

TECHNICAL REPORT: TOWARDS A PREFERRED URBAN FORM

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THE
AUCKLAND
PLAN

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Te Kaunihera o Tāmaki Makaurau



Towards a preferred urban form

A background document for the Draft Auckland Plan

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Executive Summary

Auckland's urban form has developed from a complex interplay of natural and man-made forces. Its basic pattern will continue to be shaped by the physical environment – its harbor edge setting, Isthmus form and proximity of rain forest clad ranges. Upon this basic framework, a poly centric city has evolved, exhibiting as a dense network of neighbourhoods, interwoven with residual components of the natural environment. The future urban form of the city is built upon this base.

The intention of the preferred urban form workstream was to arrive at an ideal urban form for Auckland 30 years out and potentially beyond drawing from the high level goals set out in the Auckland Unleashed Discussion Document, technical work undertaken as part of the preparation of the discussion document and past council's legacy work. A test of the preferred urban form was to ensure that it is capable of accommodating projected growth to 2041. This report outlines the process that was developed to arrive at a preferred urban form including a process of identifying and mapping constraints both within and outside the urban area. The report identifies that there are a wide range of influences on urban form, including the need to accommodate fast population and business growth, adapting to changing lifestyles and economic and environmental trends while accelerating the attainment of improved quality of living and the natural and built environment.

The technical work arrives at a number of tradeoffs and choices that need to be made in order to be able to identify new areas for growth. These key tradeoffs include: urban expansion versus compact growth; market led versus plan led urban redevelopment; and centres versus neighbourhoods. In terms of the location and nature of greenfields development the tradeoffs include rural production verses urban expansion and catchment, transport and infrastructure issues.

One of the key inputs used iteratively throughout the process was the capacities ground truthing technical work. The preferred urban form was tested for its ability to accommodate the anticipated growth to 2041. This technical work was used as a basis for discussions which contributed to the development of the final Development Strategy Map contained in the Draft Auckland Plan. The technical data that resulted from this capacities work has been documented in the paper "Towards a Preferred Urban Form: Residential Capacities" and is attached to this report as Attachment 1. This work is continuing at a more detailed level in order to gain a greater understanding of realistic growth capacities for Auckland and will provide an invaluable input into the final Auckland Plan.

This report concludes that one of the key challenges the region faces is to set in place a framework for urban redevelopment that can work in practice. The ability for any city to redevelop and intensify parts of its urban fabric represents one of the most important means by which a city can improve its economic and environmental performance. In the case of Auckland, there is a need to more closely align urban redevelopment planning with market forces if this potential for improved urban efficiencies is to be realised. This means more closely aligning redevelopment with preferences and people living in more intensive urban environments which have close access to blue and green networks.

Equally, the preferred urban form acknowledges the need to plan for urban expansion. This is inevitable at some time in the future. However, the rate of urban expansion depends upon the success or otherwise of urban redevelopment initiatives.

