environment has taken a decisive step towards recognising the importance of urban design in the sustainability of towns and cities throughout New Zealand. The seven essential design qualities also highlight that far more than density changes will be required to create more sustainable urban environments. Through broadening the scope of what is required for urban sustainability, documents such as the *New Zealand Urban Design Protocol* can both reaffirm the unsustainability of urban sprawl, as well as proposing a new approach to urban development where quality urban design '…adds social, environmental and cultural benefits by creating well connected, inclusive and accessible places, and by delivering the mix of houses, uses and facilities that we need. It can enhance safety, reduce crime and fear of crime and enhance energy efficiency' (MftE, 2005: 7). There are many similarities between this urban future and that proposed by compact city advocates, and as a result there is little doubt that quality urban design is a crucial part of successfully implementing urban intensification and compact city ideas, because it is based at the neighbourhood level. By focusing at a more micro-level scale, urban design can help overcome acceptability and feasibility critiques of the compact city that quite correctly highlight the radical cultural, political, social and institutional changes that will be required to move away from sprawl, a method of urban development that has become fundamentally embedded in society over the past 50 years.

Clearly, future models for improving urban sustainability should not abandon the principles of the compact city, because there are many benefits of such a model compared to urban sprawl. Indeed, the compact city approach should be viewed as a step towards creating new urban developments that can be sustainable yet also attractive to people living in the

city. As the critiques of urban sprawl indicate, there are many reasons for people to be dissatisfied with their current urban landscape, and to demand improvement in the future. This reflects an important notion that perhaps the success or failure of compact city policies in the future will depend as much on society's willingness to recognise the unsustainability of their current culture and lifestyle, and to make necessary sacrifices such as living on a smaller lot and having fewer automobiles, as it does on the ability of planners and other government officials to find a way to best impose such policies on a seemingly unwilling population. Such a situation should not be surprising, as implementing urban compaction is just another facet of the drive towards 'sustainable development', which undoubtedly will require more than a 'top-down' government initiated approach if it is to be successful.

2.7 Conclusions:

Urban planning literature has made it clear that action must taken to make urban areas more sustainable (Elkin et. al., 1991; Jenks et. al. 1996; Ewing, 1997; Williams, 1999; Burton, 2000). Cities in the developed world consume a far greater amount of resources than any other human environment, offering opportunities for improvements to be made in the search for sustainable development. The dominant forms of urban development throughout the twentieth century, notably urban sprawl and/or suburbanisation, have been almost universally criticised because they have led to highly unsustainable cities in environmental, social and economic terms (Ewing, 1997; Hillman, 1996; Gillham, 2002; Hillman, 1996; Deal and Schunk, 2004; Kelly-Schwartz et. al., 2004; Sturm and Cohen, 2004; Song and Knaap, 2004; Le Goix, 2005; Calthorpe, 1993; Nozzi, 2003, Duany et. al., 2000). In response to this dire situation, literature in the early-to-mid 1990s proposed a blanket solution, which has been termed 'the compact city': a model of urban intensification that would (supposedly) reduce car-trips, 'save' the countryside from urban expansion, promote social equity, revive derelict downtown areas, and contribute to greater urban vitality and long-term sustainability (Jenks et. al., 1996). However, since the mid 1990s the compact city model has been challenged on three levels: whether it can deliver its supposed benefits towards sustainability, whether it can be feasibly implemented in the urban environment, and whether it is acceptable to the local populations that will be affected by such changes (Breheny, 1996 and

1997). Many of these challenges relate to the complexity of the compact city concept, and how difficult it is to accurately define. Internationally, urban compaction has been implemented in many different ways, from a focus on utilising derelict and abandoned sites and establishing the ideal number of bedspaces per hectare in Britain, to the creation of urban growth limits and the rise of new urbanism in the USA, and to the promotion of medium density housing in Australia and New Zealand. Not only is this variety a reflection of the vagueness of the compact city hypothesis, but it also shows how each country has adapted the concept to best suit local conditions and make the best contribution to urban sustainability in a way that is both acceptable and feasible in their local environments. Indeed, there would be little point in focusing on implementing a medium density housing program in the UK, as a large proportion of housing in that country already is 'medium density', at least in the way it is classified by policymakers in Australia and New Zealand. Nor would it be logical to focus on the redevelopment of brownfield sites in Australia or New Zealand as these two countries have not experienced the same 'exodus' from downtown areas when compared to cities in the UK and the northeast of the USA. Nevertheless, even where the correct 'type' of urban intensification is undertaken, there will still be many complex issues related to its veracity, feasibility and acceptability, in particular because it is so 'different' to the urban sprawl that has become part of the culture of cities in the developed world, complete with the desirable large house on a large lot.

As a result of the many challenges to the compact city concept, recent literature has focused on creating a diversity of urban forms and sustainabilities that are most likely to 'fit' with the area they are to be implemented in (Guy and Marvin, 2000). There also appears to be the beginnings of a greater focus upon the processes, functions and design of the city and how they contribute to sustainability, rather than just the density which occupied most of the literature throughout the 1990s (van der Burg and Dielmann, 2004). However, the form of the city is still a crucial aspect of its sustainability, and as the negative environmental, economic and social effects of urban sprawl become increasingly visible through traffic congestion, social isolation and the continual loss of important land on the urban fringe, it becomes clear that continuing this pattern of development into the future will be highly unsustainable. There is no doubt that fundamental changes will have to be made, not only to

the density of our urban environment but also to the very cultural attitudes that have resulted in the predominance of urban sprawl, in order to achieve a more sustainable future. However, this should not come as a surprise to anyone familiar with discussions relating to achieving sustainable development, and indeed the Brundtland Commission (WCED, 1987) made no apologies that fundamental change would be required. In the urban context, while the 'compact city' model may not have provided all the solutions to a more sustainable future, and indeed the critiques of it are highly valid, nevertheless it has shown future urban planners that current trends cannot be continued, and has recognised the need to conduct urban planning on a much larger scale in order to integrate the many components of city planning in a way that is more sustainable. Indeed, although it might not be possible to ever *really* create a perfectly sustainable city, just as it is unlikely for us to know exactly when we have achieved sustainable development, real benefits can be reaped through the process of becoming *more* sustainable. And as the compact city hypothesis states, there is at least the potential for urban areas to operate in a more environmentally friendly, socially equitable and economically viable manner; the only issue remaining relates to the question of how to get there. The remainder of this thesis will analyse Auckland's efforts to create a more sustainable urban future, through curbing its long-standing urban sprawl through a number of comparatively recent planning measures at the regional, district and community levels.

Chapter Three
The Auckland Region: Problems and Responses

3.1 Introduction

The Auckland region has experienced many of the problems related to 'urban sprawl' development over the past fifty years, through both its rapid population growth and its automobile-centred transportation system. Auckland's urban growth throughout the past 165 years (since its foundation in 1840), but particularly since the Second World War has created an urban landscape that today is characterised by chronic traffic congestion, automobile dependency, poor air-quality, the degradation of water bodies around the region, natural habitat loss, and spiralling infrastructure costs (Auckland Regional Growth Forum, 1998). These unsustainable growth difficulties are set to have an even greater impact on the Auckland region in the future, with a projected population of approximately two million by the year 2050 (Auckland Regional Growth Forum, 1999), which is a large increase on the 2004 population of 1,316,900 (Statistics NZ, 2005). This population growth will mean a substantial rise in the number of dwellings required in the Auckland region, from the 356,000 in 1996 to around 700,000 by 2050. According to the Regional Growth Forum (1999), district plan policies prior to the development of the *Regional Growth Strategy* had a capacity of 155,000 more dwellings to be built, which would create a shortfall of around 200,000 (Auckland Regional Growth Forum, 1999). It was this shortfall that led the Regional Growth Forum to draft the 1999 *Regional Growth Strategy* (RGS), as a way of providing the region with the required number of dwellings to house its growing population, but to accommodate them in a way that did not further degrade the natural environment, economic viability and social equity of the Auckland region. The aim of the strategy is '…to ensure growth is accommodated in a way that meets the best interests of the inhabitants of the Auckland region' (Auckland Regional Growth Forum, 1999: 2).

The RGS seeks to achieve four main principles: strong supportive communities; a high-quality living environment; a region that is easy to get around; and protection of the coast and surrounding natural environment, while accommodating over 700,000 more people in the region over the next 50 years (Auckland Regional Growth Forum, 1999). In order to achieve these goals, future growth in Auckland will need to occur in a very different way to how it has happened in the past. The RGS is based around a *Growth Concept,* which proposes the

future scenario for the region if growth is managed according to the vision, outcomes and principles of the Strategy. Under the Growth Concept, approximately 70 per cent of Auckland's growth in the next 50 years would occur within the existing metropolitan area in the form of urban intensification, while development outside the current limits would only occur where environmental, accessibility and community principles were met. Furthermore, within the existing urban limits, growth would be focused in particular areas, notably town centres and along major public transport corridors, to create higher density communities with a variety of housing, jobs, services, recreational and other uses – reducing the amount of travel that is necessary to participate in one's daily activities (Auckland Regional Growth Forum, 1999). By 2050 around one quarter of Auckland's population (approximately 450,000 people) could be living in a mixture of apartments, terrace housing, town houses, semi-detached or cluster housing groups, a significant rise from the 125,000 people who lived in those types of dwellings in 1996 (Auckland Regional Council, 2000). However, this would still mean that after fifty years of intensification, about 70 per cent of Auckland's population would still be living at lower densities in the suburbs or in semi-rural areas.

As was highlighted in the second chapter, making urban intensification an attractive option to residents will be one of the main challenges faced by Auckland's policymakers in implementing the RGS. By allowing thirty per cent of urban development in the next fifty years to occur in 'greenfield' developments, the RGS can continue to provide sufficient land and locational choice for dwellings and businesses. These areas of future urban growth are also likely to develop at higher densities than past greenfield sites, and to be well-integrated with future passenger transport infrastructure. Nevertheless, overall the Growth Concept focuses on the intensification of Auckland's urban area, as its size is likely to increase by only about ten per cent while the population increases by almost 100 per cent (Regional Growth Forum, 1999). The more compact urban form is anticipated to lead to many potential improvements in Auckland's urban 'problems', as outlined above. Reduced car-dependency, and improved water and air-quality, amenity and liveability of the city are potential outcomes of increasing urban density, reversing the negative effects of urban sprawl. However, intensification can create costs as well as benefits to local communities. The disadvantages can include more traffic, increased pressure on urban physical and social infrastructure, and

poorly designed developments that do not fit well into existing neighbourhoods (Auckland Regional Council, 2000). It is these negative aspects of intensification that have gained much media attention in Auckland over the past few years, leading many residents and commentators to be very wary of such policies (Cook, 2005; NZ Herald Editorial, 2004; Orsman, 2005a; Orsman, 2005b; Pickmere, 2005; Rudman, 2005). What appears crucial in the success and acceptance of urban intensification is a strong focus on urban design, which the Auckland Regional Council (ARC) has responded to at a regional level by publishing a 'regional practice and resource guide' to 'urban intensification'. According to the guide, growing market interest in intensification, coupled with its increased future importance through the RGS, has highlighted a need for guidance on intensive development. This is particularly the case because of the widespread negative feedback that accompanies intensification (ARC, 2000).

This chapter will begin by analysing Auckland's urban growth throughout the past 165 years, focusing on its development since the Second World War and emphasising past policy documents that contributed to the current form of the city and its automobile dependence. The chapter will then analyse the RGS in detail, focusing on its vision for the Auckland region and how that will be implemented across the city. The various parts of Auckland highlighted for intensification and greenfield development will be analysed, as will the process of implementing the strategy throughout the next fifty years, and ensuring that intensification occurs in a high-quality manner. The final part of the chapter will involve a more critical discussion of the RGS by analysing how the Strategy responds to the many critiques of the compact city model which were outlined in the previous chapter, and what steps have been taken to ensure that the RGS can have veracity, feasibility and acceptability – and overcome Breheny's (1997) critique of the compact city theory.

3.2 A History of Auckland's Growth

Although the Auckland isthmus had been home to many Maori tribes before the arrival of Europeans in the late eighteenth century, the area had been largely abandoned by Maori and ignored by early European settlers before the city was founded as New Zealand's

capital by Governor William Hobson on September 18th 1840 (Bloomfield, 1967). However, from that stage onwards Auckland grew fairly rapidly, from 1,500 in 1841 to 12,423 by 1864 with most growth occurring in close proximity to the port area in Commercial Bay, as well as some small developments towards Onehunga (another port), and at a few favoured spots beside the harbour (Auckland Regional Authority, 1975). Throughout the nineteenth century Auckland's urban growth occurred in a very intense fashion, concentrated around the port in a very similar manner to most other mercantile cities. Due to a lack of transportation options, development was limited to locations within walking distance of each other, the first of Newman's (1992) three stages of urban development. At this time Auckland experienced many of the pollution and overcrowding problems that plagued other nineteenth century cities, although as primarily a port rather than a manufacturing centre it avoided large-scale industrialisation. Nevertheless, the overcrowding of the inner-city created a demand for the city to expand when viable transportation technologies became available. Around 1900 these technologies began to appear in Auckland, in the form of streetcars (trams) and railways.

Auckland's first streetcar line, from the city to Ponsonby via Karangahape Road was opened on November 24 1902, and as the system grew it facilitated the expansion of Auckland's built-up area in two ways: in an intermittent linear pattern to the west and south along the railway line, and in a more continuous manner along the main streetcar routes (Barr, 1922). The demand for more living space from people who had been confined to the crowded downtown area, coupled with an affordable and reliable transportation network led to the creation of many of Auckland original suburbs, along Great North Road, New North Road, Sandringham Road, Dominion Road, Mt Eden Road, Manukau Road and Remuera Road, forming a new arc of suburban development in Auckland by 1915. Railway lines also facilitated growth in more distant locations, such as Otahuhu and New Lynn, while ferries served Devonport, Takapuna and Birkenhead on the North Shore. Indeed, Auckland's urban development in the early twentieth century is intrinsically linked to its transportation networks, and because of their limited reach (compared to that of the automobile) the city developed in a fairly compact manner to maximise the efficiency of the streetcar, railway and ferry systems. However, this situation was not to last for long, as even before the Second

World War the automobile was becoming an integral part of life for many New Zealanders, opening up previously unreachable land for development.

The number of automobiles in New Zealand skyrocketed from 37,500 in 1922 to 261,850 in 1938, at that stage the second highest rate of vehicles per capita in the world after the United States (Bloomfield, 1975). This growing popularity meant that urban development could break free from the constraints of predetermined transit networks and occur anywhere roads were built. Furthermore, commuters were no longer forced to locate close to their place of work or to a streetcar line, leading to a rapid decentralisation of urban growth. It was at this stage that local governments in the Auckland region began to formulate growth strategies for Auckland's future development, although the plans of the 1950s focused more on the provision of infrastructure rather than on controlling growth in any particular way (Auckland Regional Growth Forum, 1997). Indeed, the 1951 Auckland Metropolitan Planning Organisation's *Outline Development Plan* played a major role in defining Auckland's future urban growth, with a focus on enhancing car-based transportation infrastructure and an optimal city size of around 600,000 compared to the 1951 population of 328,479 (Auckland Regional Growth Forum, 1997). During the 1950s and early 1960s major infrastructural investments were made, through building the Auckland Harbour Bridge to open up the North Shore for development and constructing large stretches of the north-western and southern motorways. 'This was a period of major decision-making when Auckland committed itself to being a large city and the balance between public and private transport was tipped heavily in favour of the car' (Auckland Regional Growth Forum, 1997: 5). The post-World War Two 'baby boom' fuelled demand for new housing, and Auckland grew rapidly throughout these two decades, passing the half-million mark in the mid-1960s and becoming substantially larger than any other New Zealand city. By this time Auckland had become one of the most dispersed cities in the world, and its reliance on the automobile was already placing stress on the newly completed motorway network, making further investment, such as the harbour bridge's 'clip-on' expansion necessary to alleviate congestion created by a rapidly growing North Shore. Even at this early stage planners were beginning to realise that some sort of growth limits would be needed, as the inefficiencies of dispersed development began to emerge.

Although metropolitan limits existed in regional plans in the 1950s and 1960s, they were largely designed to ensure the urban developments occurred in a co-ordinated fashion, and were frequently extended once the limit had been reached. Any anxieties about the negative effects of urban expansion were alleviated by a belief that it was possible to limit Auckland's population growth, and in the 1970s attempts were made to restrict migration to Auckland by redirecting labour intensive industries to other parts of New Zealand, port expansion to other regional centres and having an increased emphasis on family planning. Planners believed that slowing growth was a viable option to 'reduce pressures on public facilities and resources such as housing and open space and was thought of at the time to produce a more easily maintained high standard of living' (Auckland Regional Growth Forum, 1997: 16). 'Optimum city size, population ceilings and probable natural limits to city growth were concepts in early regional strategic plans. Based on almost utopian ideals that rates of growth could be controlled and the population growth would slow once certain, undefined natural, economic and social constraints were reached, these concepts were superseded in strategic planning after the late 1970s by more open ended-models of growth' (Auckland Regional Growth Forum, 1997: 16). Once planners realised that population size and growth were largely out of their control, there was a renewed focus on the quality of growth that did occur, to ensure that good urban developments were established in ways which had a renewed focus on natural resource management, and which 'fitted' well with the existing urban landscape.

From the 1970s onwards the focus of city planners shifted towards the 'where and how' growth would occur, and the urban form of Auckland became increasingly controversial. While low density urban sprawl had been planned for and well supported by motorway investment over the preceding 30 years, attitudes had started to change towards this form of development, as the many environmental, social and economic costs outlined in Chapter Two were beginning to occur in Auckland. While urban limits existed since the 1950s, it was only from the 1970s onwards that these boundaries were used to achieve consolidation and containment objectives, rather than staging growth so that infrastructure could be provided efficiently. Somewhat surprisingly, well before the 1999 Regional Growth

Strategy, intensification and consolidation of Auckland had been progressing quite successfully as 'the region has absorbed over 300,000 more people in the past 20 years without significantly extending the urban limits' (Auckland Regional Growth Forum, 1997: 19). However, most of this intensification was in the form of infill housing and 'sausage flats', generally less popular to the general public than other forms of intensification and contributing to the stigma associated with higher-density housing. Up until the 1990s, a lack of demand for other types of intensification – such as apartments, townhouses and terraced housing – was seen as the main barrier to further intensification and consolidation of Auckland. The 1990 *Regional Development Strategy* highlighted the problems of urban consolidation by stating that '…while theoretically, there is considerable potential in the established areas to absorb new growth by way of urban consolidation, the economic and social reality is that more intensive living is not possible or not desired by many people. People's attitudes, the building industry and the property market have not been conducive to widespread urban consolidation to date' (cited in Auckland Regional Growth Forum, 1997: 20).

However, throughout the past fifteen years these circumstances have dramatically changed, and the development of apartments, terraced housing and townhouses both in the city centre and in suburban locations has been an increasingly notable trend since the early 1990s. Many factors contributed to this change, although initially it was the 1987 sharemarket crash and a subsequent abundance of commercial space that started a new trend of inner-city living, as old office buildings could be inexpensively converted into apartment buildings. Increased immigration to Auckland throughout the 1990s, especially from Asian countries previously excluded from migrating to New Zealand, created further demand for apartment living, as it was a familiar lifestyle for many immigrants arriving in the country. The development of Auckland's 'café culture' during the 1990s, combined with more flexible shopping and licensing hours also contributed to the rejuvenation of inner-city Auckland as a place to live. Finally, increasing traffic congestion throughout the Auckland region over the past fifteen years made commuting more difficult than ever before, and therefore encouraged inner-city workers and students to live in the CBD (Auckland Regional Growth Forum, 1997). This fundamental shift in the attractiveness of the CBD as a place to

live is not limited to Auckland, with many other cities including Melbourne, Vancouver, Portland and San Francisco enjoying a 're-centralisation' of residents throughout the past decade (Gamble, 2005). In Melbourne, 'high-density residential housing has become a legitimised response to concerns about increasing urban sprawl. As such, high-rise housing fits neatly into urban consolidation models and is now considered to be integral to the production of economically sustainable cities' (Costello, 2005: 50). This is a significant shift from the 1960s and 1970s, where high-density housing was highly stigmatised as exclusively catering for the urban poor. Moreover, while the construction of apartment buildings in Auckland has been focused on the CBD, there have been many other medium- or high-density residential developments occurring throughout Auckland's suburbs since 1990 in diverse areas such as Ellerslie, One Tree Hill, New Lynn, Waterview, Papatoetoe, Albany, Takapuna, Parnell and Newmarket (Auckland Regional Growth Forum, 1997). As higher-density living has become more popular, urban consolidation and intensification is now increasingly viable as a long-term alternative to the sprawl that dominates Auckland's urban landscape.

3.3 The Auckland Regional Growth Strategy

It was in this situation that the Auckland Regional Growth Forum (RGF) was initiated, to create a vision for Auckland's growth over the next 50 years that could be more sustainable than development patterns of the past. The Local Government Act 1998 amendment mandated the establishment of the RGF to ensure that future growth in the Auckland region was co-ordinated between all the local authorities as well as devised on a much longer-term basis, looking ahead 50 years rather than just a decade or two as had been the case previously (Auckland City Council, 2004). The RGF consisted of ten elected councillors from both the regional council and all the territorial authorities (TAs) in the Auckland region: Philip Warren (chair) from the ARC; Alan Bell from Papakura District; Tony Holman from North Shore City; Heather Maloney from Franklin District; Janet Fitzgerald from Rodney District; Les Paterson from the ARC; Carolynne Stone from Waitakere City; Sir Barry Curtis from Manukau City; Gwen Bull from the ARC; and Bruce Hucker from Auckland City (Auckland Regional Growth Forum, 1999). These ten

councillors embarked on a three-year process which involved technical analysis, research, political input and consultation with thousands of people and organisations. It also involved a wide cross-section of people including politicians, developers, business people, planners, architects, infrastructure operators, iwi, transport, stormwater and environmental experts, students, school children, community boards and other interest groups (Auckland Regional Growth Forum, 1999). The RGF was required to '…take into account the statutory requirements of the Resource Management Act to promote sustainable management of natural and physical resources', while also ensuring that growth was managed in a way '… that avoids, remedies or mitigates any adverse effects that may arise from such growth while balancing the needs of existing communities with the needs of future populations in the use of resources, and in the protection of valued character including significant natural environments' (Auckland City Council, 2004: 2). The major output of the Forum was the 1999 *Regional Growth Strategy,* which established a vision for what Auckland could look like in 50 years time with a projected population of around two million people. Initially, the RGF developed three different growth concepts, which were circulated among the various interest groups identified above for feedback: a peripheral plan of development along similar lines to traditional low-density development; a compact city development pattern constricting growth to within existing limits with a focus on intensification in main 'town centres' and transportation corridors within the existing city; and a satellite development pattern that would focus development on centres outside the current metropolitan limit, such as Helensville, Warkworth, Orewa, Waiheke and Pukekohe, thereby reducing growth pressures on the existing metropolitan area (Auckland Regional Growth Forum, 1998b). Of the three concepts, the compact city development pattern was deemed to fit best with the goals of promoting strong supportive communities, a high-quality living environment, a region that is easy to get around, while also protecting the coast and the surrounding natural environment. The Regional Growth Strategy (RGS) developed this 'compact city' option into its *Growth Concept* by adapting the concept outlined in Chapter Two to Auckland, as a model of development that could maximise future sustainability in the region (Auckland Regional Growth Forum, 1999). Sustainability is therefore the core element of the RGS, defined as involving '…the interdependence of economic values, social values and environmental values. Managing and minimising the conflicts between and within these values will be the

challenge to achieving sustainability. The strategy aims to capture and enhance the synergies between these values to create a vision for a sustainable future for the Auckland region' (Auckland Regional Growth Forum, 1999: 7).

Achieving a more sustainable future for the Auckland region will clearly not be an easy task for the RGS. Population projections suggest that by 2050 between 1.6 and 2.2 million people could be living in the region, with recent statistics showing that the higher estimate is likely to be more accurate (Dearnaley, 2004). This equates to an increase of around 20,000 people per annum, which in combination with lower household sizes (due to changing family structures and an ageing population) will place an unprecedented strain on the ability of the Auckland region to supply approximately 700,000 dwellings by 2050. Prior to the RGS, existing district plans had allowed for 155,500 new dwellings to be built, increasing housing capacity from 356,000 dwellings in 1996 to around 511,000. However, this capacity level would only be sufficient for another 15-20 years of population growth, and would not be nearly enough to accommodate two million people by 2050 (Auckland Regional Growth Forum, 1999). Therefore, the focus of the RGS was to supply the extra 200,000 dwellings required by 2050 in a way that could create a more sustainable Auckland region than had existed in the past. Greatest priority would be placed on improving the sustainable use of resources (more efficiency in the use of natural and physical resources including urban land, infrastructure and energy) as well as maximising accessibility and transport efficiency for the region (Auckland Regional Council, 2000). Although managing such dramatic future growth in a sustainable manner will inevitably prove difficult for future local governments entrusted to implement the RGS, the strategy states that many benefits will arise from Auckland's future growth, such as the growing market for goods and services, increased investment, a larger labour force and skills base, as well as a greater diversity of resources available and a larger population to support a wider variety of facilities, entertainment, transportation options and events (Auckland Regional Growth Forum, 1999).