1 Introduction

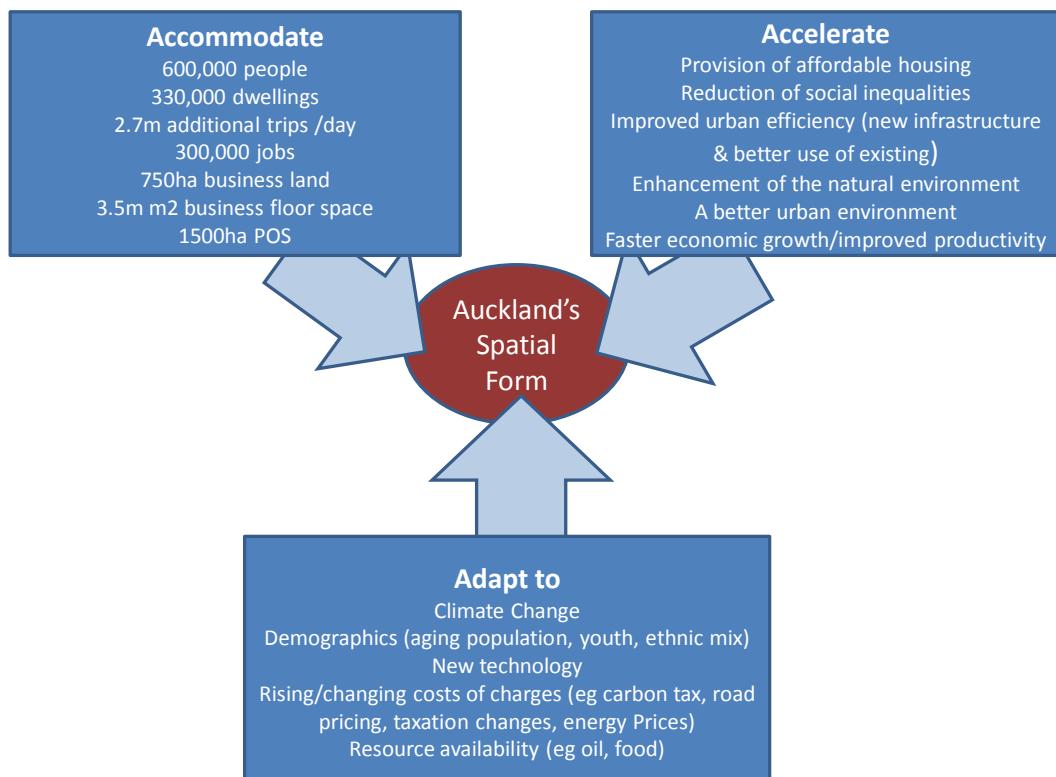
This report sets out the background and broad rationale for the preferred urban form proposal that forms a core component of the Auckland Plan.

It has been prepared by the urban form team of Auckland Council's spatial planning unit with the assistance of Hill Young Cooper Ltd. The report explains the proposed urban form, how it was developed, the key reasons that lie behind its main features and identifies its key proposals.

1.1 The Challenge

The challenge has been in developing a preferred urban form that addresses the multitude of complex issues facing Auckland. The following diagram illustrates the range of factors and issues that have an influence on the spatial form of Auckland and which have to be taken into account when developing its preferred form.