Nevertheless, the pressures of such rapid future urban growth on physical and social infrastructure, the economy and the environment cannot be underestimated. Providing adequate additional social infrastructure to meet the increased demands of future population

growth, such as schools, hospitals and community centres is a crucial aspect of creating strong sustainable communities; rather than polarised enclaves dominated by crime and poverty. Similarly, much of Auckland's physical infrastructure, such as water supply, wastewater treatment, storm-water systems, refuse disposal, transport, power, gas and telecommunication networks, is already running at capacity, or close to it. Not only will these systems require costly upgrades in the future to cope with population growth and increased demand, but they will also need to comply with increasingly strict environmental controls, particularly in the case of wastewater and storm-water disposal. Moreover, inadequate physical infrastructure, such as Auckland's transportation network, add enormous costs and inefficiencies for businesses, with traffic congestion costing the Auckland region hundreds of millions of dollars a year (Auckland Regional Growth Forum, 1999). As the Auckland economy underpins the New Zealand economy, '…it is important for New Zealand that the Auckland economy can continue to grow, to have an increasingly important role in the economies of the Asia-Pacific region and the global economy' (Auckland Regional Growth Forum, 1999: 17). Finally, the effects of future urban growth on the environment are potentially the most severe. Even the process of land development has widespread environmental effects, as according to the RGS: 'despite extensive use of remediation techniques, land clearance for access, roading and house sites can result in the destruction or fragmentation of natural heritage resources such as indigenous flora and fauna, ecosystems, habitats, geological features, productive soils and the natural character of various aspects of the environment such as bush-clad hills and the coastal environment' (Auckland Regional Growth Forum, 1999: 18). Earthworks also create large sediment flows that can impact upon streams and marine ecosystems, while flooding is also exacerbated by urban development through the loss of pervious surface area. Furthermore, urban development that increases automobile dependency will have negative environmental impacts as 'Motor vehicles are the largest contributor to air pollution in the region and are a significant source of stormwater contaminants. The transport system is also responsible for localised noise pollution and major impacts on landscape and amenity values' (Auckland Regional Growth Forum, 1999: 18). Overall, the RGS recognises that there is a fine balance between the costs and benefits of urban growth in the Auckland region, and that either can be maximised or minimised through careful planning about where and how growth occurs at the regional, district and community

level. The strategy's introduction concludes by stating that 'the process of development needs to be carefully managed to ensure the adverse effects of urban development and urban land uses are avoided, mitigated or remedied to the greatest possible extent to ensure the benefits of growth can be optimised' (Auckland Regional Growth Forum, 1999: 18).

Faced with developing a 'balancing act' between the various components of a sustainable city, the RGS identified a variety of desired regional outcomes which could provide certainty that future regional growth, whether in greenfield developments, satellite centres, or redeveloped and intensified existing urban areas, should promote the principles outlined below in table 3.1. What appears most obvious in this table is the wide variety of desired outcomes, with environmental, economic, social and cultural improvement being seen as the key to creating a more sustainable city. The table also highlights what Aucklanders value about their city, such as the coast, waterways and cultural diversity, which must be maintained and if possible enhanced by future growth (Auckland Regional Growth Forum, 1999). However, with such a wide range of desired outcomes, it was necessary for the RGS to prioritise those which were deemed most critical. While the strategy accepted that all these outcomes were important, access and transport efficiency, water quality, coastal environment, air quality, sustainable use of land/infrastructure/energy/resources, open space and social and physical infrastructure were deemed to be 'critical' outcomes. This prioritisation meant that three main themes emerged relating to the major issues and growth pressures faced by the Auckland region, namely desirable communities, accessibility, and the natural and physical environment. By optimising these three main themes in the growth concept, the RGS believed that growth could be managed in a way which would have the most desirable outcome for the Auckland region (Auckland Regional Growth Forum, 1999). Indeed according to the RGS, 'managing growth to optimise these three themes is a complex, but not unachievable task. Success will lead the Auckland region towards sustainability' (Auckland Regional Growth Forum, 1999: 22). How the RGS, and its 'growth concept', can *best* achieve these outcomes in a sustainable manner (as defined by the RGS) is the core question this thesis will attempt to answer. Table 3.2 clearly identifies the principles that should be applied across the Auckland region to realise the outcomes identified above. The 'growth concept' – a vision of Auckland in 2050 – was developed by applying these

principles to the three main growth alternatives mentioned above, and is therefore one way of achieving the vision of a more sustainable Auckland.

Outcome	Outcome definition
Water quality	water quality in streams and coastal marine area is maintained where it is good and improved where it is now degraded
Access and transport efficiency	more transport choices and high levels of access for all sections of the community, a closer relationship between home and work, activities, shopping, open space etc., managing traffic congestion and a better passenger transport system
Coastal environment	natural character of coastal environment including landscapes, ecosystems, native bush and water quality preserved and enhanced and access to clean and beautiful beaches maintained
Air quality	air quality is maintained where it is good and improved in areas where it is now degraded
Sustainable use of resources	more efficiency in use of natural and physical resources, including urban land, rural land, infrastructure and energy resources
Employment choice	more employment choices everywhere, better match of employment to population in different parts of region
Business opportunity	improved opportunities for businesses (business growth, development opportunities, affordable and suitable land and infrastructure)
Urban amenity	higher quality urban amenity particularly business, residential, shopping and public space areas (more trees, better streetscape, better urban design etc.)
Safe, healthy communities	safer, healthier communities with high-quality readily accessible community facilities and services publicly and privately provided (e.g. libraries, sporting facilities, schools, stadia, theatres, cafes, gyms etc.)
Housing choice/ affordability	improved housing choice and affordability throughout the region
Cultural heritage	protection and enhancement of cultural heritage
Habitat	expansion and protection of high-quality indigenous habitat
Open space	a greater range and diversity of protected open space
Rural amenity	better non-urban and rural amenity including landscape protection, and more trees and vegetation
Physical and social infrastructure	physical and social infrastructure provided, maintained, enhanced and optimised - existing infrastructure maintained and utilised where it has sufficient capacity for growth, and upgraded where it has not
Cultural identity	cultural identity, including maintaining cultural diversity

Table 3.1: Desired regional outcomes to be achieved in a Regional Growth Strategy

Source: Auckland Regional Growth Forum, 1999: 20

Relevant desired outcome area	A. Principles to be applied over the whole region
• Safe, healthy communities • Social infrastructure • Housing choice/affordability • Employment choice	Enable people and communities to meet their basic needs of shelter, safety, health, education, cultural expression, income, recreation and leisure, to facilitate the health and safety of present and future communities.
• Cultural identity • Heritage • Rural and urban amenity	Take into account the values of identified cultural heritage sites and areas, and their setting/context during (re)development.
• Cultural identity • Safe, healthy communities	Foster cultural expression by cultivating a sense of place, recognising arts and culture as key elements of place, enhancing cultural well-being and recognising the cultural diversity of local and regional communities.
• Water quality • Rural and urban amenity	Maintain or improve water quality in all catchments.
• Protect habitat • Rural and urban amenity	Maintain and enhance high-quality indigenous habitats, especially those in proximity to Significant Natural Areas and Values[11], during (re)development.
• Coastal environment	Recognise and maintain the qualities of identified highly valued coastal environments (the sea, islands, marine reserves, shoreline, harbours and estuaries) during (re)development.
• Housing choice • Employment choice	Enable a regional growth pattern which can provide a range of employment choice and housing choice by type, affordability and location.
• Safe, healthy communities • Cultural identity	Encourage a regional land use and transport pattern which: • Enables people focused communities, and protects and fosters existing and future community values and integrity.
• Access and transport efficiency • Business opportunity • Sustainable use of the resources • Air quality • Employment choice	• Recognises different types and functions of transport corridors and their relationship with adjoining land uses such as the location of freight forwarding/distribution near motorways and/or rapid transit interchanges; or the location of housing and community facilities near passenger transport.
• Business opportunity • Efficient use of resources	• Is flexible and accommodates change (e.g. new technology, road reform/pricing, new work practices, new industries etc.,) while providing sufficient certainty for planning purposes.
• Business opportunity • Employment choice • Sustainable use of resources • Access	• Enables a range and quality of business locations to accommodate employment growth (e.g. industrial areas near motorway/rapid transit interchanges; a variety of mixed use, sub-regional or town centres for offices and services outside the CBD).

Table 3.2: Principles that will need to be applied to achieve desired outcomes. Source: Auckland Regional Growth Forum, 1999: 24

Relevant desired outcome area	A. Principles to be applied over the whole region
• Access • Business opportunity • Employment choice	• Enables a good local, cross-region, inter-region and international transport network, including passenger transport for ease of movement for goods and services, business traffic and commuter traffic.
• Access • Urban amenity • Air quality • Social infrastructure provision • Employment choice	• Reduces the need to travel by car by encouraging more employment/business/retail/community facilities close to residential areas and the opportunity to walk or cycle. This pattern needs to foster a critical mass in terms of population to support a range of small local enterprises.
• Social infrastructure provision • Safe, healthy communities • Employment choice	Enable a regional land use pattern where local areas have sufficient critical mass in terms of population to support a range of quality and accessible community facilities and services, including health facilities and education and training to support employment choice.
• Safe, healthy communities • Urban amenity	Enable all urban areas to be capable of responding to community values, including improved community safety, amenity and urban design measures.
• Business opportunity • Urban amenity	Provide adequate and high-quality infrastructure to support business, residential and other opportunities in a timely manner.
• Sustainable use of resources	Take into account the values of productive soils when managing growth in rural areas.
• Sustainable use of resources • Social infrastructure	Sequencing of all new growth areas to be co-ordinated with the provision or upgrading of drainage and other infrastructure (including social infrastructure).
• Social infrastructure • Safe, healthy communities	Ensure the costs and benefits of growth are distributed in a manner that does not unfairly impact upon any group or community's ability to provide for its social, economic and cultural well-being.
Relevant desired outcome area	B. Principles to be applied to new urban areas ... (in addition to above principles for the whole region)
• Water quality	Avoid urbanisation of the most highly valued and sensitive areas in respect of water quality.
• Coastal environments • Indigenous habitats	Avoid urbanisation of the most sensitive and highly valued coastal environments such as estuaries, harbours and wetlands.
• Open space • Rural and urban amenity	Avoid urbanisation in areas where existing protected open space or other significant highly valued open space areas will be adversely affected.
• Rural amenity • Heritage	Avoid urbanisation of the most highly valued rural areas such as high-quality landscapes, bush areas or views.

Table 3.2 Continued

Relevant desired outcome area	C. Principles to be applied to urban intensification areas both in the existing urban area and in new greenfields development ... (in addition to the principles for the whole region)
• Access • Urban amenity • Safe, healthy communities	All intensification areas to be served by an effective and efficient passenger transport system.
• Employment choice • Access • Community	All intensification areas to be within walking distance of a commercial or employment centre.
• Heritage • Urban amenity	All intensification areas to be located in a manner that maintains identified residential character areas.
• Open space • Safe, healthy communities • Urban amenity	All intensification areas to be located and developed in a manner that provides adequate open space for the needs of local residents.
• Social infrastructure • Safe, healthy communities • Access & transport efficiency	All intensification areas to have access to appropriate and affordable education, health, community, recreation, social services and facilities.
• Housing choice • Employment choice • Community	All intensification areas to provide a range of dwelling types and densities including mixed use development activity where appropriate.

Table 3.2 Continued

The growth concept, as developed by the RGS, is an illustration of the goal of a sustainable urban future for Auckland. The growth concept stems from the compact city model, ensuring that 'most future growth is within the existing metropolitan area, with development outside the current urban area only where environmental, accessibility and community principles can be met' (Auckland Regional Growth Forum, 1999: 26). Furthermore, within the existing built-up area 'most urban growth is focused around centres of varying sizes and major passenger transport routes, such as town centres along the western, eastern and southern passenger transport corridors' (Auckland Regional Growth Forum, 1999: 26). This would be a reduced emphasis on the generally unpopular suburban infill, and a much greater focus on the redevelopment and intensification of particular areas which have the infrastructure to support such growth. By intensifying development primarily along high-frequency bus routes on the isthmus, and in town centres along the western, eastern and southern passenger transport corridors, the reliance of Aucklanders on their cars as a primary method of transportation could be reduced. This would decrease traffic

congestion, as well as create other 'indirect' improvements in quality of life for residents, such as lowered air pollution and related respiratory health problems. Nevertheless, some greenfield development would still occur in areas deemed suitable to cope with this, such as Takanini, East Tamaki, Westgate/Redhills, Albany, Greenhithe, Long Bay and Orewa/Silverdale, while the population of rural parts of the Auckland region would double, an increase of around 130,000 people. Much of this growth would be likely to occur in towns located along the existing rail corridor, such as Helensville, Kumeu and Pukekohe, once commuter services were extended to include all three towns (only Pukekohe is currently serviced by commuter rail) (Auckland Regional Growth Forum, 1999).

However, despite some greenfield development to ensure a continued diversity of housing choices are available for residents, the growth concept is focused on meeting future demand for housing through intensification rather than continued urban sprawl. According to the RGS, 'The growth concept is based on compact urban environments. This means where urban growth occurs, whether as part of the existing metropolitan urban area, a satellite town, or rural or coastal town, it should result in a compact urban form to avoid spreading the effects of urbanisation over a greater area. The growth concept puts greater emphasis on urban intensification than urban expansion' (Auckland Regional Growth Forum, 1999: 28). The growth concept splits the Auckland region into four sectors: north, south, central and west, sectors roughly similar to the four main city councils in the region, to analyse the impacts of the RGS on different parts of Auckland. Projected population increases in each sector over the next 50 years are very high, ranging from 68 per cent in the central sector to 103 per cent for the western sector. These variations reflect a combination of greenfield development and intensification throughout all sectors, although all growth in the central sector will need to occur through intensification as there is no undeveloped land remaining. Indeed, the southern sector is the only sector which will accommodate more growth through new developments, rather than intensification (85,000 more capacity compared with 70,000); as the north (43,000 through greenfield development and 80,000 through intensification), the west (37,000 compared to 54,000) and especially the central sector (182,000 through intensification and no greenfield development) will all experience growth focused on intensifying the existing metropolitan area (Auckland Regional Growth Forum, 1999: 30).

In the northern sector, future growth would be focused around the two main sites of greenfield development, Albany and Orewa, although development of these two centres would be fairly high density in their core areas. Scattered intensification would also occur through the rest of the north sector, while the rural towns of Warkworth and Wellsford would increase their population levels, although not as substantially as other rural towns in the Auckland region. Three regional sub-centres would be created in the northern sector, at Takapuna, Albany and Orewa, where significant development and intensification would occur. Growth in the Hibiscus Coast areas (at the northern limit of the Auckland metropolitan area) would be focused more towards Orewa than the Whangaparoa Peninsula, although some infill would occur on the peninsula once roading improvements were completed. The greenfield development that would occur, especially around the developing centres of Orewa and Albany, would provide a range of densities that could ensure a wide variety of housing choice in the northern sector. Furthermore, it would be directed away from sensitive environmental areas directly to the north of Orewa. Intensification throughout the existing North Shore urban area would be focused on areas with strong supporting infrastructure, while town centres could be developed at both Browns Bay and Birkenhead to support higher housing densities in the surrounding areas. Along with the development of various neighbourhood centres, this intensification, combined with the fairly limited greenfield development, could mean that by 2050 the northern sector would accommodate 440,000 people, compared with a 1996 population of 233,000. While this is a significant increase, it is relatively low compared with other parts of the Auckland region. This reflects infrastructural, and environmental issues, as well as community concerns about growth in the northern sector. In particular, the need for another crossing of the Waitemata Harbour is a significant long-term constraint to growth in this sector, and is unlikely to occur before 2020 (Auckland Regional Growth Forum, 1999: 32).

In the western sector intensification is concentrated in two development corridors in the ‘growth concept’: the existing western railway corridor as well as a future Henderson to Westgate corridor. Three regional sub-centres would eventually be created along these corridors, at New Lynn, Henderson and Westgate, with smaller town centres at Glen Eden,

Sunnyvale, Ranui, Hobsonville and Te Atatu. Greenfield development occurring in this sector would be mainly located around the Westgate area, as it developed into a major centre, but also in the rural towns of Kumeu and Helensville. These two towns would experience far more growth than rural towns in the northern sector because they are located on existing railway lines, making the extension of commuter services more viable. However, greenfield development in the Westgate area would only be viable once the realignment and widening of State Highway 18, linking Westgate with the North Shore, is complete. Stormwater impacts on the upper Waitemata also need to be resolved before large-scale greenfield development can occur in this part of the western sector. Additional capacity for growth provided in the RGS for the western sector would be around 90,000 people, which combined with prior district plans could lead to a 2050 population of around 330,000 if all capacity is exhausted, double the 1996 population of the sector (Auckland Regional Growth Forum, 1999: 32). Like the northern sector, infrastructural and environmental (particularly the Waitakere Ranges) constraints impact upon the ability of the western sector to provide capacity for future growth. However, the railway corridor creates more opportunities for localised intensification at town and sub-regional centres throughout the sector, making it possible for more than 60 per cent of growth in the western sector to be accommodated through intensification.

The southern sector, which includes Manukau City, Papakura District and Franklin District, would be the only Auckland sector to actually experience more growth through greenfield expansion than through intensification. Growth in this sector would be concentrated in two main ways: firstly along the southern transit line where intensification would occur at various town-centres located along the transport corridor, and secondly through greenfield development to the east of the railway corridor on the urban fringe. Two regional sub-centres would emerge in the south, one at Manukau City and the other at Papakura, while a number of smaller town centres would be developed throughout the sector, including Flat Bush, which would be built as a greenfield development. These greenfield areas, most notably East Tamaki, Flat Bush, Takanini and Hingaia, would provide accommodation for around 83,000 people, which combined with intensification and existing

district plan policies would mean that the southern sector's population could almost double by 2050 to around 600,000 people (Auckland Regional Growth Forum, 1999: 33).

It is in the central sector where future urban growth will be most different from that which has occurred in the past. With no opportunities for greenfield development in this completely 'built out' sector, all growth would have to occur through intensification. Although urban 'consolidation' has been happening in the central sector throughout the past thirty years, mainly through infill housing, future intensification would proceed in a different manner, focusing more on developing higher-density town centres along important passenger transport corridors. Indeed, the *growth concept* identifies two main areas of intensification in the central sector: firstly in the downtown area by developing high-rise apartment buildings, but also through medium-density housing in the inner suburbs that directly surround the central city. During the past ten years this has been proceeding quite rapidly, with the number of apartment buildings in Auckland's CBD increasing dramatically. The second opportunity for development is through intensifying various centres within the isthmus with good access to transportation routes. According to the RGS, 'underlying the growth concept within the isthmus is the need to focus growth in centres to make best use of rapid transit opportunities (such as at Mt Albert, Avondale, Newmarket, Panmure and Glen Innes, on the western and eastern rapid transit corridors)' (Auckland Regional Growth Forum, 1999: 33). In addition to developing these town centres, the *growth concept* proposes corridor-type development to occur along the full length of some roading corridors like Great North Road and Manukau Road. These developments provides opportunities to bring people closer to passenger transport systems that make frequent stops, such as buses or future light-rail systems. While many of these intensified corridors would follow a radial pattern away from the CBD, some (such as Mt Albert Road) follow a cross-town pattern, which reflects the relatively small proportion of Auckland's jobs located in the CBD. 182,000 extra people could be accommodated in the central sector through development outlined in the *growth concept,* which combined with existing district plan policies, allowing for growth primarily through infill housing and limited intensification in areas such as the CBD and Newmarket, could mean that by 2050 the central sector could accommodate around 583,000 people, a 68 per cent increase on the 1996 population. However, due to all future growth in the central sector

occurring through intensification, significant and costly infrastructure upgrades will be required before many of the centres can be fully developed. In particular, transportation infrastructure will need upgrading to ensure that the greater numbers of people living in the area do not overwhelm the roads and transit lines.

Through the *growth concept,* urban development in Auckland during the next 50 years will be conducted in a very different manner from that in the past. Due to its focus on intensification, many opportunities for improved urban sustainability are possible, although careful planning will need to occur for these benefits to be fully realised. The RGS recognises that 'communities in urban intensification areas, particularly in Auckland City, will have a much greater population density and cultural and ethnic diversity than at present. They will need a greater number and wider range of social and community support services and facilities' (Auckland Regional Growth Forum, 1999: 37). Co-ordinated planning between the various agencies responsible for public transport, the provision of health and education facilities, and basic infrastructure such as power, water, stormwater and sewerage, will be essential if intensification is to have a positive impact on the Auckland region. If such co-ordinated planning and large-scale infrastructural investment does not occur, then it is very likely that higher urban densities will simply exacerbate the environmental, social and economic concerns which prompted the creation of the RGS in the first place, and led to a shift towards focusing on urban intensification as the model for Auckland's future. Urban sprawl development in Auckland occurred because it appeared to offer a more attractive lifestyle than was possible in Auckland's high-density nineteenth century urban core; therefore proposals which encourage higher density living once again are likely to be met with scepticism by many residents. This scepticism is further increased by images of high-density urban ghettos in east-European cities, and the overcrowded slums of 'third-world' cities. Furthermore, as was clearly outlined in Chapter Two, the attractiveness of urban sprawl's lifestyle – a large house on an expansive section in a quiet cul-de-sac – means that implementing the RGS in the Auckland region will undoubtedly be a long and very difficult process. The city and district councils of the Auckland region that implement the RGS throughout the next 50 years will need to balance its 'compact city' theoretical framework with the needs and concerns of local residents to ensure that the four core principles of the

RGS (supportive communities, high-quality living environment, good accessibility and protecting the natural environment) can be achieved in a way that is acceptable to the population of Auckland. The implementation of the RGS will therefore need to be critiqued in two main ways: firstly whether the compact city theory can be adequately adapted to Auckland's situation so that it gains acceptability with the local population and can therefore be feasibly implemented; and secondly whether this adaptation goes too far and dilutes the compact city theory to the extent where no *significant* change from past development practices actually occurs, and the unsustainability of Auckland continues. The remainder of this chapter, and the chapters to come, will develop this critique about the RGS's implementation in the five years since it was published, with a particular focus on Auckland City and the suburb of Avondale, which has been identified as an area of intensification in accordance with the RGS.

3.4 Implementing the Strategy

According to Breheny (1997) one of the main problems with the compact city model relates not to the strength of its argument, that compaction leads to improved sustainability, but rather that it is very difficult to feasibly implement and often contains aspects of urban change which are unacceptable to the general population. For the RGS to be successful, and the growth concept to become a reality, great care will need to be taken in their implementation by the various district and city councils in the Auckland region. In response to this situation, the RGS outlines very carefully how it should be implemented, through creating various partnerships with infrastructure providers and important interest groups to ensure that the benefits of the RGS can be fully maximised. A memorandum of understanding (MoU) between the ARC and all the TAs (the city and district councils – known as territorial authorities) of Auckland recognises that the RGS should be the overarching growth concept for Auckland's future, and their individual district plans must not be inconsistent with the RGS. Furthermore, the 2004 Local Government (Auckland) Amendment Act (Government of New Zealand, 2004) formalised the role of the RGS in shaping Auckland's urban future by providing the city with a significant funding boost for transportation infrastructure, while requiring that future planning documents in the Auckland

region must 'provide for integrated land transport and land use provisions that are consistent with the Auckland Regional Growth Strategy' (Government of New Zealand, 2004: 5). Both the MoU and the Local Government (Auckland) Amendment Act 2004 ensure that the RGS will be the guiding document for Auckland's growth throughout the next 50 years, offering the certainty of a co-ordinated approach to growth management throughout the region, but still allowing for each TA to adapt the RGS in their local district to best suit the needs of their population. In order for their implementations to be successful, quality developments must occur, and both the RGS and subsequent documents published by the ARC such as the *Urban Area Intensification: regional practice and resource guide* (ARC, 2000) offer advice to local councils about ways in which intensification can best be implemented. The *New Zealand Urban Design Protocol,* published by the Ministry for the Environment (MftE, 2005) also offers a guide to ensure that quality urban growth occurs in all New Zealand towns and cities, but most particularly in areas experiencing intensification such as Auckland.

The RGS recognises that focusing on amenity and design is a crucial aspect of successfully managing Auckland's urban growth, although it is questionable whether this recognition has had much impact upon the quality of higher density developments in Auckland over the past five years. According to the RGS, good design is required to create a sense of place, identity and community within an area, which greatly contributes to more liveable communities. However, urban amenity can be very difficult to analyse because of the immeasurably wide range of qualities and characteristics of an area which contribute to people's appreciation of its pleasantness, including 'cultural and recreational attributes, open space, heritage, safety, accessibility, the natural environment and infrastructure. It also includes character, vibrancy, privacy, sunlight, traffic, noise, streetscape, lifestyles, people mix, identity and 'feel' of urban areas' (Auckland Regional Growth Forum, 1999: 41). Intensification has the potential to enhance urban amenity through a greater mix of land uses as well as increased vibrancy, yet at the same time it also places great pressure on this wide variety of factors that contribute to amenity. High-density developments in the Auckland region throughout the past five years have often been criticised for poor quality design and construction, both in the inner city and in other areas. This has further contributed to the

stigma attached to higher density living, with Tamaki College principal David Hodge stating that intensification could lead to Glen Innes 'becoming the worst urban slum in New Zealand' (Rudman, 2005). In the case of Glen Innes, this view has been echoed by many of the public submissions made to plans which would rezone large tracts of the suburb to a higher-density zone for three- and four-storey housing, with many believing that the neighbourhood will become 'a residential fiasco, a ghetto, a slum' or a 'sociological disaster' (Orsman, 2005a). Potential residents of the 'Talbot Park' Housing New Zealand precinct in the heart of Glen Innes, redeveloped to a higher density at a cost of $45 million, have largely rejected the development with only one out of every ten people offered a place in the apartment blocks accepting the placement (Hume, 2005). David Hodge sees this as confirmation the whole project has been a complete failure, with '…even the people it's designed to accommodate don't want it' (Hume, 2005), largely because of fears the apartment blocks will become slums. There were hopes Talbot Park (see Photo 3.1) would become a template for other state housing projects, and prove that good design could alleviate some of the stigma attached to high-density housing in low-income areas; however the reluctance of tenants to move to the area further highlights the acceptability problems associated with intensification. Furthermore, the poor quality of apartment buildings in Auckland's inner city, due to *laissez faire* urban design regulations, and the 'leaky buildings' crisis, have all contributed to the general suspicion which residents feel towards the construction of higher density housing in their neighbourhoods. In response to these difficulties in implementing urban intensification, guides for intensification and protocols for quality urban design have been published by both the ARC and the Ministry for the Environment. These documents attempt to improve the quality of urban design for higher-density developments in particular, and therefore make such developments more acceptable to local residents.

Photo 3.1: An example of Residential 8b zone. Housing New Zealand owned development at Talbot Park in Glen Innes. Photo taken by author 3/9/05

The ARC's *Urban Area Intensification: regional practice and resource guide* (ARC, 2000) is designed to encourage and assist practitioners and decision-makers involved in the urban intensification process by explaining the regional framework within which intensification is managed. As the RGS is passed on to the TAs for local implementation, the *Urban Area Intensification* guide assists these local councils in their task of identifying and sequencing more intensive developments, and ensuring that each development keeps the four main goals of the RGS – the sustainable use of resources, improving accessibility, increasing housing choice and affordability and creating higher quality urban amenity – as key to their decision-making (ARC, 2000). More specifically, the guide develops several criteria which should be used by the TAs in monitoring intensification to ensure the underlying principles of the RGS are promoted while making the process of intensification more acceptable to local residents. The first criterion is to ensure that intensification areas are within walking

distance of passenger transport facilities, to support 'the viability of the passenger transport service while providing transport choices to residents and workers' (ARC, 2000: 11). As most people are prepared to walk for no more than ten minutes (around 800 metres) to passenger transport services or local shops, intensive activities should be located within an 800 metre radius of a railway station, or no more than 800 metres each side of a high-frequency bus service corridor. The most intensive activities should be located within a five minute walk of the passenger transport service, to further encourage its usage. Within these areas of intensification, densities of 15 to 25 dwellings per hectare are believed to support a regular day time bus service of between two and four services per hour, while 25-35 dwellings or more are required to support a more regular service with extended hours, which would include rail (ARC, 2000). Therefore, densities higher than 25 dwellings per hectare are encouraged within the areas of intensification, to support higher frequency passenger transport services, which can reduce the reliance most Aucklanders have on the automobile to conduct their everyday activities. This criterion focuses on creating what have been termed 'transit-oriented developments' (TODs), a concept which the Auckland City Council (ACC) has used extensively in their adaptation of the RGS and will be discussed in more detail in the next chapter.

The second criterion promoted by the ARC's intensification guide focuses on ensuring intensification areas have a mix of land uses including public, commercial, employment and housing activities in relatively close proximity, as well as providing housing for a wide range of incomes within a single node of development. 'A greater mix and intensity of land uses will bring people closer to work, shopping, school, and entertainment, thereby making it easier to walk and bicycle to those destinations. To achieve this both vertical mixed-use buildings and horizontal mixed-use blocks are encouraged' (ARC, 2000: 11). By bringing people closer to their typical travel destinations, many of the unsustainable aspects of urban sprawl can be improved upon, including reducing automobile reliance, improving equitable access to services for those without a car, increasing the financial viability of many businesses by bringing their customers closer, and also improving safety and reducing crime by maintaining 24 hour activity within these areas through a wide variety of land uses. Specifically, even predominantly residential areas should reserve at least 20 per

cent of the land for commercial, civic and employment activities, particularly towards the centre of the intensive areas. In predominantly commercial and employment nodes and corridors, housing should still form approximately 20 to 50 per cent of land uses, achievable through providing a high quality urban amenity including small open spaces, tree-lined streets, traffic management and calming, and controlling the environmental effects of business (ARC, 2000). Furthermore, ensuring a wide range of incomes in an area of intensification by providing a variety of housing options will ensure the area does not become an exclusive enclave, nor a ghetto or slum. 'A mix of incomes, both residential and business, will help support diversity within a node and the opportunity for a range of businesses will ensure that centres can better manage economic cycles. A mix of incomes can be encouraged through the provision of a range of lot sizes, good amenity standards, and the retention and encouragement of existing buildings that can provide flexible spaces for different sized businesses and families' (ARC, 2000: 11). Much of the stigma attached to intensification, and the fear that it will create ghettos and slums, can be mitigated through vigorously ensuring that a mix of incomes and a wide variety of housing options are available within newly intensified areas. The problems in Glen Innes, referred to above, relate more to this criterion being seemingly ignored by plans for the area, which is largely owned by Housing New Zealand (and therefore providing housing for very low income tenants), than being a reaction to the actual process of intensification.

The third criterion for effective urban intensification is to ensure that low-density car-based activities are located away from areas of intensification. Warehousing and 'big box' retailing are car-based activities that should not be located in intensive areas because they use the limited space available in these areas inefficiently, and their traffic generating activities will only clog the roads. Instead, 'car-based activities should be provided with opportunities to locate adjacent to motorway corridors through appropriate zoning' (ARC, 2000: 12). Similarly, intensive activities such as high-density housing should be located away from suburban neighbourhoods with limited transportation infrastructure, as such housing would place an impossible strain on the infrastructure of these areas, and degrade their attractive characteristics. Natural features should be incorporated and protected when intensifying, to help define these neighbourhoods and centres. Existing stream and ecological corridors must

be protected, and their amenity value properly acknowledged, so that the first major goal of the RGS – the sustainable use of resources – can be achieved, as well as enhancing urban amenity, another key goal of the RGS.

Ensuring the adequate provision of infrastructure, both physical and social, is another key criterion for effective intensification that has been highlighted by the ARC. As outlined in the RGS, 'increased intensification will place pressure on stormwater, sewerage, transport and other physical infrastructure provisions. The density of activities in intensive areas may be up to three to four times that usually associated with suburban areas' (ARC, 2000: 12). While upgrading this infrastructure will be a very expensive process, research by Burchell and Mukherji (2003) shows that this cost will still be far less than if the same number of additional people were accommodated in greenfield sprawl developments. As well as improving physical infrastructure, the intensification guide also notes the need to focus on providing appropriate social infrastructure to support growing populations. In particular, additional capacities for schools, community recreation, open spaces, medical centres and other social infrastructure will be required. Due to the limitations of available space in these areas, this infrastructure will need to be provided in different and potentially creative ways compared to lower density suburbs (ARC, 2000: 13). Already some changes are being noted, with schools such as Senior College in Auckland's CBD being located largely in office buildings, in contrast to the land-hungry traditional school surrounded by enormous playing fields. A further key criterion outlined by the ARC for successful urban intensification is ensuring high levels of community safety, amenity and urban design, therefore enhancing the acceptability of urban intensification to local residents and overcoming the political backlash which often accompanies plans to intensify. These three aspects of a development acquire increased significance in higher-density areas because they lack the wide spaces available in suburbia (ARC, 2000). As it is not possible to set buildings apart in order to preserve privacy and to provide on-site open space, widely available car parking and private gardens, there is a greater need for effective public space to provide these amenities instead, while stringent design controls are required to ensure that 'individual developments do not unduly affect neighbouring properties' (ARC, 2000: 13).

In addition to these criteria, the intensification guide highlights the need to focus on creating pedestrian-friendly environments within areas of intensification to encourage walkability and reduce automobile use. According to the ARC, 'Pedestrian and passenger-transit friendly development standards that lead to a more pleasant environment are essential for reclaiming the street as public civic space. These public spaces are very important within intensive areas, as one of the main attractions of living within an intensive area is participating in 'street life'' (ARC, 2000: 13). Intensive areas also encourage more pedestrian traffic than suburban locations, simply because more is available within walking distance. However, further improvements can be made to encourage people to walk or cycle as 18 per cent of all trips in Auckland are less than two kilometres (a reasonable walking distance), while 47 per cent of trips are less than five kilometres (a reasonable cycling distance) (ARC, 2005). 'Pedestrian friendly design requires buildings and activities to front onto streets, and open spaces to provide active frontages to promote informal surveillance, and to encourage visually interesting building facades instead of blank walls. Frequent building entrances, front porches and reduced building setbacks for both commercial and residential buildings also need to be encouraged' (ARC, 2000: 13). Furthermore, developing a well-connected street network with short blocks, frequent intersections, limited use of cul-de-sacs and a wide variety of routes within and through an intensive area will also encourage pedestrian activity. Other design aspects, such as keeping vehicle speeds low through traffic calming, narrower streets, reduced turning radii, reduced intersection width and more frequent mid-block crossings will also help create a more pedestrian friendly environment (Duany et. al., 2000). To ensure that all the criteria for successful intensification listed above are met, the ARC's intensification guide strongly advocates for extensive monitoring, including feedback from residents, to be conducted by the TAs. In particular, the impact of intensification on local infrastructure capacity, both physical and social, should be assessed annually as this is where overuse will occur without sufficient investment in upgrading capacity.

3.5 Critiquing the Regional Growth Strategy

As the RGS is based on the 'compact city' theory, and 'the growth concept emphasises the opportunities for more compact growth and integrated communities as the

best way of meeting the regional vision and desired regional outcomes' (Auckland Regional Growth Forum, 1999: 28), it is necessary to analyse the many critiques of the compact city theory, and how the RGS responds to them. In the mid-1990s, when the RGS was being developed, there was widespread faith in the compact city model's ability to provide urban sustainability – as was mentioned in Chapter Two. However, studies since then have often failed to provide any clear consensus of an improvement, with regard to environmental protection, economic viability and social equity, where compact city policies such as the RGS have been implemented. Furthermore, even where limited benefits had been noted, such as reduced automobile use or greater accessibility for those without cars, the drastic changes intensification caused to the urban landscape led many residents to believe that the benefits were simply not worth the costs (Williams et. al., 1996). Poorly designed and constructed intensification in Auckland, parts of London, and particularly in many eastern European cities, has further stigmatised the concept as residents believe their neighbourhoods are becoming overcrowded and losing amenity (Williams et. al., 1996; Orsman, 2005a; Orsman, 2005b; Pickmere, 2005). Clearly, if these critiques are applicable to Auckland, and the RGS will potentially do more harm than good, then a severe overhaul of Auckland's growth strategies will be necessary.

However, it would be unfair on the RGS and subsequent documents published by the ARC, such as its intensification guide, to say that a blind belief in the compact city theory has led to the development of a growth strategy that will only further degrade Auckland's urban amenity. While Williams' (1999) argument – that travel patterns are often too complex for intensification to generate greater public transport use – may be difficult to disprove in the Auckland region where only 13 per cent of jobs reside in the CBD (Auckland Regional Growth Forum, 1998c), integrating development and transportation through intensification near transit corridors will surely have some impact on reducing automobile reliance in the Auckland region. However, if any noticeable reduction in the proportion of Aucklanders who use their cars to drive to work is going to become apparent, then improvements to the transit infrastructure will be just as important as locating people close to this infrastructure – although once again the RGS does recognise this fact and states that significant investment in infrastructure is required *before* intensification can occur (Auckland Regional Growth

Forum, 1999). For example, Auckland City Council has sequenced the development of its areas of intensification according to current infrastructure, developing those with sufficient physical and social infrastructure to support such increases in density first (Auckland City Council, 2003). Williams (1999) also questions whether the environmental gains made through urban containment, a key aspect of the compact city theory incorporated into the RGS as the Metropolitan Urban Limit (MUL), are offset by the subsequent loss of urban open space within the city limits, as well as a loss of space for trees and greenery. Once again, the RGS attempts to respond to this by focusing on good urban design and improving urban amenity through quality developments, especially in areas that experience intensification. Moreover, the areas of intensification outlined in the *growth concept* are fairly limited, and it is highlighted that by 2050 roughly 70 per cent of Auckland's population would still be living at lower densities in the suburbs or in rural areas (Auckland Regional Growth Forum, 1999). Indeed, it could be argued that the MUL has been compromised *too much,* as no council application for the MUL to be extended has yet been turned down (Beston, 2004), thus undermining attempts to limit the impacts of urban development. Overall, with regard to critiques of the compact city's ability to provide better environmental outcomes, the RGS has made significant attempts to counter the arguments through careful planning and a focus on quality urban design. Whether or not such measures are successful remains to be seen as the RGS is slowly implemented, and will be analysed further in subsequent sections of this thesis.

The compact city theory has also been critiqued with regard to its claims of improving economic sustainability and improving social equity. Gordon and Richardson (1997) argue that attempts to rejuvenate downtown areas through intensification frequently fail, and that sprawl should be encouraged because that is what the market appears to 'want'. However, the RGS responds to this critique through outlining the economic benefits of urban compaction, in particular improvements in the efficiency of service provision and land use, while also allowing for business expansion on a limited number of greenfield sites throughout Auckland, such as in East Tamaki and Albany, for a wide range of businesses while ensuring that car-dependent land uses are located away from intensification zones. The ability of urban compaction to provide improved social equity to urban sprawl has also been

critiqued in the literature. Burton (2000), among others, argues that reductions in dwelling sizes, health risks through overcrowding, the higher crime-rates of high density housing, as well as reduced housing affordability are all negative social outcomes that could arise through the process of urban compaction. However, as was noted in Chapter Two, many of the same social problems are associated with urban sprawl, which encourages the polarisation of housing into 'gated communities' for the rich and 'ghettos' for the poor. Although ghettos and slums are often associated with higher-density living, the RGS responds to this by arguing that through a mix of uses and incomes in areas of intensification should minimise health risks, as overcrowding relates to people-per-household rather than households-per-hectare. Furthermore, crime can be reduced through passive surveillance, and reductions in dwelling sizes can actually benefit today's diverse family structures through providing more affordable housing for those who enjoy city life, want to reduce their reliance on the automobile, and who do not want a large house and garden to maintain (ARC, 2000). Nevertheless, regulation will be required to ensure quality high-density housing is built, a process only starting to occur in Auckland's CBD, which has been blighted by homogeneous 'chicken-coop' apartment buildings (Cook, 2005; Orsman, 2005c). The RGS, and subsequent documents which assist its implementation, have clearly identified many of the critiques directed at the compact city concept and have responded to them in ways designed to ensure that urban intensification can be implemented to positively impact upon Auckland's urban sustainability and help achieve the desired outcomes of the RGS. Therefore, critiques of the compact city's veracity, as interpreted through the RGS, appear to be quite succinct and effective at the theoretical level.

The feasibility of urban intensification has been questioned by Breheny (1995, 1997) and Gordon and Richardson (1997) among others on the basis that it contradicts the dominant model of urban decentralisation throughout the past 100 years. As Chapter Two argued, urban decentralisation occurred as the result of a general dissatisfaction with the high-density crowded cities of the nineteenth century, once new transportation technologies made it possible for people to live further and further from their place of work. This perception of 'escaping the city' has continued ever since, and suburbia has provided the setting in which residents can enjoy the facilities and jobs of the city, yet be able to live in a low-density,

semi-natural environment. Over time, this mentality has been reinforced by the abandoned or neglected state of inner-cities, characterised by crime and poverty, further stigmatising the city in the eyes of most residents. However, in Auckland – as well as many American cities according to Calthorpe (1993) – this cycle appears to have been reversed over the past 30 years, as inner-city suburbs such as Ponsonby and Grey Lynn have been 'gentrified' by young professionals renovating old houses to significantly increase property values. Furthermore, chronic traffic congestion throughout the Auckland region has made living in fairly close proximity to the CBD an attractive option to shorten commuting time. The demand for inner-city living has also contributed to an explosion in the number of apartment buildings in the CBD throughout the past ten years, causing an increase in resident population from approximately 1500 in 1991 to over 9000 today (Cook, 2005; Statistics NZ, 2005). These statistics might suggest that the feasibility of intensification, in terms of being able to attract residents 'back to the city' may not be as much a problem in Auckland as it is overseas; although there remain many other feasibility problems for implementing the RGS in Auckland. Issues such as infrastructural constraints, inconsistent policies between TAs, and continued economic decentralisation such as suburban shopping malls all contribute to making the RGS difficult to feasibly introduce. Furthermore, community opposition towards higher-density housing has already forced the Auckland City Council to change plans for a new housing development in Panmure from a three-storey, eleven metre height limit to a two-storey, eight metre height limit (Pickmere, 2005), a clear example of implementation problems which may arise in other parts of Auckland designated for intensification.

Out of Breheny's three main critiques of urban compaction (veracity, feasibility and acceptability), it is problems with the acceptability of intensification that will be most difficult for the RGS to overcome. The stigma attached to higher-density housing, combined with the poor quality of apartments, townhouses and terraced housing built in Auckland over the past ten years has led to a situation where many people are highly sceptical of intensification, and its effect on their neighbourhoods. Consultation between councils and residents have in many cases been worthless, as Keith Sharpe, spokesman for the Panmure Community Action Group, states 'the feeling of the people of Panmure right from the beginning [of the consultation process] was that the planners had made all the plans in

advance. Then there was a cursory, shallow, consultation process. They seemed to be merely looking for the answers they wanted to hear' (Pickmere, 2005). A high concentration of state-owned houses in the Glen Innes suburb, which has been highlighted for intensification, has further contributed to fears that these high-density areas could become the slums and ghettos of the future, while visions of British council-owned housing estates and overcrowded Asian high-rises have reinforced this negative association with higher-density living. Although the RGS responds to this situation by ensuring a wide variety of housing options through allowing limited greenfield development in some areas, the extra sprawl which this will create has led to some criticism from the *other* side, that the RGS should focus more on intensification. For example, Mike Lee, current chairman of the Auckland Regional Council, criticises the RGS because it 'focuses too much on providing opportunities for sprawl and doesn't do enough to enable intensification around our transport systems. It also doesn't do enough to ensure that quality developments occur' (Beston, 2004). Therefore, finding an acceptable level of intensification which can respond to growth demands, yet remain acceptable to local residents, will be a difficult balance to strike for those implementing the RGS. Resident backlash to intensification, at both Panmure and Glen Innes, is sure to continue into the future as more areas begin to intensify. How these acceptability issues are addressed by councils will be critical to the long term success of the RGS. The unease about Auckland's growth and development, and the 'fed up' attitude many Aucklanders have towards ugly high-density housing developments indicate that all councils, developers, the ARC and central government can and must do better to ensure that intensification has a positive impact upon Auckland's urban landscape (Beston, 2004).

3.6 Conclusions:

Until the 1970s, Auckland's urban development was a story of decentralisation: from initially a highly compact mercantile town covering what today forms the CBD to a city based on the tram routes and railway lines which radiated from the CBD in the late nineteenth century until the Second World War, and finally to a car-based city built around the motorway system built in the 1950s and 1960s which encouraged suburbanisation and automobile dependence. However, from the 1970s onwards intensification has been occurring throughout

Auckland, mainly in the form of infill housing, although increasingly apartments, townhouses and terraced housing have contributed to an increase in housing density throughout the Auckland region. Nevertheless, Auckland's population density remains low by international standards, especially when compared with European and Asian cities. Combined with under-investment in public transport infrastructure, the 'sprawled' nature of Auckland's development patterns has contributed to the city now having more cars per household than Los Angeles, and a reliance on private transport which is clogging the region with traffic congestion (Cayford, 2005). Substantial population increase throughout the 1990s, partly due to relaxed immigration laws, are projected to continue until 2050, by which time it is estimated Auckland could have a population in excess of two million (Auckland Regional Growth Forum, 1999). In response to an obvious need to co-ordinate planning for Auckland's urban future at a regional level, the Auckland Regional Growth Forum was established in the late 1990s, to create a vision for Auckland in the year 2050. This vision was published in 1999 as the *Auckland Regional Growth Strategy,* which also focused on how the *growth concept* could be achieved.

The RGS is a substantial change from past urban growth strategies in the Auckland region, as it focuses on mostly accommodating Auckland's increasing population through urban compaction instead of greenfield development. Under the RGS, intensification would occur in areas close to passenger transport corridors by constructing new medium- and high-density housing, rather than infill housing. This would assist in achieving the four main principles of the RGS, which are listed below:

1) strong supportive communities
2) a high-quality living environment
3) a region that is easy to get around
4) protection of the coast and surrounding natural environment. (Auckland Regional Growth Forum, 1999)

These four main principles have been deemed by the RGS as crucial in achieving not only a more sustainable urban future for Auckland, but also a city which is attractive to live in and economically successful. However, the RGS has been challenged by many because it does not appear to reflect market demand for lower-density housing and forces intensification

upon unwilling residents; or because it allows for too much urban sprawl, minimising improvements in sustainability and making it questionable whether the four main principles of the RGS will be achieved. Furthermore, poor quality developments throughout Auckland over the past five to ten years have hardened many residents against intensification, and appeasing the backlash has inevitably meant compromises had to be made.

Indeed, it has become quite evident that the success or failure of the RGS will depend on the quality of intensification that occurs in Auckland over the next 50 years. The ARC as well as the various TAs of Auckland are beginning to recognise the importance of concepts such as 'urban design' will play in the implementation of intensification, with a mayoral taskforce on urban design in Auckland City; (Orsman, 2005d; Auckland City Council, 2005) the publication of a *Residential Design Guide* (Auckland City Council, 2001); and the adoption of the *New Zealand Urban Design Protocol,* (Ministry for the Environment, 2005) at a national level. The ARC has also offered advice for developers and TAs regarding best practice when undertaking intensification, focusing on quality design and ensuring that 'liveable communities' are created, with a greatly reduced reliance upon the automobile for transport. Nevertheless, a stigma remains attached to high-density housing throughout the Auckland region, partly due to the 'leaky buildings' crisis, partly due to poor design and insufficient design controls by councils, and partly due to a long-held preference for lower density living which is a seemingly integral part of New Zealand's culture. This stigma will need to be overcome throughout the next 50 years if intensification is to become feasible and acceptable throughout the Auckland region, and if it is to form the basis of a more sustainable urban future for Auckland.

Chapter Four:
Implementing the Regional Growth Strategy in Auckland City – creating 'transit-oriented developments'

4.1 Introduction

All aspects of the RGS cannot be implemented by the Regional Council alone, which means the territorial authorities (TAs) of Auckland also have an important role to play in managing future urban growth. When the RGS was released in November 1999, each TA in the region, as well as the ARC, was a signatory to a memorandum of understanding (MoU), which defined the responsibilities of these stakeholders in the implementation of the RGS. The MoU ensured that sector agreements were developed between the ARC and the various TAs on the location and capacity of sub-regional growth. This chapter will focus on the sector agreement between the ARC and the Auckland City Council (ACC), and how this agreement developed into a Growth Management Strategy (GMS) for Auckland City. Because of its central location, Auckland City cannot grow through greenfield development and therefore must intensify. Analysing its urban growth management strategies provides the clearest example of how Auckland is changing from a city characterised by 'urban sprawl' to a new 'compact city'.

Auckland City is projected to experience rapid growth during the next twenty years, with a population increase of approximately 141,800 – roughly equivalent to Wellington City – estimated by the city council (Auckland City Council, 2003). Combined with the need to comply with the RGS, through the MoU and the central sector agreement, this population growth has made it necessary for Auckland City to develop a GMS. While the RGS looks 50 years into the future with its *growth concept*, the sector agreements and Auckland City's GMS only have to look twenty years into the future, but are much more detailed. The ACC's GMS was developed around the vision of creating a future where 'Auckland will be a quality urban city, prospering as a vibrant leading-edge city with heart and soul' (Auckland City Council, 2003: 2.3). In achieving this vision, the council would work towards 'managing Auckland's growth in a sustainable way – Auckland City believes that with sustainable growth, people, the economy and the environment will all be better off in the short term and for future generations' (Auckland City Council, 2003: 2.3). Therefore, sustainability remains the key principle of Auckland City's GMS, just as it is the basis of the RGS. In order to achieve enhanced urban sustainability, while also accommodating an extra 141,800 people in

twenty years time (of which only 30,000 extra were planned for under the existing district plan for Auckland City in 2001) (Auckland City Council, 2004), the GMS proposes focusing on building a compact city through identifying areas of stability which are not suitable for increased growth, and areas of change, where increased growth can be supported (Auckland City Council, 2003). By carefully separating these two areas, growth can occur in a more managed way and on a scale where high-quality urban design principles can be implemented. According to the GMS, growth should be focused around town centres that can provide the services, shops and jobs needed to support a growing population. Increasing development densities in these locations helps to support passenger transport services by bringing people closer to railway stations and bus routes, thus reducing automobile dependency and congestion (Auckland City Council, 2003). This coordination between higher-density development and passenger transport services is known as 'transit-oriented development' (TOD) in the international literature, and has been promoted by many as an effective way of reducing automobile use, while also creating higher-quality communities and a viable alternative to urban sprawl (Bagley and Mokhtarian, 2002; Banister, 1997; Belzer and Autler, 2002; Bernick and Cervero, 1996; Cervero and Kockelman, 1997; Dittmar et. al., 2004; Dittmar and Poticha, 2004; Ewing, 1995; Frank and Pivo, 1994; Naess and Sandberg, 1996; Stead, 2001; Transit Cooperative Research Program, 2004), although many of these benefits have been perhaps overstated, according to other studies (Maat et. al., 2005; Redmond and Mokhtarian, 2001).

This chapter will begin by focusing on the framework for urban growth in Auckland City, particularly on the central sector agreement and the GMS. The areas designated for 'stability' or 'change' will be identified, and the criteria for their designation fully explained. The chapter will then look at the concept of urban design in the Auckland setting, and how focusing on this concept has been identified by the council as the key to successful implementation of the GMS. How Auckland City has started to respond to a perception that higher density living is synonymous with poor urban design, 'chicken-coop' apartment buildings and a loss of urban amenity will also be explained. Finally, there will be an analysis of 'transit-oriented developments' (TODs), how they can assist in the implementation of a sustainable urban future for Auckland City, and how they contribute to more vibrant areas of

intensification with a reduced reliance on the automobile. Some of the critiques of TODs, as well as responses to the critiques through council strategies, will also be discussed. Furthermore, the 'areas of change' identified in the GMS will be compared with TODs to determine common characteristics and suitability for adaptation. There will be a focus on the suburbs of Glen Innes, Panmure and Avondale throughout the chapter as these are the three 'areas of change' sequenced first for intensification in Auckland City, which will lead into Chapter Five's in-depth analysis of Avondale.

4.2 A 'Growth Management Strategy' for Auckland City

A combination of Auckland City's rapid population growth and a need to comply with the 1999 *Regional Growth Strategy* has made it essential for the ACC to focus on its growth management plans throughout the past five years. An MoU signed by the ARC, ACC, Manukau City Council, Waitakere City Council, North Shore City Council, Rodney District Council, Papakura District Council and Franklin District Council on 22 November 1999 defined the responsibilities for implementing the RGS throughout the Auckland region (Auckland City Council, 2004). The RGS's focus on urban intensification, based on the 'compact city' model of development, is particularly significant for Auckland City due to its central location. A projected population increase from 346,000 in 1996 to 583,000 by 2050, in an area where no urban expansion could occur, meant that it became critically important for the ACC to develop a strategy that could manage growth and the change it brings, while still preserving what Aucklanders value about the city and the region (Auckland City Council, 2003). The council developed five key aspects of the planning process that would be critical for a successful growth management plan to be developed, and declared that such planning would have to be:

1) aligned with community values and aspirations
2) flexible to adapt to changing conditions
3) beneficial to the city and local area
4) aligned with physical infrastructure
5) holistic – socially, environmentally and economically sustainable (Auckland City Council, 2003: 2.1)

The need to carefully plan for future urban growth is particularly true in Auckland City, because of the absence of open space to develop into. Therefore, all physical and social infrastructural improvements will need to occur in innovative ways, to ensure that intensification has a positive impact on the city. Furthermore, studies by the RGF reinforce the need for councils to be proactive in managing growth through intensification if the compact city is to be realised, and to ensure that a high quality urban amenity is maintained (Auckland City Council, 2004).

The RGS sought to ensure that reciprocity would exist between all RGF partners, so that growth would be coordinated throughout the region. In the case of Auckland City, a central sector agreement was established in October 2001, which highlighted the responsibilities of the ACC in implementing the RGS. This agreement outlined the obligations of Auckland City in implementing the RGS, to ensure that future growth management plans development by Auckland City were consistent with the 'compact city' approach of the RGS, focusing higher-density development along transportation corridors and in the CBD (Auckland Regional Growth Forum, 1999). Due to its obligation to the RGS, the ACC developed its 2003 *Auckland City: Growth Management Strategy,* (GMS) outlining how growth would occur throughout Auckland City over the next twenty years. Auckland City's vision to be a 'quality, vibrant, leading-edge city with heart and soul' (Auckland City Council, 2003) formed the basis of the GMS, and to achieve this vision the ACC outlined seven key aspects to develop the Strategy. These include:

1) creating liveable communities, where communities are involved in the planning process for change and growth in their local area
2) maintaining and enhancing a sense of place that reflects the special natural and heritage character of a community
3) developing strong communities, where people and organisations are empowered to support change and to manage it in a positive way
4) connecting people and places, by organising transport and movement in an efficient way including a better integration of land-use patterns and transportation networks
5) maintaining open spaces, whether parks, plazas or streets, which support public life and activities

6) greening Auckland, through enhancing the ecological and natural world of the city
7) focusing on urban design, creating a quality built environment that is distinctively Auckland and attractive for people to live in (Auckland City Council, 2003: 2.3).

These policies, in the opinion of the ACC, contribute towards managing Auckland City's growth in a sustainable manner, and can achieve the council's vision for the city's future.

In order to achieve their vision for Auckland City, as well as the 'compact city' urban framework outlined in the RGS, the ACC's GMS focuses on urban intensification in highlighted 'areas of change' – transit-oriented communities with sufficient infrastructure to support an increase in population. Areas of change could be either housing-oriented, or employment-oriented, although both would promote a 'mixed-use' style of development, to reduce the need for residents to travel. As the GMS outlines, 'With Auckland's population steadily increasing, growth has to happen somewhere. In order to build a compact city and to make sure that growth happens in a managed way, Auckland City has identified areas of stability (which are not suitable for increased growth) and areas of change (where increased growth can be supported)' (Auckland City Council, 2003: 3.1). A number of criteria for deciding whether a neighbourhood should be an 'area of change' or an 'area of stability' were identified by the ACC. Generally, housing-oriented 'areas of change' have a town centre with capacity for more people to live within an 800 metre radius; a primary school or other community anchor within this area; sufficient open space; good passenger transport access and/or road access; stormwater capacity for growth; no significant environmental qualities threatened by urbanisation; and market interest in intensification (Auckland City Council, 2004). For business development communities, the criteria for intensification include whether a service centre of sufficient capacity to support increased worker requirements is present within a one kilometre diameter; the presence of good passenger transport or road access; satisfactory access for goods movement via road or rail; no significant environmental qualities threatened by development; and market interest in the area (Auckland City Council, 2004). By contrast, the criteria used to choose traditional 'areas of stability' reflect the unsuitability of these areas for increased development. Indeed, 'To preserve lifestyle choice, protect the city's character and sense of place and avoid development in environmentally sensitive areas, not all the city is seen as suitable for growth

now or in the future' (Auckland City Council, 2004: 15). These 'areas of stability' were identified to give certainty to residents that future development would not occur in their communities, which will retain their traditional shape, form and character. Criteria for these 'traditional communities' include: their coverage of significant character/heritage areas that limit future growth capacity; environmental qualities that increased urbanisation would compromise; limited transport access that would be difficult to refit or improve; limited opportunity for increasing neighbourhood facilities and services to cater for increased demand; significant barriers to the provision of higher capacity stormwater infrastructure; or simply that existing district plan zoning already provides opportunities for higher density living through Residential 6 or Residential 7 zones (medium- and high-density housing), and therefore no change is necessary (Auckland City Council, 2004). Many of the 'traditional' communities already have centre plans developed for them, to ensure that their character and sense of place is maintained, despite the development, while others already allow for mixed-use or intensive development with guidelines to ensure that this is conducted in a high-quality manner.

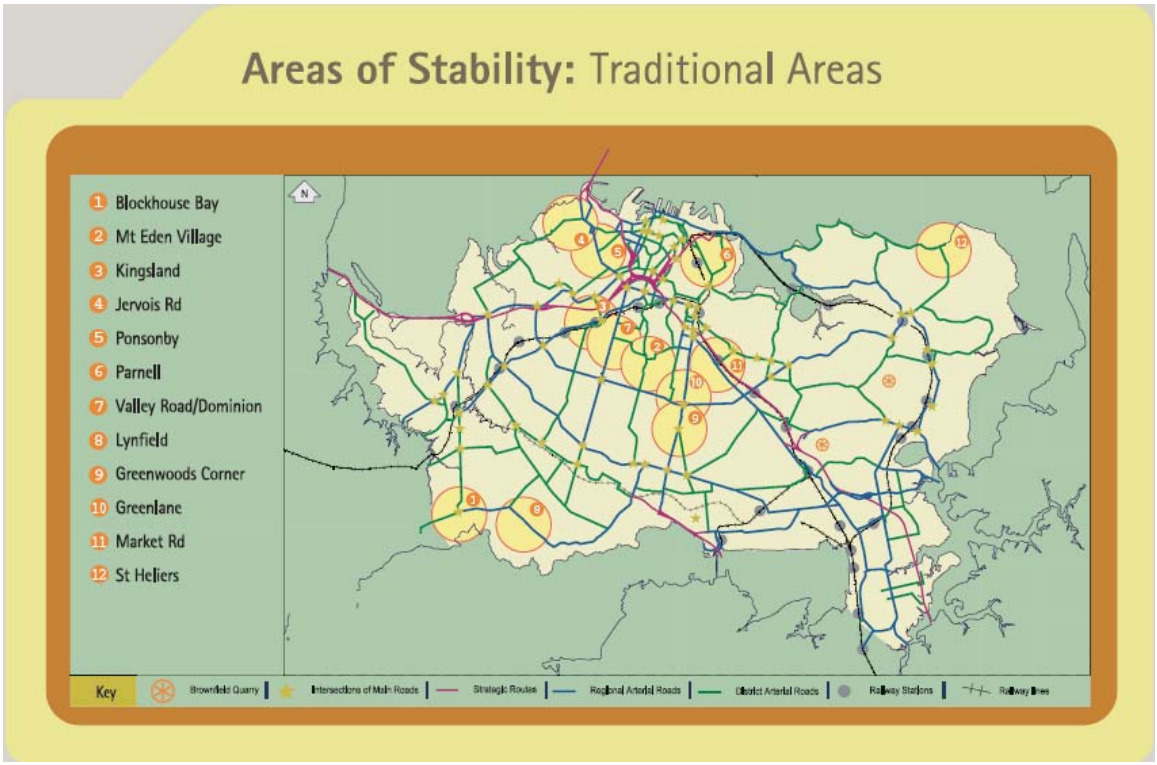

Figure 4.1: Areas of stability in Auckland City's *Growth Management Strategy*. Source: ACC, 2003: 3.2

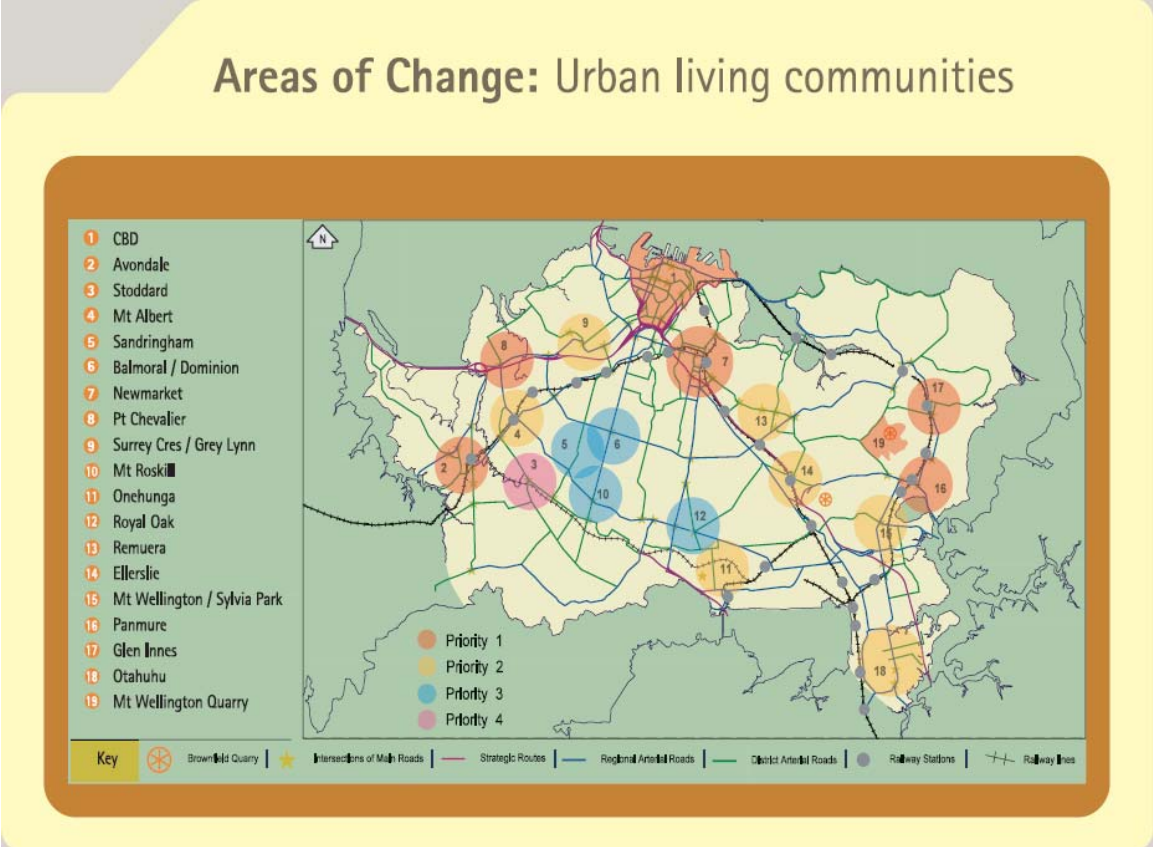

Figure 4.2: Areas of change in Auckland City's *Growth Management Strategy*. Source: ACC, 2003: 3.3

Throughout Auckland, twelve areas of stability and nineteen areas of change were identified by the GMS, (see Figures 4.1 and 4.2). Areas of stability include: Blockhouse Bay, Mt Eden Village, Kingsland, Jervois Road, Ponsonby, Parnell, Valley Road/Dominion, Lynfield, Greenwoods Corner, Greenlane, Market Road and St Heliers; while those of change include: the CBD, Newmarket, Glen Innes, Panmure, Mt Wellington Quarry (an area of 'brownfield' redevelopment rather than intensification), Otahuhu, Avondale, Remuera, Ellerslie, Sylvia Park, Grey Lynn, Pt Chevalier, Mt Albert, Onehunga, Mt Roskill, Sandringham, Balmoral/Dominion, Royal Oak and Stoddard. In addition to these mainly residential 'urban living' areas of change, there are fourteen business development areas which focus on employment and business growth. These employment 'areas of change' include the CBD, Tamaki edge, southeast industrial edge, Mt Wellington highway, Westfield/Otahuhu, Morningside/St Luke's, Great South Road/Greenlane, Penrose, Lansford Crescent, Ellerslie, Southdown, Carbine Road and the future State Highway 20 Avondale corridor (Auckland City Council, 2003). However, clearly many of these areas of change,

both urban living areas and business development areas, are not yet ready for such development – as their infrastructural requirements for future growth depend upon significant investment in either physical or social infrastructure over the next 20 years. The urban living communities suitable for residential growth '…are based around town centres that already have (or potentially will have) the transport, schools, open space, community services and shops needed to create a vibrant urban community' (Auckland City Council, 2003: 3.3). Furthermore, in the cases of Newmarket, Mt Albert, Avondale, Panmure, Ellerslie, Otahuhu, Panmure and Glen Innes, these 'areas of change' are based around railway stations, with potential to create 'transit-oriented developments' (TODs) in these areas.

Most of the isthmus will continue to grow at a similar rate to that currently allowed under the District Plan, mainly through some continued infill housing in Residential 6 zones (the most common zone in Auckland City) and some allowances for higher density housing in Residential 7 zones near the inner-city. However, almost one-third of future growth in Auckland City in the next twenty years will be in areas of change, which while relatively small will absorb much the city's future growth. Continued development of the CBD as a place for people to live as well as work, along with new brownfield developments at the Mt Wellington and Harrison Rd quarries, will also absorb a significant amount of growth. Therefore, by 2021 just under half the population of Auckland City will be living in non-traditional communities such as future infill, mixed-use development, the CBD, areas of change, or the two quarries (see figures 4.3 and 4.4). This will represent a significant population redistribution from what is currently the case, and help move Auckland City towards a more compact urban form (Auckland City Council, 2003). Nevertheless, whether or not this 'population redistribution' can achieve the future urban goals of the ACC and the ARC (through the RGS) remains to be seen, as not all the 'areas of change' appear to be well integrated with existing passenger transport services, which makes it possible for these intensified neighbourhoods to simply generate more traffic congestion rather than encouraging the use of public transport. Furthermore, whether or not an area accepts being classified as an 'area of change' will also depend on the process of implementing intensification in that neighbourhood, although in response to this situation Auckland City

has focused on ensuring that the communities are well-involved in developing the local plans for ‘change’.

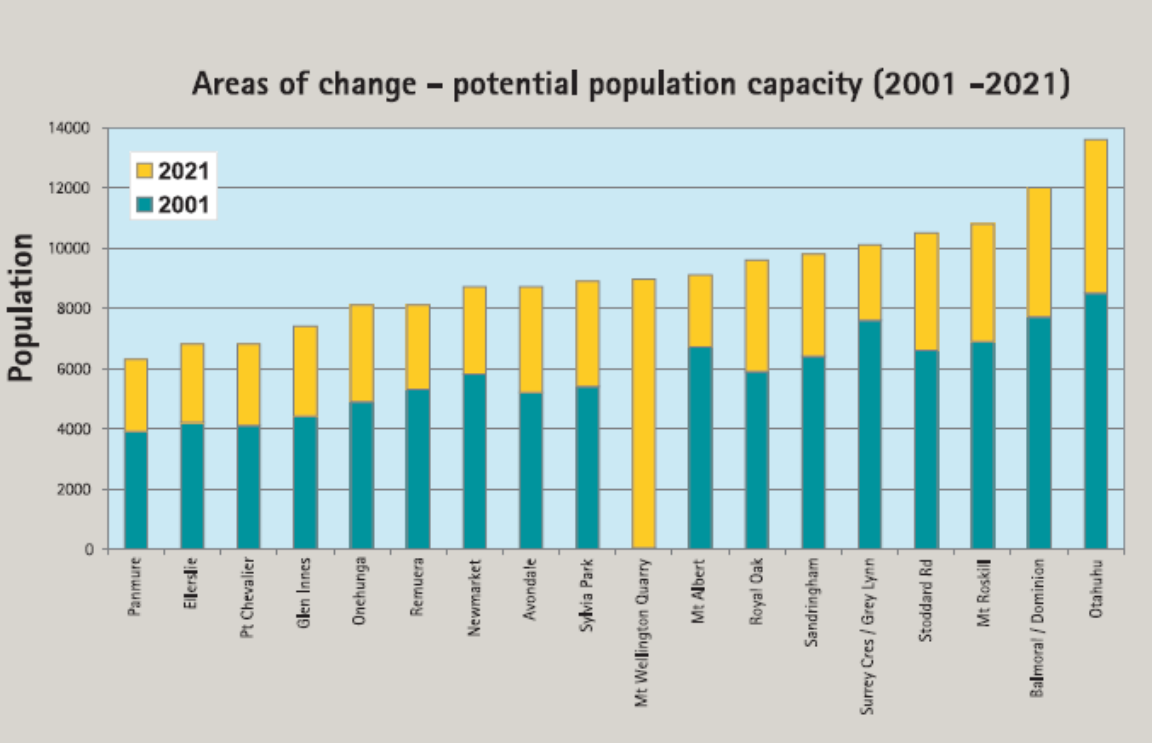

Figure 4.3: Population capacities of Auckland’s ‘areas of change’. Source: ACC, 2003: 3.5

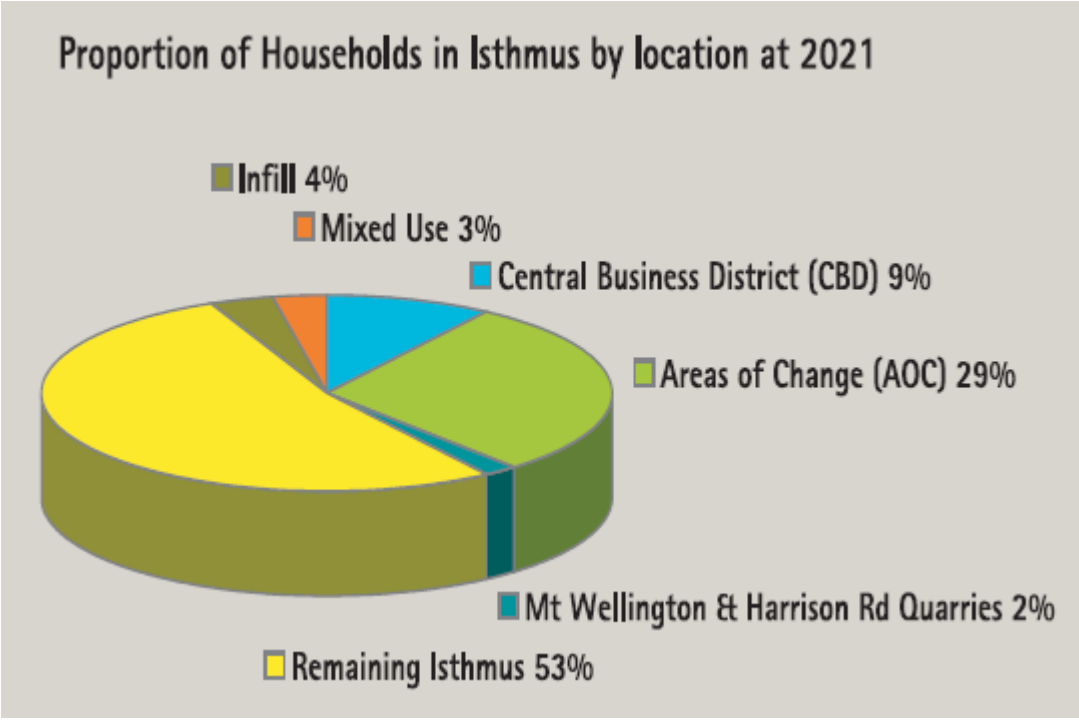

Figure 4.4: Location of households in the Auckland isthmus in 2021. Source: ACC, 2003: 3.5

Once an area has been identified as an 'area of change' the council will undertake a series of processes to change it into an urban community that is both liveable and intensified. Firstly, funding to ensure that the drainage infrastructure within the area of change can meet projected population increases must be committed. Next, the council should undertake a needs assessment study to identify the social infrastructure needs arising from growth that must be addressed. This will lead to the council implementing an action plan to address any gaps in social infrastructure that may exist. This action plan could include advocating to central government providers in areas such as health, education and housing if a need for further investment in these areas is deemed necessary. Community organisations, developers, financiers and transport agencies should also be involved by the council at this stage, and throughout subsequent stages of the planning process, to ensure coordination and cooperation between the different agencies (Auckland City Council, 2003). Once these groups have become involved in the process, extensive community consultation needs to occur, and to ensure that the outcomes of the process are the best possible, considerable time and resources must be allocated to this stage of the planning process in particular. Community consultation will occur in the form of a 'Liveable Community Plan' within each town centre so that the council can work with individual communities on how best to manage future growth while also addressing their local concerns and issues. 'Liveable Community Plans (LCPs) outline a comprehensive framework for managing growth and development within an area of change. The plan will indicate how additional households and businesses will be provided for, what resources are needed to maintain or improve the liveability of each area and the actions needed to ensure that the physical and social infrastructure can cater for the growth' (Auckland City Council, 2003: 3.7). After consultation with local communities, any necessary District Plan changes to introduce new zones allowing higher densities, mixed-use development and local employment opportunities can be introduced. The final step of an LCP is implementation, which requires an ongoing council budget for works implementation, where milestones can be celebrated and progress reviewed frequently. The nature of intensification means that many LCPs may take many years to implement as money becomes available for investors to redevelop at higher densities; therefore the plans need to be flexible enough to respond to changing circumstances and take into account new community

initiatives. The 'action plan', which implements the LCPs, will frequently include rezoning of areas into Auckland City's new Residential 8 zone, specifically developed 'to provide opportunities for a more compact lifestyle, in appropriate locations, while catering for future population growth within the Auckland isthmus' (Auckland City Council, 1999: A11). The action plan will also add specific related projects to the council's annual budget, to ensure that necessary ongoing funding for projects such as upgrading main streets, developing facilities such as pools and parks, maintaining roading projects and improving other infrastructure.

The Residential 8 zone was introduced as a result of the RGS and the GMS, through plan change 58, which allows terraced and apartment style buildings in the 'areas of change', but with high quality urban design controls (Auckland City Council, 2003: 3.10). According to the District Plan, the Residential 8 zone will promote intensification through encouraging 'higher-density' type developments in a manner which respects the surrounding built and natural environment and protects neighbouring sites from the adverse effects of development. Furthermore, Residential 8 zones will only be applied to residential land located within the specific growth areas set out by the GMS: close to the Central Area and adjacent to existing centres or main transport nodes (Auckland City Council, 1999). 'The purpose of the zone is to facilitate the outcomes of the council's adopted growth management strategy through the provision of more liberal densities than found in other residential areas of the city' (Auckland City Council, 1999: A17). There are three different types of Residential 8 zones, relating to a gradation of densities that have been deemed appropriate by the council in particular areas. Zone 8a is designed to be in areas within walking distance of the town centre, and allows for two to three storey multi-unit developments including townhouses and terraced housing, with a density of one unit per 150 square metres. Zone 8b is to be located in areas immediately adjacent to the town centre or major transport node, and allows for multi-unit developments that can be up to three or four storeys in height, consistent with existing town centre commercial buildings, with a maximum density of one unit per 100 square metres. Finally, zone 8c is applied to parcels of land within a two kilometre radius of the CBD and allows for larger apartment buildings with no density limits, although some height controls and a maximum site coverage of 60 per cent apply in the 8c zone.

However, what really sets the Residential 8 zone apart from the 'high-density' Residential 7 zone (apart from its location in key growth areas) is a focus on high-quality urban design for these areas of intensification, promoted to overcome many of the fears held by residents that high-density living means poor design, ghettos and slums. In order to create quality neighbourhoods, and to avoid or mitigate adverse effects arising from more compact development, specific controls and design criteria are applied in the Residential 8 zone. These criteria are outlined in Auckland City Council's *Residential Design Guide: for developments in residential zones in strategic growth management areas* (Auckland City Council, 2001), and based upon eleven elements related to the design aspects of these new residential developments. The elements are neighbourhood character, site layout, density, energy efficiency, building envelope, visual privacy, acoustic privacy, landscaping, driveways and car parking, private open space and site facilities (Auckland City Council, 2001). A clear explanation of what the design element entails, statements relating to the intention of the element and its desired outcomes, as well as criteria for judging whether a design element has been met or not are outlined in the Design Guide. For the Residential 8 zone, meeting the criteria of these design elements plays an important role in the resource consent process, as is elaborated upon below:

> 'All new residential development in residential zones within the SGMAs (areas of change) will be considered as a controlled activity where the development meets the development control rules (set out in the District Plan and repeated in this Guide) and where it satisfies the qualitative criteria in the District Plan which relates to design elements in this Guide. However, in particular cases anyone proposing a development may use an alternative method to the development control rules if it can be demonstrated, to the satisfaction of the Council, that the alternative will satisfy the design element objectives and criteria as well, or better than, the prescribed development control rules. In such circumstances the application would require a discretionary activity resource consent' (Auckland City Council, 2001: 12).

Not all the criteria listed above can be directly translated into measurable rules, as it is important to keep some design flexibility open so that innovative methods to both meet the rules and maintain originality are possible. Good design suggestions are given for each of the

eleven design elements, for example the 'neighbourhood character' element refers to built form, character, road frontage and fences of the development; while the 'site layout' element has suggestions which relate to the development's neighbourhood integration, community safety, energy efficiency and car parking layout. Even within these broad suggestion headings, there are more specific guides given to developers, for example 'neighbourhood integration' has specific suggestions to developers, such as 'avoid cul-de-sacs if longer than 40-50 metres with no pedestrian link', 'design dwellings to front existing and proposed roads', 'locate car parking areas and garages so that they do not dominate the development or road frontage' and 'locate dwelling fronts to face other dwelling fronts, not backs, across the road' (Auckland City Council, 2001: 35). Clearly, some very specific guidelines are being given by the council to ensure that development which occurs within the Residential 8 zone conveys a high level of design quality.

Nevertheless, Breheny's (1997) three-pronged critique on the veracity, feasibility and acceptability of the compact city concept can be directed at Auckland City's GMS just as easily as it was directed to the RGS in the previous chapter. Furthermore, the efforts of Auckland City to resolve the feasibility and acceptability issues of intensification by publishing very detailed guides promoting quality urban design, and an extensive consultation process through the LCPs may mean losses to the strength of the compact city model in Auckland City. One way for this to be tested is to compare the 'areas of change' in Auckland with the well elucidated concept of TODs, one aspect of the 'compact city' model which Auckland City's GMS appears to most closely mirror. TOD proponents have identified many possible urban sustainability improvements in their model, compared with the low-density urban sprawl land-use patterns that characterise *most* of the Auckland region (although less dominant in Auckland City), especially with regards to improving the level of public transport use, thus reducing reliance on the private automobile for transportation. The GMS has very strong links with TOD in its desired outcomes for Auckland City, for example by stating that 'concentrating people and activities around transport (preferably within a five or ten minute walk) provides enough population density to support improved passenger transport and local services such as shops. Increased services within walking distance in turn reduces the need for car travel' (Auckland City Council, 2003: 2.5). Analysing TOD is

therefore an important part of determining the potential success or failure of Auckland City's GMS.

4.3 Transit-Oriented Developments

By locating intensification around railway stations, in the case of Newmarket, Mt Albert, Avondale, Panmure, Ellerslie, Otahuhu, Panmure and Glen Innes, and having frequent bus routes for *most* of the other 'areas of change', the GMS seeks to maximise the potential of these passenger transport networks. By focusing intensification in these areas the viability of the networks can be improved through increased passenger numbers, while also significantly reducing automobile dependency, and therefore congestion, in intensified areas and throughout the region. The process of linking development with transit routes is known internationally as creating 'transit-oriented developments' (TODs), or 'transit villages', promoted as a paradigm for creating attractive and sustainable communities, both in the city and in the suburbs where rail transit systems are in place, to make a significant impact on traffic flows (Bernick and Cervero, 1996). TODs have become popular among 'smart growth' and 'New Urbanist' advocates in the USA as a response to urban sprawl, through injecting vitality into declining inner-city settings and expanding lifestyle choices beyond the ubiquitous single-detached dwelling (Transit Cooperative Research Program, 2004). TODs have become more viable and popular over the past 10-15 years, as both a reaction to urban sprawl and because of a growing consumer preference for inner-city living. As Dittmar and Poticha (2004) elaborate: 'During the past decade there has been a tectonic shift in consumer preferences, employer location strategies, and transportation planning values. Sitting, as it does on the convergence of these trends, transit-oriented development has the potential to form a new approach to development that builds on their synergy and results in places and regions that meet the demand for location-efficient mixed-use neighbourhoods, supports regional economic growth, and increases housing affordability and choice'. They believe that TOD could lead to a fundamental rethinking of the way in which communities are built, as well as how regional policy and investment decisions are made (Dittmar and Poticha, 2004).

Improving transportation technologies over the past century has made it increasingly viable for people to travel ever-increasing distances to conduct their daily activities. While this has enabled residents to participate in a wide range of societal and economic activities, the need to travel is increasingly associated with a loss of accessibility for some people through congestion, a reliance on the automobile, and parking problems (Belzer and Autler, 2002). Furthermore, travel's many negative externalities related to safety, the environment and health, are increasing at rapid rates, particularly car and air travel (those with the highest externalities) (Maat et. al., 2005). Until recently, many of the 'problems' of travel – especially congestion and insufficient parking – were addressed through increasing investment in infrastructure, thus raising the supply to meet the demand. 'However, policymakers have come to realise that many improvements are only temporary, as they may generate more traffic, and that new car infrastructure does not solve environmental problems' (Maat et. al., 2005: 33). Therefore, alternative solutions have been proposed by planners, which focus on reducing the demand for travel rather than spending enormous amounts of money on upgrading infrastructure to meet this ever-increasing demand. As Maat et. al. (2005: 34) explain, 'Among the strategies to reduce car travel, the idea of influencing land use seems plausible, as the spatial structure of housing, employment, services and leisure forms the context within which people travel.' TODs are an extension of this belief: as changing land-use patterns can reduce the need to travel, especially when combined with promoting the use of passenger transport by locating higher-density developments around transit stations. Through mixed-use development and a close proximity to frequent passenger transport, the design of a TOD 'should' lead to a reduction in automobile use.

Exact definitions of TODs vary, although they generally have many similar aspects to them, including the focus on a transit station for development, and building higher-density mixed-use neighbourhoods. Bernick and Cervero (1996: 5) outline their definition of a TOD:

> 'At its core, the transit village is a compact, mixed-use community, centred around the transit station that, by design, invites residents, workers, and shoppers to drive their cars less and ride transit more. The transit village extends roughly a quarter mile from a transit station, a distance that can be covered in about five minutes by foot. The centrepiece of the transit village is the transit station itself and the civic and public spaces that surround it. The

> transit station is what connects village residents and workers to the rest of the region, providing convenient and ready access to downtown, major activity centres like a sports stadium, and other popular destinations.'

Transforming transit stations from isolated areas surrounded by vast expanses of car-parking or wasteland, to vibrant neighbourhood centres with clusters of high-density housing and mixed-use development in close proximity are the hallmarks of a TOD. TODs share many attributes with the traditional-style communities promoted by New Urbanist planners in recent years as alternatives to the monotony of urban sprawl. By focusing more on the design of neighbourhoods, New Urbanism and TODs aim to create communities with an enhanced 'quality-of-life' that are more environmentally, socially and economically sustainable than sprawl. The social and cultural elements of TODs are critical, as TOD is not simply a physical entity to encourage a mode shift in transportation away from the automobile, but a wider tool to create a more balanced set of transportation options and a more efficient and sustainable style of land-use (Belzer and Autler, 2002). Bernick and Cervero (1996: 6) hope that TODs can have positive social effects by bringing people from many different 'walks of life' into daily face-to-face contact, in contrast with auto-oriented suburbs which '…have isolated people by age, class and race – the young from the old, the rich from the poor, whites from blacks'. TODs have a pedestrian focus that is not found in sprawl developments, as the mix of land uses, narrow tree-lined streets, wide footpaths, near-continuous building frontages and absence of large surface parking lots make walking a much safer and more attractive proposition than it is in 'edge city' developments (Bernick and Cervero, 1996). This pedestrian focus brings people into contact with each other, creating a vibrancy lacking in suburbia, while also revitalising many parts of the city previously experiencing decay because of urban sprawl's process of decentralisation.

However, as is the case with any process of intensification, ensuring that TODs have a positive impact on the travel patterns and sustainability of neighbourhoods they transform is largely dependent on how intensification occurs in these communities, and the presence of quality controls to guarantee the areas do not become future ghettos and slums, as is feared by residents wary of high-density-housing failures in the United Kingdom and Eastern Europe. TOD proponents envisage a mix of housing within these communities suited to a

range of incomes and lifestyle preferences, including condominiums, duplexes, apartments, townhouses, terraced housing and single-family detached units (Dittma et. al., 2004; Bernick and Cervero, 1996). By encouraging such a wide variety of housing types, TODs have the potential to increase housing affordability within close proximity to the central city – reversing the trend of young working families being forced to locate far from the central city due to prohibitively expensive accommodation and therefore being forced into lengthy daily commutes. Furthermore, the mix of incomes within the relatively confined TOD will counteract income segregation and polarisation into ghettos and exclusive enclaves, both negative social outcomes associated with sprawl. By having those with greatest social need dispersed among more wealthy neighbours, the crime and poverty associated with concentrations of low-income families can potentially be avoided, while increased pedestrian activity and 24 hour passive surveillance through mixed-use development can also enhance the perceived safety of TODs. 'Many districts surrounding transit stations are perceived as unsafe places in part because they are often vacated after 6pm and on weekends. Vast parking lots, vacant lots and unoccupied buildings can be breeding grounds for random acts of violence. A transit village populated by residents, workers, and shopkeepers is a place where there is a continual security presence' (Bernick and Cervero, 1996: 11). However, as mentioned above this is largely dependent on its design, and ensuring a wide variety of income types within the area of intensification.

The first three 'areas of change' highlighted for development by the Auckland City Council (excluding the CBD and Newmarket) – Avondale, Glen Innes and Panmure – are all focused around transit stations, and therefore have the potential to be successful TODs (Auckland City Council, 2003). Liveable Community Plans (LCPs) in the three areas have focused on maximising the potential of the railway stations to encourage more people to use the trains, rather than their automobiles. New stations have been planned for both Avondale and Panmure, while a refurbishment of the Glen Innes station is now complete, encouraging access from the nearby town centre. Furthermore, the LCPs are moving towards rezoning land within walking distance of the transit stations and town centres in all three areas to the Residential 8 Zone, although not without opposition from local residents (Orsman, 2005a; 2005b; Pickmere, 2005). Encouraging higher density housing, with provisions for mixed-use

development in town centres in close proximity to transit stations, is a clear sign that ACC is looking to develop TODs in all three of these 'areas of change'. However, due to Housing New Zealand owning two-thirds of the Glen Innes area of intensification, it may be very difficult to ensure a mix of incomes in this area. The local 'Tamaki Edge Constituent Group' highlights this problem by stating that 'The location of large numbers of people in need of extensive social support into one vast area can never make for a healthy and viable community' (Orsman, 2005a). A trial intensification project in Talbot Park, Glen Innes, has involved building large (four- to five-storey) buildings for Housing New Zealand tenants, allocated to those with the greatest social needs. Although this project is well-designed and surrounded by open space and playgrounds, potentially locating up to 1000 people of great social need within the one precinct has great potential to become a future slum. In this respect, it appears as though ACC has ignored one of the most important dimensions of a successful TOD, and has increased the likelihood for intensification to be further discredited as creating 'slums'. Many submissions made to the council have highlighted this issue, with Green Party housing spokeswoman Sue Bradford proposing that Housing New Zealand should consider a more integrated approach in their provision of low-rent properties. She states that: 'Rather than concentrating high-density housing projects in one area, it would be more sensible to sprinkle developments around as many suburbs as possible across the entire Auckland region' (Orsman, 2005b). Such an approach would enable the remaining Housing New Zealand homes to be dispersed among privately owned properties, creating the mix of incomes deemed so critical for the success of intensification. Moreover, by integrating privately-owned houses with those owned by Housing New Zealand, the stigma attached to residents living in public housing would be reduced, as those properties would not be obviously distinguishable from others around them. A wide variety of residents would also increase vibrancy and encourage interaction between residents, thus reducing the social inequity and perception of 'otherness' that rich and poor have towards each other in socially segregated and polarised urban sprawl communities (Duany et. al., 2000). Concentrating low-income residents in particular neighbourhoods, especially those identified for intensification, will only further reinforce the social inequity which TODs and the compact city model are attempting to overcome.

Another issue complicating the link between Auckland City's GMS and the concept of TODs is the limited number of 'areas of change' which are actually linked with transit stations. Auckland's limited railway network makes it difficult for these corridors to become the main focus of intensification in Auckland City, but with many of the region's arterial roads already operating at capacity during peak hours, 'areas of change' such as Sandringham, Balmoral/Dominion, Pt Chevalier, Surrey Crescent/Grey Lynn, Mt Roskill, Onehunga, Remuera, Royal Oak, Stoddard and Mt Wellington/Sylvia Park will seemingly only increase congestion on Auckland's main roads, as they are not located in close proximity to the underused railway corridors (Auckland City Council, 2003). While all of the 'areas of change' identified above are well-served by frequent bus routes, most TOD advocates view buses as an inferior passenger transportation option compared with rail because they still require the use of increasingly congested roads, although dedicated bus lanes and clearways during peak hours can help promote bus travel as a viable alternative to the private automobile.

Therefore, Auckland City's GMS appears to have only limited similarities with the concept of TOD, to the potential detriment of the strategy. Most importantly, creating communities with a mix of incomes is seen as a crucial aspect of successful intensification in the opinion of TOD advocates such as Duany et. al, (2000), Dittmar et. al. (2004) and Bernick and Cervero (1996). However, intensification in Glen Innes, and in the Talbot Park precinct in particular, is planned for properties predominantly owned by Housing New Zealand – a government agency which provides housing at income-related rents to tenants with the greatest social needs. By concentrating low-income tenants in areas of intensification, the potential for social problems such as crime and poverty is exacerbated. While the city council has attempted to overcome these problems by ensuring high standards of urban design for the intensified developments, this does not address the stigma which will inevitably become attached to these areas as the wider community becomes more aware of them as exclusively housing the 'poor', further segregating and polarising residents in the areas of intensification. This process is somewhat ironic, considering that one of the main stated aims of the compact city concept, reiterated in regional and local growth management strategies, is to reduce housing segregation and promote 'strong' and 'liveable' communities

(Auckland Regional Growth Forum, 1999; Auckland City Council, 2003). Furthermore, only seven of Auckland City's nineteen areas of change are actually located in close proximity of a railway station, while the other twelve rely upon bus services that generally have to share congested road space with private automobiles, or reinforce reliance on the private car for transportation. The limited connection between TODs and the GMS may not appear to be a crucial issue in the potential success of intensification in Auckland City if the 2020 community vision of 'liveable communities accommodating growth, an accessible, people-focused and revitalised city centre, and attractive urban design and valued built-heritage' (Auckland City Council, 2004: 5) can still be achieved. However, ignoring the limited connection between the two concept appears to contradict the council's belief that successful growth areas need to be linked with passenger transport and infrastructure, to bring people closer to railway stations and bus routes (Auckland City Council, 2003).

Recent research by Maat et. al. (2005) and Bagley and Mokhtarian (2002), which questions the link between land-use characteristics and travel patterns, leads to further doubt about the effectiveness of Auckland City's GMS in changing travel patterns to alleviate future congestion throughout the city. While it may seem self-evident that residential location would profoundly influence urban travel patterns, many numerical studies have shown mixed results as to whether *increasing* housing density *reduces* travel demand, although the opposite trend of sprawled cities exhibiting high-degrees of automobile dependence has been shown in many studies (Newman and Kenworthy, 1989; Bagley and Mokhtarian, 2002). While there is plenty of evidence showing potential linkages between land-use and travel patterns (Banister, 1997; Cervero and Kocklman, 1997; Ewing, 1995; Frank and Pivo, 1994; Meurs and Haaijer, 2001; Naess and Sandberg, 1996; Newman and Kenworthy, 1989 and Stead, 2001), Maat et. al. (2005: 34) claim that '…this evidence is not always consistent, and for every piece of empirical evidence demonstrating a link between urban form and travel patterns a counterclaim can almost always be found'. Maat et. al. (2005) also believe that many studies over-simplify the reasons for travel behaviour, and simply assume that people drive their cars because they lack an alternative, when in reality there might be more complex factors, such as the comfort of driving, parking provision, or the need to conduct multiple-destination trips to shops, day-care facilities or schools, as well as the workplace.

Furthermore, while mixed-use development is designed to counter the imbalance between jobs and employee location in suburban environments, which leads to 'wasteful commuting', this does not guarantee that if jobs and houses are evenly 'balanced' people will choose jobs near their residential location, or choose to live near their place of work (Maat et. al., 2005). Mixed-use development could potentially even reinforce automobile dependence through decentralising economic activity away from areas generally better served by public transport, towards the poorly-serviced urban fringe.

4.4 Conclusions

By signing a memorandum of understanding with all other councils in November 1999, Auckland City agreed to develop a growth management strategy consistent with the goals of the RGS, namely to promote a more compact form of urban development. The Central Sector Agreement between the ACC and the ARC, as well as the 2003 *Growth Management Strategy,* are helping to implement the vision of the RGS in Auckland City, by identifying and sequencing 'areas of change' – locations well served by passenger transport and with the physical and social infrastructure capable of managing intensification (Auckland City Council, 2003 and 2004). Due to an absence of open space to develop onto, quality urban design is particularly important for Auckland City to ensure that intensification is implemented in a way that is acceptable and feasible to achieve its vision of being a 'quality urban city, prospering as a vibrant leading-edge city with heart and soul' (Auckland City Council, 2003: 2.3).

In developing the GMS, Auckland City has adapted many of the principles of transit-oriented developments, focusing intensification around transit stations in some of the 'areas of change', or high-frequency bus routes in most others, to bring people closer to public transport, offering a viable alternative to automobile dependency and the resulting congestion. Furthermore, to enhance the feasibility and acceptability of intensification, strong design controls have been placed on the recently introduced Residential 8 zone, which is to be located in areas where intensification will occur. These design controls have been recently reinforced by the recommendations of a Mayoral Taskforce on urban design (Auckland City

Council, 2005) and a 'scorecard to halt ugly buildings' (Orsman, 2005d), in response to poor-quality, high-density housing in central Auckland. All these measures to ensure a good quality of urban design are important steps in the right direction for Auckland City, as it looks to overcome the stigma often attached to intensification and higher-density living. However, in implementing the GMS in Glen Innes, important principles of TODs and urban design have been overlooked as the proliferation of high-density low-income housing, predominantly owned by Housing New Zealand, is likely to reinforce much of the stigma urban design initiatives are working so hard to alleviate, and there is great potential for the area to become a future slum, as is feared by many resident submissions to plans for the area (Orsman, 2005a; Orsman, 2005b; Pickmere, 2005). Nevertheless, the potential failure of Glen Innes as a vibrant, liveable area of intensification should not discredit the GMS's ability to promote effective intensification in other parts of Auckland. Housing New Zealand's dominance of land-ownership in Glen Innes is not reflected in many other locations, and areas such as Avondale offer more potential for successful implementation. The next chapter will focus on how the GMS has been implemented in Avondale, as well as residents' reactions to intensification – therefore making it possible to predict whether this 'area of change' can be successfully intensified.

Chapter Five:
Avondale's Future

5.1 Introduction

Avondale has been chosen by the Auckland City Council as one of the 'areas of change' to be prioritised for intensification. This places Avondale in a similar situation to Glen Innes, Panmure, Newmarket and the CBD, yet the area has received much less media interest than any of these other 'areas of change'; therefore the effects of intensification upon Avondale have not been subject to as much interest as has been the case in the other areas (Orsman, 2005a; Orsman, 2005b; Pickmere, 2005; Hume, 2005). Developing a framework for Avondale's future growth has been in effect since 1999, and has progressed into a Liveable Communities Plan (LCP) to manage residential growth and related issues affecting Avondale. The process of planning for Avondale's future is framed by the need for both the Auckland Region and Auckland City to accommodate future urban growth without continuing to spread outwards through 'urban sprawl'. As one of the first areas planned to experience intensification directly as a result of the Regional Growth Strategy (RGS) and Auckland City's Growth Management Strategy (GMS), the success or failure of intensification in Avondale will be crucial for the long-term acceptability and feasibility of urban compaction as the key principle behind Auckland's growth over the next 50 years. The unpopularity of intensification proposals in both Glen Innes and Panmure (Orsman, 2005a; Orsman, 2005b; Pickmere, 2005; Hume, 2005) places further importance on how the process will occur in Avondale over the next few years, as failure in a more 'middle-class' suburb would be a serious blow to the GMS's plans for accommodating future urban growth.

This chapter contains much of the 'primary research' conducted for this thesis, through interviews and questionnaires with local Avondale residents as well as the author's own visual interpretation of the Avondale area, presented through a series of annotated photographs. The main purpose of such research was to gain qualitative insights into residents' attitudes towards growth in the Avondale area, and how they felt it would impact upon their local suburb. This chapter will begin by outlining a brief history of the Avondale area, from its humble beginnings in the 1860s as 'Greytown' to the diverse community that exists there today. Secondly, Auckland City Council's LCP plan, entitled *Avondale's Future,* will be discussed and critiqued in detail, including an analysis of the consultation process that

has taken place in the development of the LCP over the past few years. Thirdly, the results of the author's own visual interpretation of the Avondale area and its ability to accommodate substantial growth through intensification will be presented, particularly focusing on a mismatch between the Avondale shops and the surrounding housing, and a surprising lack of space for redevelopment. Fourthly, the results of the questionnaires and interviews will be presented and discussed, outlining the views of Avondale residents towards intensification in their local area, and throughout wider Auckland as well. Finally, the chapter will conclude with a discussion related to the overall feasibility and acceptability of urban intensification in Avondale, and how the expected outcomes may impact upon intensification in other suburbs highlighted for development over the next twenty years in Auckland City and other parts of the Auckland Region.

5.2 A Brief History of Avondale:

Today, the Avondale area is generally defined as including the Rosebank Peninsula, largely dominated by industrial activities, as well as the predominantly residential district extending from the junction of Blockhouse Bay Road and Great North Road in the north to Tiverton and Wolverton Roads in the south. In the east, Avondale is bounded by the Oakley Stream, and in the west, by the Whau River. The Avondale area had not been continuously occupied by Maori in the days before European colonisation, but nearby settlements at Owairaka Pa on Mt Albert, and Te Whau Pa at Blockhouse Bay meant that the Avondale area was frequently used, especially because of its proximity to portage sites between the Whau River, connected to the Waitemata Harbour and the Pacific Ocean, and the Manukau Harbour, which meets the Tasman Sea (Oates, 1994). However, by the mid-nineteenth century most of the Auckland isthmus had been abandoned by Maori, because of either the spread of European diseases or the widespread inter-tribal warfare that decimated Maori throughout the early nineteenth century. After Auckland had been established in 1840 the isthmus was divided into a number of survey districts, which became known as parishes. Avondale formed part of the 'Parish of Titirangi' to the west of Auckland, which was then subdivided into allotments of one hundred acres (Oates, 1994). The first settlement in this area appeared on a map of Auckland in 1860, which identified 'Greytown' in the location

which would later become Avondale village (Oates, 1994). In 1882 the district was renamed 'Avondale' after the Duke of Clarence and Avondale, and although many parts of the district have changed names over the years, especially street-names to avoid confusion with other streets in Auckland, the Avondale name has remained throughout the past 120 years (Oates, 1994).

Throughout the 1860s the Avondale area slowly began to develop. In 1868 residents decided to form their own highways board to develop local roads more effectively and link the growing settlement with the rest of Auckland. One year later, the board co-opted with central government to fund the extension of Great North Road from Point Chevalier to Avondale, creating the first important overland transportation link between Avondale and the city. By 1880 a railway link had been built between Auckland and Avondale, and the area was further boosted by the establishment of Avondale Primary School in 1882 on a site in central Avondale where it remains today (Oates, 1994). These important transportation routes to the city, and the role of Avondale as a link between central and west Auckland, established in the late nineteenth century, still have a strong effect on the Avondale area. In the 1920s Avondale experienced a series of administrative changes, firstly with the formation of the Avondale Borough Council in 1922 – formed from the area previously administered by the original roads board – and then shortly afterwards the amalgamation of Avondale into Auckland City, where it has remained since (Oates, 1994). By the 1960s Avondale was a thriving suburb of Auckland, with a highly diverse shopping centre based around the area's good location on both the western railway line and the terminus of the Great North Road streetcar line, although trams were replaced by trolley buses and eventually diesel buses throughout this period.

Since the 1960s Avondale has experienced significant change, not only in the size of its population – which doubled between 1961 and 1985 largely due to old houses being replaced by rows of flats, and large sections attracting infill housing – but also in the characteristics of Avondale's population. The increasing proportion of non-European residents living in Avondale has been the most significant change to the area's population structure, with 89 per cent of 'Rosebank' and 81 per cent of 'Avondale North' identifying

themselves as of European descent in 1961. However, by 2001 this had decreased to 38 per cent of Rosebank, and 53 per cent of Roberton (Avondale North) identifying themselves as of European descent (Oates, 1994 and Statistics NZ, 2005c). During the 1970s a considerable number of Maori families moved to districts throughout Auckland, including Avondale, from rural parts of New Zealand, while the 1980s were characterised by a rapid increase in the number of Pacific Island families, which made up 17 per cent of Avondale's population in 1991 (Oates, 1994). Throughout the past fifteen years, the most significant change to Avondale's ethnic composition has been a sharp rise in the number of residents of Asian ethnicities, to the point where in 2001 23 per cent of Avondale's population classified themselves as being of an Asian ethnicity. This compares with 22 per cent of Avondale's population being Pacific Islanders by 2001. Details of Avondale's ethnic diversity are shown in Figure 5.1 below, which uses data from the Roberton, Glenavon, New Windsor, Avondale South, Rosebank and Avondale West census area units to create an overall ethnic profile of Avondale.

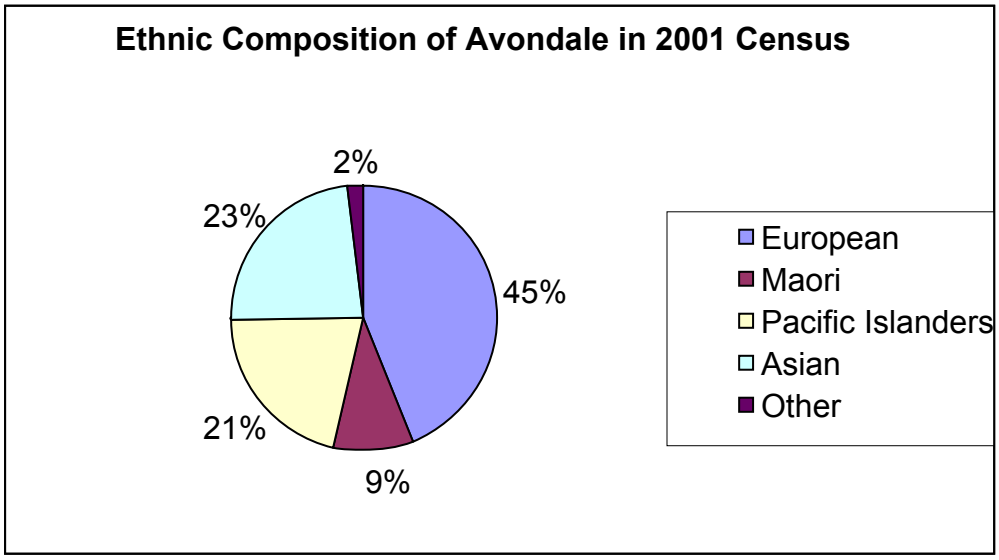

Figure 5.1: Ethnic Composition of Avondale. Source: Statistics NZ, 2005c

As well as a radically altered ethnic profile, the form and function of Avondale has changed dramatically throughout the past forty years. After the Lynmall Shopping Centre was opened in 1964, in nearby New Lynn, the viability of many local stores was greatly affected. Emerging forms of retail activity, based on the increasingly ubiquitous automobile, meant that a number of local stores in Avondale could no longer compete against larger

stores with great variety located in malls and 'big box' retail outlets elsewhere in Auckland (Oates, 1994). This led to a change in the type of retail activity located in Avondale, as its role in the local economy and community evolved. 'Avondale in 1990 had fewer hardware shops, shoe stores and draperies than in 1960. However, during the same period the district had gained more banks, more fast-food retailers and a number of new specialty stores. In 1990 there was a greater variety of businesses in Avondale than there had been thirty years before, but probably fewer people shopping regularly in the district' (Oates, 1994: 125). The reduced importance of Avondale's shops in the lives of its residents affected not only businesses in the area, but also the community life of the district. As residents met each other less often as bus stops, train stations and the local stores, Oates (1994) argues that the tight-knit community that had existed in Avondale prior to the 1960s began to break apart with people leading more individualistic lifestyles and travelling by car to a greater number of their destinations.

During the 1970s two major developments in Avondale seemed to transform the role of the area. Firstly, a 3Guys supermarket was built in 1975 across Great North Road from Avondale Primary School (Truttman, 2003). The supermarket attracted negative comments at first, because it, along with the school, split the shopping district into two distinct halves. However, over time the supermarket began to play an important role in the evolving Avondale economy, to the extent that '…when the 3Guys supermarket announced it was to close its doors in June 1997, it looked like Avondale was doomed' (Truttman, 2003: 152). While the 3Guys supermarket provided an important 'anchor' store for the Avondale shopping district throughout the 22 years it was in operation, since 1997 there has been no redevelopment of the 3Guys site, and today (as Photo 5.1 shows below), the vacant area has a highly negative impact upon the Avondale shops as it continues to split the shopping district into two distinct halves, as well as attracting graffiti and vandalism. The other important development of the 1970s was the Ash Street bypass, opened in 1978, which allowed traffic travelling between Auckland City and west Auckland an alternative route to Great North Road. The bypass was primarily design to stop heavy trucks travelling through the heart of Avondale, and local papers of the time claimed that there were enormous benefits of the bypass to the local shops, as '…where the narrow main street was once continually choked

with cars, the traffic jams have disappeared and it is actually possible to get curb-side parking – once only a shopper's dream' (cited in Truttman, 2003: 143). However, by the early 1990s there were great worries that Avondale would die as a shopping destination, as more and more shoppers were willing to travel to increasingly popular shopping malls. The Sunday market at Avondale racecourse, although offering a good opportunity for the local community to interact and have a focal point, is opposed by many shopkeepers as they believe it takes away many of their customers. Initiatives by the Avondale Business Association such as green generic signage for all local shops, were made to help the area be more economically successful (Avondale Business Association, 2005). However, the shopping district is increasingly dominated by moneylenders, discount stores and bakeries (see Photo 5.2 for example), which do not help create a particularly vibrant image.

Photo 5.1: The abandoned 3Guys site. Photo taken by author 27/9/05

Photo 5.2: Part of the Avondale shopping district. Photo taken by author 27/9/05

In September 1999 it was first outlined that Avondale would become one of Auckland City Council's 'strategic growth management areas' for intensification, and that it would be sequenced first for intensification along with the CBD, Newmarket, Glen Innes and Panmure. This decision means that there is plenty of potential for Avondale to perhaps once again become a thriving centre of activity, based around a redeveloped railway station and with medium-density housing increasing the viability of local shops. However, being identified as an 'area of change' has plenty of potential for negative outcomes, most notably increased congestion and the loss of Avondale's character. To ensure that any change in Avondale benefits its residents and businesses as much as possible, Auckland City Council embarked on a process of consultation to develop a Liveable Community Plan (LCP) for 'Avondale's Future'. This process will create new directions for the Avondale area, and over time add to its interesting and colourful history.

5.3 A Liveable Community Plan for 'Avondale's Future'

Since 1999 the development of a framework for Avondale's future growth has been in progress, which has evolved into a draft plan to manage residential growth and related issues that will affect Avondale throughout the next 20 years. 'Avondale's future has been developed with input from the local community and advice from various council groups and professionals' (Auckland City Council, 2005b). The process of planning for Avondale's future is based on the need to accommodate more people in the area, as Auckland City's population is forecast to increase by 141,000 people in the next 20 years and Avondale exhibits many of the attributes the city council had sought in identifying its 'areas of change' (Auckland City Council, 2004b). Avondale was chosen as a 'priority one' area of development because of its convenient access to public transport, an already growing population, a diverse town centre, and the ability of existing infrastructure to be upgraded in order to support future growth (Auckland City Council, 2004b). However, although Avondale has been identified as an area highly suitable to intensification, the council has recognised a need to ensure that development in the area occurs in a co-ordinated manner that is respectful of the current community character, and is well supported by expanding infrastructure to cater for the future needs of the area. This is to ensure that development in Avondale meets the city council's guiding principles for the location of population growth – its urban growth management goals. The six main guiding principles for growth in Avondale, according to the city council, are outlined below:

1) Protecting natural and built features, like estuaries, parks, volcanic cones and heritage areas
2) Creating town centres that are safe, attractive communities and employment focal points
3) Strengthening communities through improving community facilities, providing places to meet, and events that bring people together
4) Targeting growth in areas where the infrastructure can cope
5) Providing a greater housing choice, and encouraging quality urban design

6) Accommodating future growth by providing opportunities for higher density housing within walking distances of the town centre and railway station, which then better supports the town centre (Auckland City Council, 2005b).

Through combining these objectives, the city council has sought to create a vision for Avondale that can support an increased population and therefore fulfil its obligations to the Regional Growth Strategy (RGS), while also improving the liveability of the area for its residents. 'Auckland City encourages development that results in compact, pedestrian, cycle and transit-friendly communities. Desirable development in Avondale will therefore support a mix of uses, with residential, office and retail activities close to each other. The aim is to develop Avondale into a vibrant town centre, which is easy to get around by foot and can be accessed by bus and rail' (Auckland City Council, 2005b).

To achieve these growth management goals in Avondale, it will be important for a framework to be developed that coordinates the development of amenities, services and lifestyle choices that will attract people to live and invest in Avondale. Through fully involving members of the public in drafting the plan for Avondale's future, the framework can be based on a good understanding of the community's aspirations for their local area, as well as being more receptive to future change (Auckland City Council, 2005b). If current growth rates in the Avondale area were to be maintained, the area could expect to gain about 2000 more households over the next twenty years, mainly in areas surrounding the racecourse, through sub-division, and through limited higher-density housing in the town centre. However, Avondale's designation as an 'area of change' means that areas located within an 800 metre radius of the intersection between Crayford Street and Great North Road (very close to where the railway station will be relocated) will experience much higher levels of development, by being rezoned to Residential 8 (Auckland City Council, 2005b). This area includes all locations that would be within a ten minute walk of the relocated Avondale railway station, and seeks to create a 'transit-oriented development' to encourage residents into using alternative transport methods to the private automobile.

Community feedback about Avondale's growth provided useful information for those drafting the LCP and deciding which areas would be rezoned to Residential 8, and which

areas would keep their current zoning designation. Consultation began with focus groups throughout August 1999, where local people identified what they valued in their community, what they liked, and what they saw in the future for Avondale. Stalls in the Avondale main street, iwi discussions, telephone surveys and collaboration with classes from Avondale Primary School and Avondale College sought to gather ideas from a wide range of perspectives about Avondale's future. The council identified the following points as being 'interesting':

1) People live in Avondale because of its convenient location. It is very central to everything and everywhere.
2) Mixed-use development is acceptable, but there needs to be employment and services to sustain the extra people.
3) People were generally positive about more people living in Avondale, as it would improve the financial viability of local shops through more potential customers.
4) Higher density housing would need to be carefully planned so that it is of good quality and design, and to ensure that privacy is maintained.
5) Housing needs to be culturally appropriate.
6) The plan needs to make the most of the westward views of the Waitakere ranges.
7) It is important to connect the neighbourhoods to the town centre.
8) Infrastructure upgrades would be required to both roading capacity and stormwater systems before significant population growth can occur (Auckland City Council, 2005b).

Using this community feedback, six growth 'options' related to where growth could occur in Avondale were analysed in workshops (see figure 5.2 below), and discussion among participants led to many points of agreement about where growth should, and should not, be focused. Mixed-use development, such as apartments and offices above shops, was a favoured type of development for the Avondale town centre, while low-rise apartments and terraced housing were acceptable within walking distance of the town centre and railway station. Overall, participants in Auckland City's consultation workshops preferred most new houses being located on the Avondale side of the Blockhouse Bay Road ridge to preserve the character of the Mt Albert side, which would continue to grow at its current rate.

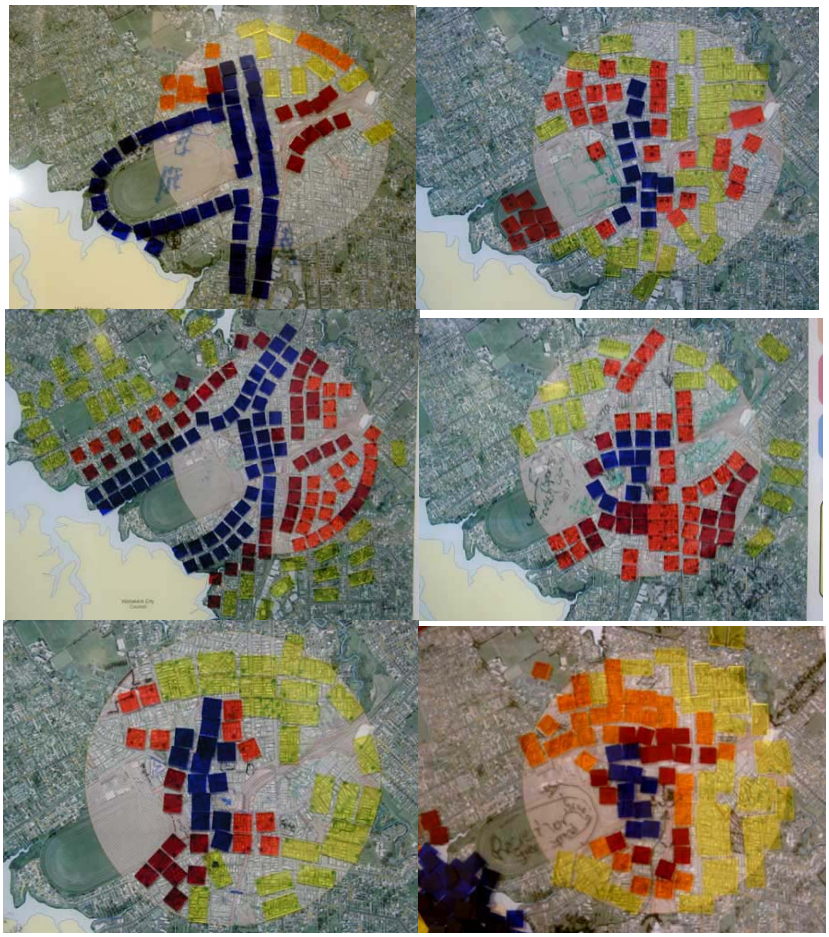

Figure 5.2: Growth options for Avondale as discussed in consultation workshops. Source: Auckland City Council, 2005b

From the growth options, and a second stage of consultation throughout 2003 and 2004, a draft growth strategy for Avondale has been developed, which supports an increase in the residential population of the area through making plans for the development of the town centre, the railway station, and gateways to Avondale (see figure 5.3 for details) (Auckland City Council, 2005b). In the town centre, retail would continue to be provided at ground level through the Business 2 zone, where a continuous frontage – including any redevelopment of the 3Guys site – would be encouraged. New design guidelines would ensure that development respects and enhances the area's art deco character, while office and residential activities above the ground floor level would be encouraged along Great North Road. The role of Avondale's railway station would be enhanced through its relocation to the top of Crayford Street with better access to the Avondale town centre, while key routes to the

railway station would be rezoned for greater activity to encourage rail use. Parts of the neighbourhoods surrounding Avondale's town centre would be rezoned to Residential 8a and 8b, which would help accommodate predicted future population growth through allowing terraced and apartment style living close to the town centre with strong urban design quality controls (Auckland City Council, 2005b). To ensure that urban design would be a top priority in Residential 8 areas, all new developments with more than eight units would be reviewed by Auckland City's urban design panel.

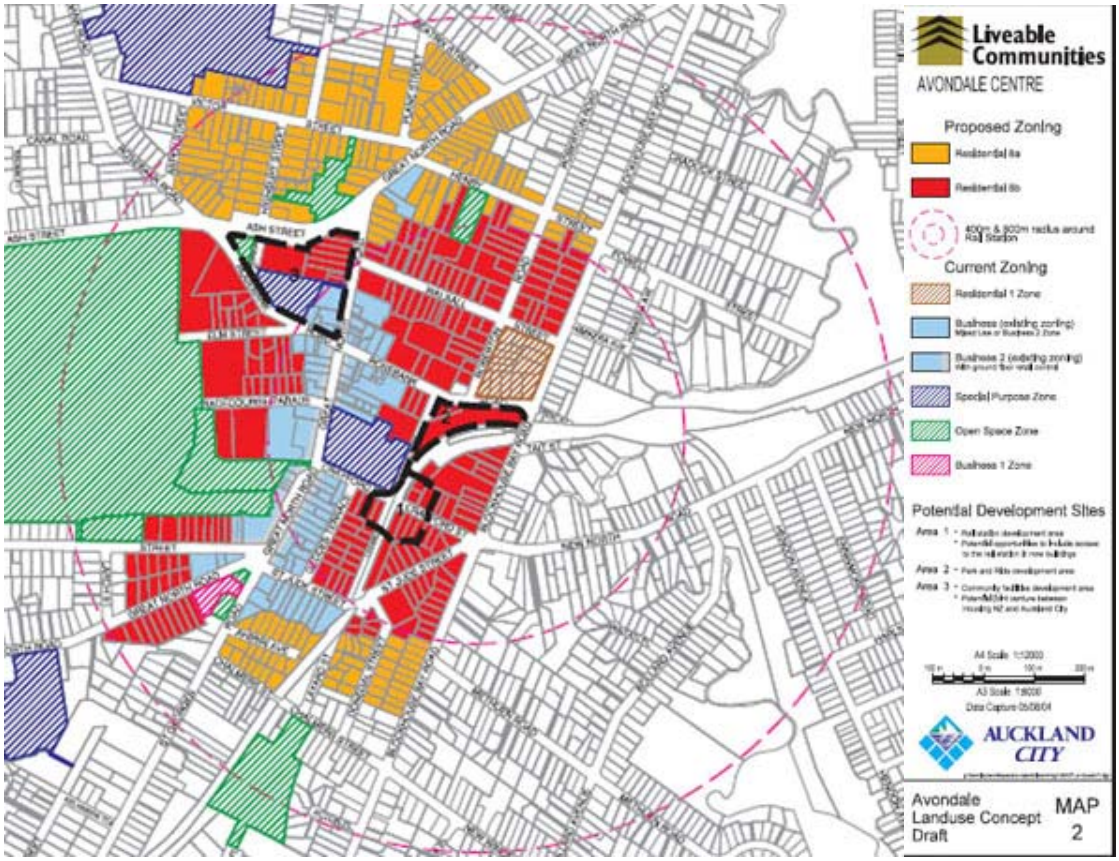

Figure 5.3: Auckland City Council's Liveable Community Plan for Avondale

Source: Auckland City Council, 2005b

In the map above, light blue areas indicate Business 2 zoning, red areas indicate proposed Residential 8b zoning, while the brown/orange areas indicate proposed Residential 8a zoning. As the map shows, the rezoning of large parts of Avondale to higher density Residential 8a and 8b zones will have a significant effect on the area.

To ensure that this future growth benefits Avondale, the LCP highlighted strategies that would need to be developed for the area's transportation, sense of community, physical environment and economy. The transportation strategy for Avondale, which was developed as part of its LCP, highlights the role of the area as a gateway to Waitakere City, and therefore of regional significance. A number of projects to improve transportation through Avondale have been planned or implemented, including the north-western cycleway, 'travel to school' programmes, the relocation of Avondale's train station, grade separation of the St Jude's Street railway crossing, upgrades to Tiverton Road and Wolverton Street, as well as the future State Highway 20 Avondale extension (Auckland City Council, 2005b). Furthermore, in the future there would be an increased focus on passenger transport, with the intention of creating a highly integrated alternative to private automobiles for those living in Avondale. This would include double-tracking of the western line (which is now partially complete), the already mentioned railway station relocation, as well as bus priority lanes along both New North and Great North Roads to improve travel times for over 500 buses that pass through Avondale every day (Auckland City Council, 2005b).

Encouraging a strong sense of community in Avondale is another key aspect of the area's LCP, which may prove to be difficult as '…Avondale is a diverse community with a significant mix of European, Maori, Pacific, Asian and African peoples' (Auckland City Council, 2005b). Reducing levels of home-ownership in the area has also contributed to some residents saying they do not know their neighbours anymore and do not feel part of the community (Auckland City Council, 2005b). The city council's strategy to encourage a greater sense of community is based around redeveloping the Avondale Community Centre and the library to create a focal point for community activity; celebrating the history and culture of Avondale more by creating a heritage trail; promoting health and safety in the area through improved street lighting and other crime prevention programmes; and finally by developing activity spaces such as a recreation precinct with a swimming pool, and increased youth recreation facilities developed in partnership with schools (Auckland City Council, 2005b). Strategies designed to improve the area's physical environment recognise that '… as Avondale's population increases…public spaces become increasingly important' (Auckland City Council, 2005b). Therefore, improving access to public space, increasing community

use and satisfaction with public space, enhancing the landscape and streetscape of Avondale, and aligning stormwater, waste water and utility provision to meet the impact of an increasing population are important strategic processes that form an integral part of Avondale's LCP.

Furthermore, strengthening Avondale's economy through its role as an area of change will require a number of strategies from the council, aimed at supporting economic and employment growth of the local economy and developing a vibrant and sustainable town centre. The council sees intensification in Avondale as an opportunity for businesses in the area to become more financially viable and successful, as '…more people in Avondale means more local shops could survive. This local market could provide opportunities for local businesses to supply people living and working in Avondale' (Auckland City Council, 2005b). In particular, redevelopment of the 3Guys site is seen as an important step in revitalising the Avondale town centre. The area, which is surrounded by council owned land, has a number of covenants placed on it to ensure that redevelopment achieves a mix of residential, commercial and car parking facilities, with a focus on providing ground-level retail along Great North Road and a minimum of 100 recreational car parking spaces in addition to parking requirements for its developed use (Auckland City Council, 2004b). Over the eight years since the 3Guys supermarket was closed there have been various plans proposed for its redevelopment, with starts on construction continually being postponed. Photo 5.2, which was taken in September 2005, highlights another delay in construction, with an advertising sign for 'Avon Plaza' announcing that construction was due to start in June. As Photos 5.1 and 5.8 (which were taken the same day) show, clearly construction has not begun, and the site continues to blight the Avondale shopping district.

Photo 5.3: The forever postponed Avon Plaza Development. Photo taken by author 27/9/05

Nevertheless, it appears that overall Auckland City Council has worked hard to ensure a detailed plan for Avondale's future exists, especially by trying to ensure that intensification occurs in the area in a way that is acceptable to residents. The local community has been a vital part of this process, identifying what they like about Avondale, what they wish to see improved, and where they want future growth to be accommodated. With regards to the social, economic and environmental characteristics of Avondale, the council has developed a number of strategies that will not only help the area 'cope' with future growth, but will also develop Avondale as a location for an inclusive and vibrant community which can prosper economically in a way that protects the environment and actively improves the area's recreational space. A series of key projects have been identified by the city council as necessary for the future of Avondale. These include: further development of the Avondale community centre and library; the relocation of Avondale's train station to enhance its interaction with the town centre; the development of recreational facilities including a swimming pool; improving access to the area's coastline; and working towards managing Avondale's strategic transport routes in a way that benefits the health and safety of the area. However, questions still remain about Avondale's capacity for growth, particularly in areas away from the immediate town centre, where past infill housing has meant there are few oversized or empty lots for Residential 8 type housing to be built upon. The next section will explore this issue further, while also offering a visual presentation of Avondale today.

5.4 Visual Interpretation of Avondale's Capacity for Growth

As shown in Figure 5.3 above, growth in Avondale will be focused in areas surrounding the town centre and railway station, extending out to an 800 metre radius of the intersection between Crayford Street and Great North Road. While no development will take place east of Blockhouse Bay Road, large tracts of land to the north and south of the Avondale town centre will be rezoned to either Residential 8a or 8b. As elaborated upon in the previous chapter, Residential 8a zones allow for two to three storey multi-unit developments including townhouses and terraced housing, with a density of one unit per 150 square metres, while 8b allows for multi-unit developments that can be up to three or four storeys in height, consistent with existing town centre commercial buildings, and with a maximum density of one unit per 100 square metres (Auckland City Council, 1999). Most of the areas that will be rezoned to Residential 8 are currently either zoned as Residential 5 or 6 (low- and medium-intensity housing allowed). Therefore, developing Residential 8 housing will mean a radical shift in the character of Avondale's built environment, which at the moment is characterised by late nineteenth- and early twentieth-century villas and bungalows, often complemented by more recent infill housing at the back of the previously large sections. Photo 5.4 shows an example of this housing mixture, and also highlights a lack of 'developable' space for higher-density housing types. The quality of both the original house at the front and the 'infill' house at the back makes it likely that neither house is likely to be 'bulldozed' or shifted from its current location to allow for higher density townhouses or apartment buildings to be constructed on this site, even though they are located in an area designated for rezoning to Residential 8a.

Photo 5.4 Existing housing types in Avondale. Photo taken by author 23/9/05

Photo 5.5 Further example of subdivided section with high quality original house still on site. Photo taken by author 23/9/05

Subdivided properties like the one in Photo 5.4 are not uncommon in Avondale, with Photo 5.5 showing a late nineteenth century villa on the front of a section, with more recent infill housing visible to the left of the house. This pattern of development is common

throughout Avondale, particularly to the northeast of the town centre around Roberton Road, which benefits from good westward views towards the Waitakere Ranges, and therefore attracts higher-value houses. However, such good quality homes are not limited to this area, with Victor Street, Donegal Street and Wingate Street, among others, being dominated by types of housing similar to those found in more up-market Auckland suburbs such as Ponsonby and Grey Lynn. The quality of Avondale's housing is perhaps surprising, considering the 'run-down' reputation of the town centre, while statistics of the area show that, compared with the rest of Auckland City, Avondale has low median household income, a higher percentage of people with no qualifications, higher unemployment rates and larger household sizes (Auckland City Council, 2003: 4.1).

This is not to say that there is no capacity for growth in Avondale. Photos 5.6, 5.7 and 5.8 identify areas where higher-density housing could be implemented, either through infill housing or the complete redevelopment of vacant land areas into the type of housing promoted in Residential 8 zones.

Photo 5.6: Some capacity for growth in Avondale on large sections. Photo taken by author 23/9/05

Photo 5.7: Undeveloped land in Avondale (currently zoned residential 5). Photo taken by author 23/9/05

Figure 5.8: The most obvious site for development in Avondale: location of the old 3Guys supermarket. Photo taken by author 27/9/05.

However, the relatively few sites that appear suitable for development in Avondale contrast with the council's plan for rezoning the area into Residential 8, which has been introduced to allow for a substantial increase in Avondale's population over the next twenty years. It is perhaps worrying that houses of such character as those identified in Photos 5.4 and 5.5 could risk being removed or demolished in attempts to build higher density housing in the area and develop it as one of Auckland City's strategic areas of growth. Some high-density housing developments are already occurring in Avondale on business zoned land (see Photos

5.9 and 5.10), but it is clearly questionable whether these developments fit into the character of the Avondale area and whether they are helping achieve what is outlined in the area's LCP. Many residents shared these sentiments in their responses to the questionnaires, as well as in the interviews that were conducted as part of this research, with one respondent stating: '…those people are going to have to blu-tack down their plates every time they have dinner, and they're double tracking that line outside their window. I mean I can't believe that got planning permission, I mean I do not understand how that happened. Traffic too, it's impossible to get in and out of that site'.

Photo 5.9: High-density housing in Avondale. Photo taken by author 23/9/05

Photo 5.10: New high-density development in Avondale. Photo taken by author 23/9/05

Therefore, at the micro-level it may be difficult for Auckland City Council to achieve its growth goals in Avondale, simply because of what seems to be a shortage of available land for development at the densities encouraged in areas zoned Residential 8. Furthermore, if such development was to occur in many locations, it would have to replace some of the villas and bungalows which give Avondale much of its character. However, as most of the areas dominated by early twentieth century houses, which have already been subdivided, are located towards the edges of the areas planned for intensification under Avondale's LCP, there is greater capacity for growth in areas immediately adjacent to the town centre. As the focus for growth in Avondale under the LCP was on the town centre, development of that area's semi-vacant land – or redevelopment of existing housing – would be a better location for intensification to be focused. Whether this intensification spreads to the more peripheral parts of the Avondale 'area of change' over time will be interesting to follow in the future, as will potential conflicts of such developments with efforts to preserve the heritage and character of Avondale.

5.5 Questionnaire and Interview Results

A crucial aspect of implementing intensification in any area is gaining the support of the local community for such developments. Clearly, in the case of Avondale, its designation as a 'strategic growth management area' (or 'area of change') is going to significantly impact on the lives of people living in the area, and therefore gauging the community's opinion towards such changes, as well as their suggestions for alternatives to the proposal if they had a somewhat negative opinion, is important when analysing whether intensification in Avondale is likely to be a long-term success or failure. Therefore, this section will analyse the results from questionnaires and interviews conducted in the Avondale area with local residents, primarily aimed at gaining an insight into what they think of Auckland City Council's plans for the area, as well as their more general opinions of intensification. Approximately fifty questionnaires were gathered, while five more in-depth interviews were conducted with residents of the Avondale area. These provided many useful insights into local opinion of urban developments, and potentially provide helpful information for the success of intensification in Avondale.

The questionnaire began by acquiring some basic information from the participants, such as their age, ethnicity, how long they had lived in Avondale, and whether they owned or rented their property. These questions were designed to ensure a wide range of people participated in the research, and also to reinforce the basic statistical profile of Avondale that was published in the Growth Management Strategy (GMS) (Auckland City Council, 2003). A diversity of ages in respondents was acquired: with 11 per cent under 18; 13 per cent between 18 and 25; 21 per cent between 25 and 34; 29 per cent between 35 and 44; 11 per cent between 45 and 54; three per cent between 55 and 64 and 13 per cent aged over 65. Ethnically, the majority (71 per cent) of participants classified themselves as New Zealand European, while Pacific Islander and Asian people evenly split the remainder of respondents. This reflected a slightly higher than expected percentage of New Zealand European participants, but otherwise a reasonable representation of the Avondale's area's ethnicity. Forty eight per cent of respondents had lived in Avondale for between one and five years, while a further 26 per cent had lived in the area for more than 10 years. Perhaps surprising,

only four participants had lived in Avondale for less than a year, indicating that in general those who answered the questionnaire had a long term interest in Avondale's future. This was reinforced by a relatively high proportion of participants (74 per cent) who owned their house.

Following on from the basic information questions, the questionnaire sought to identify what participants liked about living in Avondale, and what had attracted them to the area. Figure 5.4 below shows the variety of responses to this question (respondents could select as many attractions as they pleased). Clearly affordable housing, good schools, and good access to work/shops were the most common attractions Avondale held for them when making their decision to relocate to this area. These figures were reinforced in some of the interviews, with one interviewee stating '…I bought a villa in Avondale about four to five years ago…for around $179,000. I was utterly amazed that I could buy that kind of liveable house for that kind of money on the city fringe'. Another interviewee brought attention to Avondale's accessibility, by saying '…it's reasonably close to town…I work in the city and my wife works at Unitec. She walks to work and I bike to work, so it's reasonably easy to get there…It's about a half hour ride to the city, enough to be really knackered at the end of the day so I wouldn't want to live any further out.' Further interviews generally repeated these points, with one participant highlighting all of the attractions listed above: 'We were living in Mt Albert, and living a further three or four minutes away [from the city] we got a much bigger house and income for the same price… it's still central to Auckland, it's close to New Windsor Primary School, which is a very good school, Avondale College is good. The shops are great; they're not dominated by the big chain stores so you've got quite an eclectic bunch of ethnic stores.' The good reputation of Avondale's schools, as well as the area's accessibility to most other parts of Auckland indicate that there is potentially plenty of demand for more housing in the area, while its affordability allows for a wider diversity of residents than in many other parts of Auckland. This diversity was identified by one interviewee as something she particularly liked about Avondale, stating '…I like the multi-cultural nature of [Avondale]… that there's lots of different people from different places, it makes it interesting.'

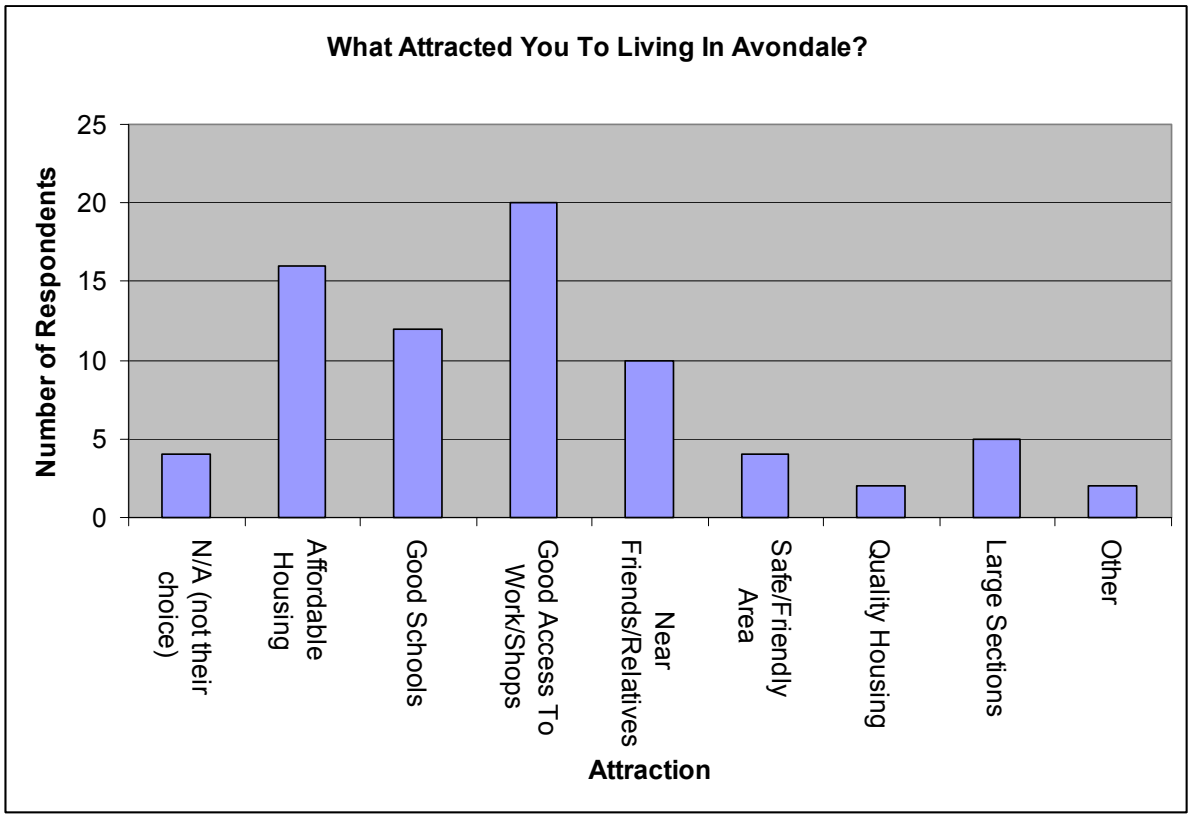

Figure 5.4: What attracted you to living in Avondale? Source: Primary research through questionnaires.

The questionnaire then moves towards issues more specifically related to urban development in Avondale. When asked what way they thought Avondale should grow in order to accommodate future population increases, the largest number of respondents (33 per cent) thought that there was only room for limited redevelopment of unused sites, whereas 26 per cent felt that constructing terraced housing, townhouses and small apartment buildings was the best way to develop Avondale. Twenty four per cent believed that infill housing should continue as the most common way to 'intensify' or 'consolidate' the area, while a small number of respondents thought that there was either no room for more development, or that there was potential for medium- and high-rise apartment buildings. One of the interviewees elaborated upon this general opinion on the type of intensification most suited to Avondale by saying: 'I'm all in favour of terraced housing, as long as they all have little outdoor courtyards and big enough decks to spread out on.' What became clear from the interviews was the type of intensification that should be avoided, specifically the high-density apartment building shown in Photos 5.9 and 5.10. As well as the comment above that

residents will have to 'blu-tack down their dinner plates', all interviewees immediately referred to the St Jude's Street building when asked what type of development Avondale should avoid, as the apartment block was called a 'slum', 'unfriendly' and 'like a ghetto' by other participants. Furthermore, in response to a question asking where in Avondale they felt growth should occur, 44 per cent of participants felt that development should be focused on the town centre and railway station area (the areas highlighted in Avondale's LCP for growth), while 31 per cent believed development should be spread more evenly throughout the area. However, interviewees had divided opinions on where growth in Avondale should occur, as well as how much 'capacity for growth' they believed the area has. One interviewee claimed that 'there's heaps of space… especially that disused site in the middle of the town [the 3Guys site] and lots more room for more infill housing'; while another stated that 'there doesn't seem to be anywhere obvious to me, apart from near the railway where there seems to be land…but no big pieces of land. A lot of places have already been subdivided. Some bits of the town centre could be bulldozed I think…but I can't think of anywhere else.' The Avondale racecourse was chosen by 15 per cent of respondents as an area for redevelopment, while one interviewee argued that '…I don't think it adds much to the area as a racecourse. As I have absolutely no interest in races…it just seems like a huge waste of space. While it's great the market's there, the whole area could be a nice big park or part of it housing. It could be used so much better, and it doesn't help the area as it's a barrier…a huge area of land that you can't access.' Clearly, there are diverse opinions of where growth should be located within the Avondale area, although the council's proposal of focusing growth within an 800 metre radius of the town centre appeared more popular than any other option.

This discussion led onto the next series of questions, which focused on what participants felt would be the likely effects of the council's plan for growth on Avondale, and therefore whether they thought such a plan would have an overall positive or negative impact on Avondale. Furthermore, those who felt that Avondale was not a good area for intensification were invited to indicate where they felt growth should be focused in the Auckland region. As Figure 5.5 below highlights, there was a mix of responses from residents with regards to the likely effects of focusing development in Avondale around the town centre and train station. On the positive side, 18 respondents believed that this growth

option would be likely to result in improved public transport (and therefore potential for traffic congestion to be lessened), and 24 respondents believed that Avondale would become a more vibrant town centre with a wider variety of shops and activities. However, 21 participants believed that intensification in this manner would increase congestion in the area, while eight felt that crime and other antisocial behaviour would also be exacerbated through higher density housing. One interviewee's response highlighted the potential for improved vibrancy by stating: 'I believe that bringing in more people will make the place more vibrant. All those two dollar shops down in the main centre don't create the best image for Avondale at the moment. I mean they're all selling the same rubbish, it's got to be good to bring in a few more people to give the area some more energy.' Another interviewee believed that '…somehow I think if there are more people living around this area, it means they might take a bit better care of it. The area needs a facelift and more people might make that happen.'

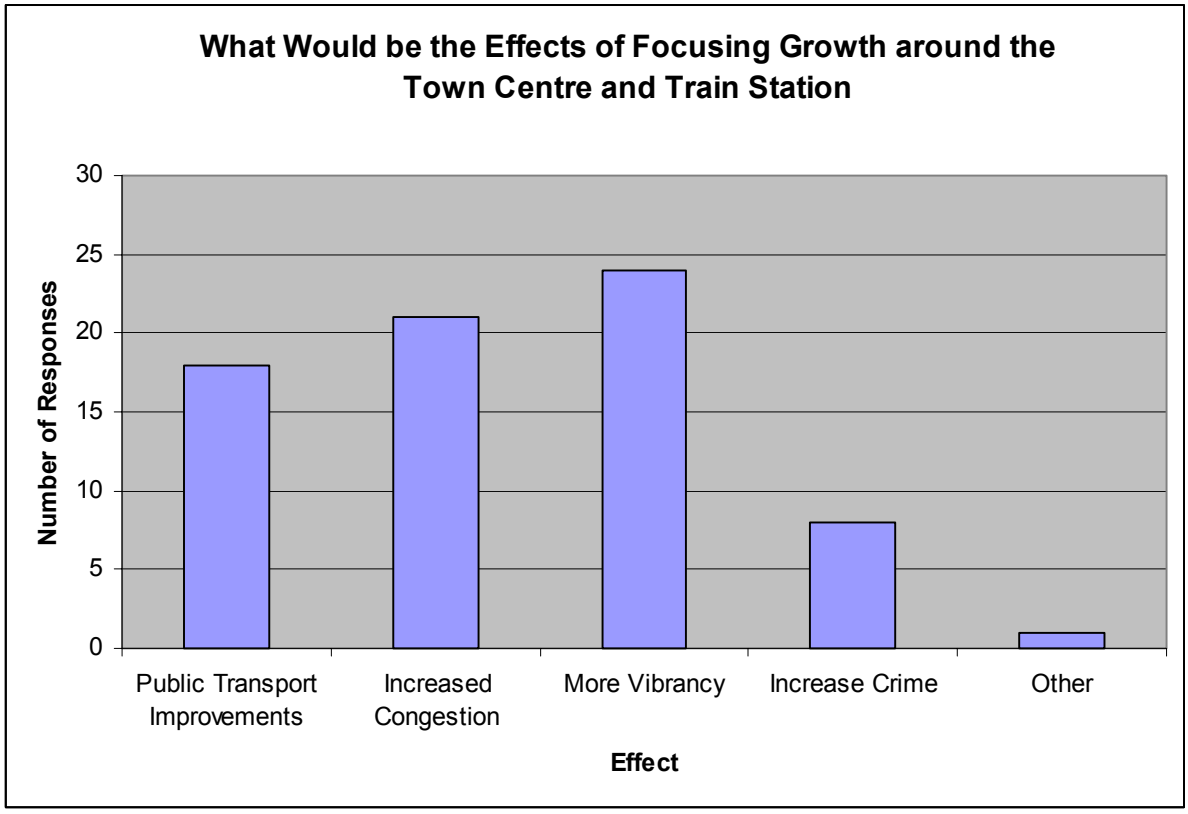

Figure 5.5: Effects of Growth on Avondale. Source: Questionnaires.

The next question, asking whether the participant believed such a plan would have a positive or negative effect on Avondale, is crucial for gaining an insight into residents' opinion of intensification in Avondale. Perhaps surprisingly, given the negative comments related to intensification in the media (Orsman, 2005a; Orsman, 2005b; Pickmere, 2005; Hume, 2005), 69 per cent of respondents thought that focusing growth around the town centre and train station would have either a very positive or marginally positive effect on the Avondale area. This compared with only 14 per cent who believed it would have a very negative or marginally negative effect, with the remainder having a neutral viewpoint. However, both questionnaire respondents and interviewees believed that for these positive effects to actually happen, intensification would have to be done 'better' than it has been elsewhere in Auckland, and particularly in the new development on St Jude's Street. One comment was typical in outlining that 'I think it [the success of intensification in Avondale] does depend…I think it's a good idea for Auckland and for the more efficient use of transport and other services…we need to do something. But I think it really does depend on how it's done. If the zone 8 works and the design controls work then I think it would be really cool. But if buildings like the one off St Jude's Street are allowed to be built, looking unfriendly and inaccessible, then I think that it's a waste of time.' Another believed that the idea of the Residential 8 zone was good, but that '…I'd have to see the urban design points. I don't have much faith in the council's ability to promote urban design that works. They've failed miserably and they'll have to do a hell of a lot better to get my vote of approval. The majority of people I talk to, they just shake their heads in despair at what's gone up… a lot of these developments in years to come will be cess pits of human misery. So they have to do it properly.'

Some interesting results were obtained with regards to where participants felt growth should be located if they believed Avondale was not a good area for development. Firstly, 43 per cent did feel Avondale was a good area for intensification, while a further 32 per cent of participants believed that growth should be spread throughout the region more evenly, rather than concentrated in areas such as Avondale. 16 per cent felt that growth should occur at the edge of the city, so that the character of existing suburbs could be maintained, while five percent wanted growth mainly focused on the CBD, through apartment building, rather than

in the suburbs. These results indicate that most people do not wish for Auckland to continue expanding through urban sprawl type development, but that at the same time they are wary of existing suburbs losing their sense of character, and the high proportion of people wanting growth to be spread more evenly throughout the city is perhaps a hope that it can be accommodated without a significant change to any particular area, therefore avoiding the communal costs of sprawl while still enjoying the individual benefits it offers. One interviewee elaborated on this point by saying 'I come from a background of having a big garden, and have that as my vision as the perfect environment for bringing up kids. So I have this conflict within me, because I think yeah OK we need to intensify the population of Auckland to make it work, but on the other hand I really like the full sections, I want my children to be able to run around .' This response highlights the difficulties facing those hoping to implement intensification policies in Auckland, as a low-density urban environment has become ingrained into the New Zealand culture over the past 50 years, and is still seen by most people as being a lifestyle to aspire to. While quality urban design and an increasing awareness of the negative effects of sprawl can enhance the attractiveness of higher-density living, a large proportion of Aucklanders are likely to still prefer low-density living if given a choice.

The culturally embedded influence of urban sprawl is also reflected in responses to questions regarding the use of public transport by Avondale residents. Although most people recognised that Avondale had a comparatively good public transport system, with regular buses and a railway station, very few respondents stated they used public transport frequently. When asked how frequently they caught a train from the Avondale railway station, not one participant caught a train more than three times a week, while 70 per cent said they 'never' catch a train. With regards to buses, only 11 per cent caught a bus from the Avondale area more than three times a week, while 57 per cent 'never' utilised the bus services. As Avondale's designation as an 'area of change' was largely based on its existing public transport infrastructure, significant increases in the proportion of residents regularly using public transport will be essential to avoid the area becoming further congested once Avondale's population starts to increase through more intensive development. The relocation of Avondale's train station from its current isolated location (see Photo 5.11) is clearly a step

in the right direction, but improving public transport usage in the Auckland region is a significant challenge that will require more than just intensification along particular corridors and at certain nodes of activity. As the results of these questionnaires indicate, such improvement is obviously necessary to ensure that intensification has a positive impact on Avondale and wider Auckland in the future, and that more people will not simply mean more cars on the road.

Photo 5.11: The isolated Avondale train station. Photo taken by author 23/9/05

The questionnaire concludes by asking participants how aware they were of Auckland City Council's *Avondale's Future* project, and the consultation process, organised by the council over the previous five years, which has slowly developed a strategy for implementing intensification in Avondale. Council consultation has been criticised in the media (Pickmere, 2005; Rudman, 2005b), while one interviewee raised the issue that '…although they make a big song and dance about consultation, in fact it doesn't work at all because people are busy. You know, consultation would be five or six households at a time.' However, overall most

residents were at least vaguely aware of the project, with only 24 per cent stating they were not aware at all. 14 per cent of respondents even stated they had been both aware and involved in Auckland City's consultation, which was surprisingly high given the perception that consultation is generally limited to very few participants. Therefore, overall it appears that the council has done a reasonable job in consulting with Avondale residents, which is highlighted by responses in earlier questions where most participants agreed that the council's plan would have a positive impact on the Avondale area.

5.6 Conclusions

By designating Avondale as one of Auckland City's 'areas of change' to be first sequenced for intensification, Auckland City Council has confirmed its strategy of focusing development in areas within close proximity of railway lines, frequent buses and a well developed town centre, as is present in other areas of change such as Glen Innes and Panmure. However, in contrast to both these other areas, Avondale has received little negative media coverage of its impending transformation. Especially in contrast with Glen Innes, where the 'area of change' is dominated by Housing New Zealand properties, and higher-density housing is becoming increasingly stigmatised, Avondale offers a better opportunity for intensification to be well received by a community, and to make a positive influence in a neighbourhood. Primary research conducted in Avondale for this thesis in part confirmed a more positive outlook for the future of intensification in Avondale, but at the same time raised questions about what form it would take or where it would be located. In particular, there was interest in what design controls would be put in place by the council to ensure that poor quality high-density housing visible elsewhere in Auckland would not be repeated in Avondale at a more concentrated level. The wide variety of photographs taken around the Avondale 'area of change' also raises questions about the area's capacity for growth, particularly beyond the immediate vicinity of the town centre where areas likely to be rezoned to Residential 8a or 8b are currently occupied by late nineteenth and early twentieth century villas and bungalows, often on already subdivided sections. Overall, questionnaire respondents had a fairly positive attitude towards intensification occurring in Avondale, with many believing the area needed more people to increase its vibrancy, and

especially to improve the shopping district, which has become neglected in recent years. Yet there remained scepticism of higher-density living, which became particularly evident in the interviews. While interviewees generally believed that Avondale was a good location for intensification, and even that intensification was necessary in Auckland to ensure the city did not continue to sprawl as it has done in the past, they were generally unimpressed by intensification that has already occurred throughout Auckland, and were particularly critical of the new development on St Jude's Street shown in Photos 4.9 and 4.10. More central direction and strong design controls were generally advocated by respondents, with one summing up what was needed by saying: 'intelligent design…that's all we want really.' While quality urban design is unlikely to overcome all the problems faced by those implementing intensification policies in Avondale, and throughout Auckland, it is clear that a reaffirmed focus on urban design will have a positive influence on areas redeveloping at higher densities throughout Auckland in the future. If Auckland City Council's *Avondale's Future* project can be implemented in a way that does positively influence the community and help revive the neighbourhood, while encouraging people to use public transportation, then it could be a model for other areas due to experience intensification as part of Auckland's Growth Management Strategy.

Conclusions

Auckland's future urban growth strategies, at the regional, district and community levels, represent a decisive break from traditional 'predict and provide' patterns of development. Plans for Auckland's urban future follow a theoretical debate over the virtues of urban sprawl and compact city types of development which has dominated urban planning literature over the past 15 years, as overall Auckland's strategies look to move away from sprawl as the basis for urban growth and focus more on intensification. However, as is outlined in the literature, there are many critiques of the compact city thesis, and those critiques can be readily applied to Auckland, especially with regards to feasibility and acceptability problems that have already plagued the implementation of intensification, as higher-density urban living contradicts with what most New Zealanders perceive to be an ideal lifestyle. To achieve Auckland's growth management goals, feasibility and acceptability issues with urban intensification will need to be overcome. Both the Auckland Regional Council and the Auckland City Council have looked to respond to these issues through a focus on 'quality urban design', which is most definitely a step in the right direction as high-density developments in Auckland over the past decade have been marred by poor quality 'leaky buildings' and 'chicken-coop' apartments. Overcoming the stigma attached to intensification will be crucial for Auckland to achieve its urban growth management goals, which work towards a more sustainable urban future through creating strong supportive communities, a high-quality living environment and a region that is easy to get around, while protecting the coast and surrounding natural environment (Auckland Regional Growth Forum, 1999).

The four main chapters of this thesis outline a number of conclusions in the search for a more sustainable urban future, internationally and in Auckland. Chapter Two highlighted the inherent unsustainability of urban sprawl, but also, importantly, the reasons why it has become so ubiquitous throughout developed world cities. Understanding the attractiveness of urban sprawl at the individual level was identified as a crucial aspect of formulating a new, more compact, urban future that is attractive enough to overcome the feasibility and acceptability issues that Breheny (1997) has used in his very effective critique of the compact city concept. The last section of Chapter Two looked towards finding solutions to the urban sprawl/compact city debate that has dominated urban planning literature in the past fifteen years, particularly towards a focus on quality urban design. By ensuring new, higher-density,

developments have effective design controls, not just architecturally, but also at the 'urban design' level, is one way higher-density developments can theoretically be made as attractive as the lower density urban sprawl which is seen by many as 'the ideal'. However, as Chapter Two also concluded, the shift from urban sprawl to compact city is one that cannot occur effectively without a greater acceptance of higher-density living from the wider community, and overcoming the way in which urban sprawl is fundamentally embedded in the culture of developed world cities, from transportation provision to media representations of the 'ideal lifestyle' (generally a large house on a large section with two or more cars). Therefore, a radical shift in the way cities are designed and built will be necessary to create a more sustainable urban future, much in the way that sustainability itself is fundamentally different from the way in which society has operated throughout the last century in particular.

Chapter Three focused on the urban sprawl to compact city urban evolution, but at the level of the Auckland region. By outlining Auckland's urban history as one dominated by decentralisation, this chapter highlighted the way in which the *Auckland Regional Growth Strategy* (RGS) (Auckland Regional Growth Forum, 1999) is radically different from past strategies to manage growth in Auckland. This chapter focused on analysing the RGS and other initiatives that have been taken at the regional level to help achieve the goals outlined in Chapter Two: to make intensification feasible and acceptable through quality urban design, and help overcome the 'stigma' that is often attached to higher-density housing. However, through critiquing the RGS and analysing media reports of intensification proposals in Auckland, Chapter Three concluded that much work is still required to make intensification more attractive, and therefore more feasible and acceptable, in its implementation throughout Auckland.

Chapter Four analysed Auckland's urban growth strategies at the level of the Auckland City Council, in particular focusing on its interpretation of the RGS in developing a *Growth Management Strategy* (GMS) (Auckland City Council, 2003). As the Auckland City Council has been given the task of actually implementing the intensification proposed by the RGS, analysing the GMS gives a good indication of how urban intensification will affect various communities throughout a part of Auckland that can only grow through redevelopment, as

there is no space for ‘greenfield’ growth. This chapter outlined how the GMS identified various ‘areas of change’ and ‘areas of stability’, where intensification should, and should not, take place. Furthermore, the newly introduced Residential 8 zone was discussed in detail, and in particular how the zone links with the urban design controls proposed in Chapter Two, and then elaborated upon in Chapter Three. However, the chapter also critiques how the GMS is being implemented in Auckland, and in particular the intensification process that is occurring in the suburb of Glen Innes, which is dominated by low-income housing. By referring to the concept of ‘transit-oriented developments’, which the GMS is similar to in many ways, questions were raised about whether intensification in areas like Glen Innes will only create slums, and therefore further stigmatise higher-density living. The chapter concluded that for intensification to be successful, a mix of incomes is critical to ensure the area will not become a slum or an exclusive enclave. This conclusion links back with many made in Chapter Two, which highlight the social polarisation that urban sprawl is generating in many cities around the world that fundamentally contradicts with concepts of sustainability.

Chapter Five brought the analysis of Auckland’s growth management strategies one step further to focus on one particular suburb, Avondale. Through analysing Auckland City’s Liveable Community Plan (LCP), this chapter concluded that, at least in theory, Avondale was a good area for intensification and that the city council had undertaken an in-depth consultation process with the local community to ensure that intensification occurred in a way that met the best interests of residents and enhance Avondale’s liveability. However, primary research done in the form of a visual interpretation of Avondale, questionnaires of local residents, and a few in-depth interviews, bring into doubt the potential success of Avondale’s LCP. Firstly, a series of photographs taken throughout Avondale in the areas identified for intensification highlighted a potential lack of developable space, particularly in areas beyond the immediate town centre, mainly due to the surprisingly high standard housing present in parts of Avondale. While the questionnaires exhibited a largely positive opinion towards the effects Avondale’s LCP would have on the area, most respondents were very wary of how the intensification would occur, and felt that better design was needed. This was reinforced in the interviews, as most participants felt that Avondale was well-suited

for intensification, but that it would need to occur in a way better than has happened elsewhere in Auckland. The new apartments being built on St Jude's Street were identified by all interviewees as a clear example of what needed to be avoided, and therefore Chapter Five concluded that for intensification to be a success in Avondale, and subsequently any other part of Auckland, the strong focus on quality urban design proposed at the theoretical, regional and district levels would need to be applied at this local level to win the trust of residents that intensification can occur without the loss of character, overcrowding and visual pollution that many feel blight higher-density developments throughout Auckland.

It is clear that at a global level, developed world cities need to curb their sprawl and make more efficient use of land and infrastructure resources. Growing concerns about climate change have also reinforced the need to plan for cities that do not rely upon the automobile as much as they do currently, while socio-economic polarisation and segregation also needs to be addressed to properly achieve sustainable development. While it remains unclear exactly how cities should develop to meet these new demands, what has become apparent in recent years is the need to change and take decisive steps towards a more sustainable urban future. However, ensuring that these potentially dramatic changes are implemented in ways acceptable to local residents is also crucial, as poor quality development will only shift current problems, rather than solve them. It is in this situation the need for stronger local government guidance and control becomes clearly visible. The *laissez faire* attitude to city planning since the Second World War, which has been predominant in Auckland and many other cities, especially in North America, has created a situation where 'Seventy million Americans lived in the 13,000 square-miles comprising the nation's urbanised areas in 1950. Today about three times as many people live in a total metropolitan area that is more than fifty times as large (Mitchell, 2001: 52)'. Such inefficient land use fundamentally contradicts with the concept of sustainable development, and necessitates that local governments take a stronger role in planning and designing future urban areas. While this process has thankfully begun in Auckland, many of the policy documents that look to ensure high-quality developments are merely 'guides', 'protocols' or 'recommendations'. To truly improve Auckland's urban landscape, and to ensure a more sustainable urban future is created both in Auckland and in other cities around the world, these 'guidelines' will require more legal

force and will need to be implemented in a more co-ordinated fashion than has been the case in the past. Indeed, creating a more sustainable urban future for Auckland is a great challenge, but for the sake of future generations it is one that must be undertaken in the best possible way.

References:

Adams, R. (1992) 'Is happiness a home in the suburbs? The influence of urban versus suburban neighbourhoods on psychological wellbeing' *Journal of Community Psychology,* 20: 353-372.

Anderson, W., Kanaroglou, P. and Miller, E. (1996) 'Urban form, energy and the environment: a review of issues, evidence and policy' *Urban Studies,* 33: 7-35.

Auckland City Council (1999) *City of Auckland – District Plan: isthmus section – operative 1999, reprinted 07/02/05,* Part 7 – Residential activity, Auckland City Council, Auckland.

Auckland City Council (2001) *The Residential Design Guide: for developments in residential zones in strategic growth management areas,* Auckland City Council, Auckland.

Auckland City Council (2003) *Auckland City: Growth Management Strategy,* Auckland City Council, Auckland.

Auckland City Council (2004) *The Central Sector Agreement,* Auckland City Council and Auckland Regional Council, Auckland.

Auckland City Council (2004b) *Update on the liveable communities plan process for Avondale,* Avondale Community Board, Auckland.

Auckland City Council (2005) *Designing Auckland: a springboard for action,* The Mayoral Taskforce on Urban Design, Auckland.

Auckland City Council, (2005b) *Avondale's Future,* Auckland City Council Website: http://www.aucklandcity.govt.nz/council/documents/avondale/default.asp accessed 4/4/05.

Auckland Regional Authority (1975) *Auckland: Population, Employment and Land Use Patterns,* ARA Planning Division, Auckland.

Auckland Regional Council, (2000) *Urban area intensification: regional practice and resource guide,* Auckland Regional Council, Auckland.

Auckland Regional Council, (2005) *Draft Auckland Regional Land Transport Strategy 2006 – 2016,* http://www.arc.govt.nz/arc/index.cfm?78FB12A5-BCD4-1A24-9FC2-54A3E8BD68EE, accessed 16/8/05.

Auckland Regional Growth Forum, (1997) *A Place Sought By Many: a brief history of regional planning for Auckland's growth,* Regional Growth Forum, Auckland.

Auckland Regional Growth Forum, (1998) *No Growth or Slow Growth: the rationale, policy approaches, techniques and implications,* Regional Growth Forum, Auckland.

Auckland Regional Growth Forum, (1998b) *Residential Intensification Developer Survey,* Regional Growth Forum, Auckland.

Auckland Regional Growth Forum, (1998c) *Employment Location in the Auckland Region,* Regional Growth Forum, Auckland.

Auckland Regional Growth Forum, (1999) *Auckland Regional Growth Strategy: 2050. A Vision for Managing Growth in the Auckland Region,* Regional Growth Forum, Auckland.

Audirac, I. and Smith, M. (1992) 'Urban form and residential choice: preference for urban density in Florida' *Journal of Architectural and Planning Research,* 9: 19-32.

Avondale Business Association, 'Mainstreet Programme' *ABA Website,* http://www.avondale.net.nz accessed 28/10/05

Badland, H. and Schofield, G. (2005) 'Transport, urban design, and physical activity: an evidence-based update' *Transportation Research Part D,* 10(3): 177-196

Bagley, M. and Mokhtarian, P. (2002) 'The impact of residential neighbourhood type on travel behaviour: a structural equations modelling approach' *The Annals of Regional Science,* 36: 279-297

Baldassare, M. (1992) 'Suburban communities' *Annual Review of Sociology,* 18: 475-494

Banister, D. (1997) 'Reducing the need to travel' *Environmental and Planning B: Planning and Design,* 24: 437-449

Barr, J. (1922) *Municipal and Official Handbook of the City of Auckland, New Zealand,* Wilson and Horton, Auckland

Belzer, D. and Autler, G. (2002) 'Countering Sprawl with Transit-Oriented Development' *Issues in Science and Technology,* 19(1): 51-58

Berke, P. (2002) 'Does sustainable development offer a new direction for planning? Challenges for twenty-first century' *Journal of Planning Literature,* 17(1): 21-36.

Bernick, M. and Cervero, R. (1996) *Transit Villages in the 21st Century,* McGraw-Hill, New York.

Beston, A. (2004) 'Fighting to keep a lid on urban pressure cooker' *New Zealand Herald,* December 3rd.

Blakely, E. and Snyder, M. (1997) *Fortress America: gated communities in the United States,* Brookings Institute Press, Washington DC.

Bloomfield, G. (1967) 'The Growth of Auckland: 1840-1966' in J.S. Whitelaw (ed.) *Auckland in Ferment,* New Zealand Geographical Society, Auckland: 1-21

Bloomfield, G. (1975) 'Urban Tramways in New Zealand: 1862-1964' *New Zealand Geographer,* 31: 99-123

Breheny, M. (1992) *Sustainable Development and Urban Form,* (Introduction). Pion, London.

Breheny, M. (1995) 'The compact city and transport energy consumption' *Transactions of the Institute of British Geographers,* 20: 81-101

Breheny, M. (1996) 'Centrists, Decentrists and Compromisers: Views on the Future of Urban Form' in Jenks, M., Burton, E. and Williams, K. (eds.) *The Compact City: a sustainable urban form?* E & FN Spoon, London: 13-35

Breheny, M. (1997) 'Urban Compaction: feasible and acceptable?' *Cities,* 14(4): 209-217

Brownell, B. and Goldfield, D. (1977) *The city in southern history: the growth of urban civilization in the South,* Kennikat Press, Port Washington N.Y.

Burchell, R. and Mukherji, S. (2003) 'Conventional development versus managed growth: the costs of sprawl' *American Journal of Public Health,* 93(9): 1534-1540

Burton E. (2000) 'The Compact City: Just or just compact? A preliminary analysis' *Urban Studies,* 37(11): 1969-2007.

Burton, E. (2002) 'Measuring urban compactness in UK towns and cities' *Environment and Planning B: Planning and Design,* 29: 219-250.

Calthorpe, P. (1993) *The next American metropolis: ecology, community and the American dream,* Princeton Architectural Press, New York.

Carruthers, J. and Ulfarsson, G. (2002) 'Fragmentation and sprawl: evidence from interregional analysis' *Growth and Change,* 33(3): 312-340.

Carruthers, J. and Ulfarsson, G. (2003) 'Urban sprawl and the cost of public services,' *Environment and Planning B: Planning and Design,* 30: 503-522.

Cayford, J. (2005) 'Roads eat up funds better spent on rail' *New Zealand Herald,* July, 7th.

Cervero, R. and Kockelman, K. (1997) 'Travel demand and the 3Ds: density, diversity and design' *Transportation Research D,* 2: 199-219.

Cook, N. (2005) 'Planners making a hash of inner city' *New Zealand Herald,* April 8th.

Costello, L. (2005) 'From prisons to penthouses: the changing images of high-rise living in Melbourne' *Housing Studies,* 20(1): 49-62.

de Roo, G. and Miller, D. (2000) *Compact Cities and Sustainable Urban Development,* (Introduction), Ashgate, Hampshire.

Deal, B. and Schunk, D. (2004) 'Spatial dynamic modelling and urban land use transformation: a simulation approach to assessing the costs of urban sprawl' *Ecological Economics,* 51: 79-95.

Dearnaley, M. (2004) 'Auckland population soars towards 2m' *New Zealand Herald,* December 15th.

DoE, Department of the Environment, (1995) *Our Future Homes: Opportunity, Choice, Responsibility*, HMSO, London

Dittmar, H., Belzer, D. and Autler, G. (2004) 'An introduction to transit-oriented development' in Dittmar and Ohland, G. (eds.) *The New Transit Town: best practices in transit-oriented development,* Island Press, Washington: 1-18

Dittmar, H. and Poticha, S. (2004) 'Defining transit-oriented development: the new regional building block' in Dittmar and Ohland, G. (eds.) *The New Transit Town: best practices in transit-oriented development,* Island Press, Washington: 20-40

Dixon, J. and Dupuis, A. (2003) 'Urban intensification in Auckland, New Zealand: A challenge for new urbanism' *Housing Studies,* 18(3): 353-368.

Duany, A. and Plater-Zyberk, E. (1991) *Towns and Town-Making Principles,* Rizzoli International, New York.

Duany, A., Plater-Zyberk, E. and Speck, J. (2000) *Suburban Nation: the rise of sprawl and the decline of the American dream,* North Point Press, New York.

Elkin, T., McLaren, D. and Hillman, M. (1991) *Reviving the City: towards sustainable urban development,* Friends of the Earth, London

Ewing R., Haliyur P. and Page G. (1994) Getting around a traditional city, a suburban planned unit development, and everything in between. *Transportation Research Record* 1466: 53-62.

Ewing, R. (1995) 'Beyond density, mode choice and single-purpose trips' *Transportation Quarterly,* 49: 15-24

Ewing, R. (1997) 'Is Los Angeles-style sprawl desirable?' *Journal of the American Planning Association,* 63(1): 107-125.

Filion, P., Bunting, T. and Warriner, K. (1999) 'The Entrenchment of Urban Dispersion: Residential Preferences and Location Patterns in the Dispersed City' *Urban Studies,* 38(8): 1317-1347.

Fookes, T. (2000) 'Auckland's Urban Growth Management' in Ali Memon, P. and Perkins, H. (eds.) *Environmental Planning and Management in New Zealand,* Dunmore Press, Palmerston North: 263-273

Frank, L. and Pivo, G. (1994) 'Impacts of mixed use and density on utilisation of three modes of travel: single-occupant vehicle, transit and walking' *Transportation Research Record,* number 1466: 44-52.

Gamble, W. (2005) 'A time for planning' *The Press – Mainlander,* April 9th.

Garcia, D. and Riera, P. (2003) 'Expansion versus Density in Barcelona: A Valuation Exercise' *Urban Studies,* 40(10): 1925-1936.

Gibson K., and Abbott C. (2002) 'City Profile: Portland Oregon' *Cities,* 19(6): 425-436.

Goldfield, D. and Brownell, B. (1979) *Urban America, From Downtown to No Town,* Houghton Mifflin, Dallas.

Goodchild, B. (1994) 'Housing Design, Urban Form and Sustainable Development: reflections on the future residential landscape' *Town Planning Review,* 65(2): 143-157.

Gordon, P. and Richardson, H. (1997) 'Are compact cities a desirable planning goal?' *Journal of the American Planning Association,* 63(1): 95-106.

Gottdiener, M. and Klephart, G. (1991) 'The multinucleated metropolitan region: a comparative analysis', in: R. Kling, S. Olin and M. Poster (eds.) *Postsuburban California: the transformation of Orange County since World War II*, pp. 31-54. Berkeley, CA: University of California Press.

Government of New Zealand (2004) *Local Government (Auckland) Amendment Act,* Government of New Zealand, Wellington.

Grant, J., Manuel, P. and Joudrey, D. (1996) 'A framework for planning sustainable residential landscapes' *Journal of the American Planning Association,* 62(3): 331-345.

Guiliano, G. and Narayan, D. (2003) 'Another look at travel patterns and urban form: the US and Great Britain' *Urban Studies,* 40(11): 2295-2312.

Guy, S. and Marvin, S. (2000) 'Models and Pathways: the diversity of sustainable urban futures' in Williams, K., Burton, E., and Jenks, M., *Achieving Sustainable Urban Form,* E & FN Spoon, London. pp. 9-18.

Handy S. (1992) 'Regional versus local accessibility: neo-traditional development and its implications for non-work travel' *Built Environment,* 18: 253-267.

Hasse, J. and Lathrop, R. (2003) 'Land Resource Impact Indicators of Urban Sprawl.' *Applied Geography,* 23: 159-175.

Haughton, G. and Hunter, C. (1994) *Sustainable Cities,* Jessica Kingsley Publishers, London.

Hillman, M. (1996) 'In Favour of the Compact City', in Jenks, M., Burton, E. and Williams, K. (eds.) *The Compact City: a sustainable urban form?* E & FN Spoon, London: 36-44.

Hugill, P. (2002) 'The geographical imagination in America, 1880-1950' *Journal of Interdisciplinary History,* 33(1): 141-142.

Hume, T. (2005) 'Families shun $45 million housing complex' *Sunday Star Times,* 16th October, a5.

Jenks, M., Burton, E. and Williams, K. (1996) 'Compact Cities and Sustainability: an introduction', in Jenks, M., Burton, E. and Williams, K. (eds.) *The Compact City: a sustainable urban form?* E & FN Spoon, London: 3-8.

Kasarda, J. (1980) 'The implications of contemporary redistribution trends for national urban policy, *Social Science Quarterly*, 61: 373-400.

Kelly-Schwartz, A., Stockard, J., Doyle, S. and Schlossberg, M. (2004) 'Is sprawl unhealthy? A multi-level analysis of the relationship of metropolitan sprawl to the health of the individual' *Journal of Planning Education and Research,* 24: 184-196.

Kenworthy, J. and Newman, P. (1990) 'Cities and transport energy: lessons from a global survey', *Ekistics*, 34(4/5): 258-268.

Keyes, D. (1982) 'Reducing travel and fuel use through urban planning', in: R. Burchell and D. Listoken (eds) *Energy and Land Use*,. Center for Urban Policy Research, Rutgers University, New Brunswick, NJ: 214-232.

Kling, R., Olin, S., and Poster, M. (Eds) (1991) *Postsuburban California: The Transformation of Orange County Since World War II*. Berkeley, CA: University of California Press.

Le Goix, R. (2005) 'Gated communities: sprawl and social segregation in southern California' *Housing Studies,* 20(2): 323-343.

Leung, H.-L. (1993) *Residential Density and Quality of Life*. Ottawa: Canada Mortgage and Housing Corporation.

Lloyd, W. (1991) 'Changing suburban retail patterns in metropolitan Los Angeles', *The*

Professional Geographer, 43: 335-344.

Lock, D. (1995) 'Room for more within city limits?' *Town and Country Planning,* 64(7): 173-176.

Maat, K., van Wee, B. and Stead, D. (2005) 'Land use and travel behaviour: expected effects from the perspective of utility theory and activity-based theories' *Environment and Planning B: Planning and Design,* 32(1): 33-46.

McLaren, D. (1992) 'Compact or Dispersed? Dilution is no solution' *Built Environment,* 18(4): 268-284

Meadows, Donella., Meadows, Dennis., Randers, J. and Behrens, W. (1972) *The Limits to Growth,* Universe Books, New York.

Meurs, H. and Haaijer, R. (2001) 'Spatial structure and mobility' *Transportation Research D,* 6: 429-446.

Ministry for the Environment (2005) *New Zealand Urban Design Protocol,* Sustainable Development: New Zealand Programme of Action, Wellington.

Mitchell, J. (2001) 'Urban sprawl' *National Geographic,* 200(1): 48-56.

Muller, P. (1995) 'Transportation and Urban Form: Stages in the Spatial Evolution of the American Metropolis' in Hanson, S. (ed.) *The Geography of Urban Transportation*, 2nd Edition, New York: Guilford.

Mumford, L. (1961) *The City in History: its origins, its transformations,* Harcourt, Brace and World Inc, New York.

Murdoch, J. (2004) 'Putting discourse in its place: planning sustainability and the urban capacity study.' *Area,* 36(1): 50-58.

Naess, P. (1993) 'Can urban development be made environmentally sound?' *Journal of Environmental Planning and Management*, (36): 309-333.

Naess, P. and Sandberg, S. (1996) 'Workplace location, modal split and energy use for commuting trips' *Urban Studies,* 33: 557-580

New Zealand Herald Editorial, (2004) 'Let planners start putting people first' *New Zealand Herald,* December 3rd.

Newman, P. (1992) 'The Compact City: an Australian perspective' *Built Environment,* 18(4): 285-300.

Newman, P. and Kenworthy, J. (1989) *Cities and automobile dependence : a sourcebook,* Aldershot, Hants., England.

Nozzi, D. (2003) *Road to ruin: an introduction to sprawl and how to cure it,* Praeger, Westport Connecticut.

Oates, R. (1994) *The Challenge of the Whau – a history of Avondale,* Avondale History Group, Auckland.

Orsman, B. (2005a) 'Residents fear 'ghetto' plan' *New Zealand Herald,* June 13th.

Orsman, B. (2005b) 'High-rise plans have the locals steaming' *New Zealand Herald,* June 14th.

Orsman, B. (2005c) 'City design vision unveiled' *New Zealand Herald,* June 29th.

Orsman, B. (2005d) 'Scorecard to halt ugly buildings' *New Zealand Herald,* May 31st.

Owens, S. (1986) *Energy, planning and urban form*, Pion, London.

Pickmere, A. (2005) 'Planners seem to forget about the residents' *New Zealand Herald,* June 16th.

Porta, S. and Renne J-L. (2005) 'Linking urban design to sustainability: formal indicators of social urban sustainability field research in Perth, Western Australia' *Urban Design International,* 10: 51-64

Pratt, R. and Larkham, P. (1996) 'Who will care for compact cities?', in M Jenks, E Burton, K Williams (eds) *The Compact City: A Sustainable Urban Form?* E&FN Spoon, London: 277-288.

Redmond, L. and Mokhtarian, P. (2001) 'The positive utility of the commute: modelling ideal commute time and relative desired commute amount' *Transportation,* 28: 179-205

Relph, E. (1987) *The Modern Urban Landscape,* Croom Helm, London.

Rodrigue, J-P. (2005) *Transportation and Urban Form,* http://people.hofstra.edu/geotrans/eng/ch6en/conc6en/ch6c1en.html , accessed: 8/11/05

Rolleston, B. (1987) 'Determinants of restrictive suburban zoning: an empirical analysis', *Journal of Urban Economics*, 21: 1-21

Roughan, J. (2005) 'Let the city sprawl in splendour' *New Zealand Herald,* March 19th

Rudman, B. (2005) 'So show us some decent high-density housing' *New Zealand Herald,* June 15th.

Rudman, B. (2005b) 'Chorus of complaint over consultation' *New Zealand Herald,* October 17th.

Rydin,Y. (1992) 'Environmental impacts and the property market', in M Breheny (ed) *European Research in Regional Science 2: Sustainable Development and Urban Form* Pion, London: 217-241.

Schaeffer, K. and Sclar, E. (1975) *Access for all: transportation and urban growth,* Penguin, Baltimore.

Scoffham, E. and Vale, B. (1996) 'How compact is sustainable – how sustainable is compact?' in Jenks, Burton and Williams (eds.) *The Compact City: a sustainable urban form?* E & FN Spoon, London: 66-73.

Smyth, H. (1996) 'Running the gauntlet: a compact city within a doughnut of decay' in Jenks, M., Burton, E. and Williams, K. (eds.) *The Compact City: a sustainable urban form?* E & FN Spoon, London: 101-113

Soja, E. (1989) *Postmodern Geographies: The Reassertion of Space in Critical Social Theory*. London: Verso.

Song, Y. and Knaap, G-J. (2004) 'Measuring urban form' *Journal of the American Planning Association,* 70(2): 210-225.

Southworth, F. (2001) 'On the potential impacts of land use change policies on automobile vehicle miles of travel' *Energy Policy,* 29: 1271-1283

Statistics New Zealand (2005) 'Age Group and Sex, for the Census Usually Resident Population Count, 1991, 1996 and 2001' *Statistics NZ Table Builder,* http://xtabs.stats.govt.nz/eng/TableViewer/wdsview/dispviewp.asp, accessed August 18th 2005.

Statistics New Zealand (2005b) 'Demographic trends 2004: downloadable excel tables' http://www.stats.govt.nz/analytical-reports/dem-trends-04/exceltables.htm, accessed August 1st 2005.

Statistics New Zealand (2005c) 'Ethnic Group (Level 1 Grouped Total Responses), Age Group and Sex, for the Census Usually Resident Population Count, 2001' *Statistics NZ Table Builder*, http://xtabs.stats.govt.nz/eng/TableViewer/Wdsview/dispviewp.asp?ReportId=22 accessed October 25th 2005.

Stead, D. (2001), 'Relationships between land use, socioeconomic factors, and travel patterns in Britain' *Environment and Planning B: Planning and Design,* 28: 499-528

Sternberg, E. (2000), 'An integrative theory of urban design' *Journal of the American Planning Association,* 66(3): 265-278

Stretton, H. (1996) 'Density, efficient and equality in Australian cities' in Jenks, Burton and Williams (eds.) *The Compact City: a sustainable urban form?* E & FN Spoon, London.

Sturm, R. and Cohen, D. (2004) 'Suburban sprawl and physical and mental health' *Public Health,* 118: 488-496.

Thomas, L. and Cousins, W. (1996) 'The Compact City: a successful, desirable and achievable urban form?' in Jenks, Burton and Williams (eds.) *The Compact City: a sustainable urban form?* E & FN Spoon, London: 53-65.

Transit Cooperative Research Program, (2004) *Transit-Oriented Development in the United States: experiences, challenges and prospects,* TCRP Report 102, Washington DC.

Truttman, L. (2003) *Heart of the Whau: the story of the centre of Avondale 1841-2001,* Avondale-Waterview Historical Society, Auckland.

Van Der Burg, A. and Dieleman, F. (2004) 'Dutch Urbanisation Policies: from 'Compact City' to 'Urban Network'. *Tijdschrift voor Economische en Sociale Geografie,* 95(1): 108-116.

Venkatesh, A. (1991) 'Changing consumption patterns', in: R. Kling, S. Olin and M. Poster (eds) *Postsuburban California: The Transformation of Orange County since World War II,*: 142-164. Berkeley, CA: University of California Press.

Wheeler, S. (2000) 'Planning for Metropolitan Sustainability' *Journal of Planning Education and Research,* 20: 133-145.

White, R. (1994) 'Strategic decisions for sustainable urban development in the Third World.' *Third World Planning Review,* 16(2): 103-116.

Williams, K., Burton, E., and Jenks, M. (1996) 'Achieving the Compact City through Intensification: an acceptable option?' in Jenks, M., Burton, E. and Williams, K. (eds.) *The Compact City: a sustainable urban form?* E & FN Spoon, London: 83-96.

Williams, K. (1999) 'Urban intensification policies in England: problems and contradictions' *Land Use Policy,* 16(3): 167-178.

Williams, K., Burton E. and Jenks, M. (2000) 'Defining Sustainable Urban Form.' in Williams, K., Burton, E., and Jenks, M., *Achieving Sustainable Urban Form,* E & FN Spoon, London: 7-9.

Wilson, G. and Baldassare, M. (1996) 'Overall `sense of community' in a suburban region: the effects of localism, privacy, and urbanisation' *Environment and Behavior*, 28: 27-43.

World Commission on Environment and Development. (1987) *Our Common Future,* Oxford University Press, Oxford.