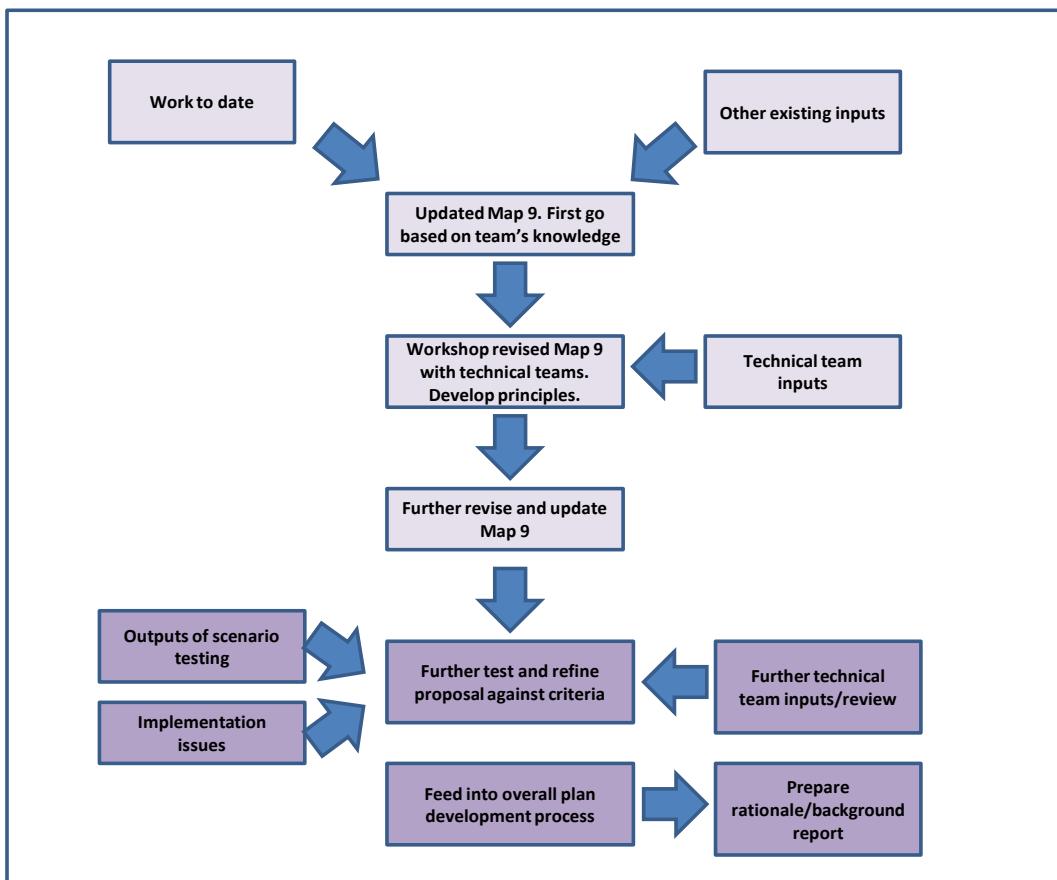
Figure 1: The Challenges



1.2 Process

Development of the draft preferred urban form has involved an intensive, iterative process, as outlined in Figure 2 below.

Figure 2: Preferred Urban Form Process



The proposed urban form has been derived from the compilation and synthesis of a range of technical work streams associated with the development of the Auckland Plan including environmental, social and economic factors. The Preferred Urban Form work stream has endeavoured to integrate the various spatial actions identified by these work streams to advance the overall goal of a compact, quality, liveable city. The focus has been on achieving a robust synthesis based on the best information available. It is acknowledged that the process has been an iterative one and that the Preferred Urban Form proposed in this paper has had to resolve differences and tensions between the various work stream outputs. Consequently, not all recommendations identified in the individual work streams have been able to be reflected in the Preferred Urban Form. One of the key areas of work that has been used to assist in the development of the preferred urban form is the residential capacities work. This provided a high level evidence based approach to understand the reasonable and feasible potential for residential

(re)development in Auckland. It is noted that this work is ongoing at a more detailed level and will continue to provide invaluable information for the finalisation of the Auckland Plan. The resulting capacities analysis "Towards a Preferred Urban Form: Residential Capacities" is attached to this report.

The Preferred Urban Form work stream has not however looked at high level urban form options (compact versus expansive versus satellite, for example). The Scenario Evaluation work stream has however undertaken this work and the findings of the Evaluation have been used as an input into the Preferred Urban Form work stream (refer to Scenario Evaluation Work Stream Technical Report). It is noted however, that the Scenario Evaluation work only evaluated options rather than determining a preferred outcome.

The following critical inputs into the work stream process have provided the building blocks to the development of a preferred urban form for Auckland:

- Plans, strategies and technical reports of the former councils in the Auckland region
- Background work collated by Auckland Council during the later part of 2010 (briefing papers)
- Auckland Unleashed discussion document (2011)
- Feedback/submissions on the Auckland Unleashed discussion document
- Urban form scenarios and evaluation outputs
- Residential capacities testing and analysis
- On-going Auckland Plan technical work streams.

A complete methodology of the Preferred Urban Form work stream is set out in Appendix One of this report.

It should be noted that reference to Map 9 in Figure 2 above refers to Map 9 in the Auckland Unleashed discussion document (January 2011). This map sets out possible new areas for development and was intended as a starting point for discussion on Auckland's future urban form.

1.3 Relevant Statutory Framework

As part of its planning role, Auckland Council is required to produce "the Auckland Plan" which is a long term strategy (20 - 30 years) that contributes to Auckland's social, economic, environmental and cultural wellbeing. Consistent with the requirements of sections 79(4)(b) and (d) of the Act, the Preferred Urban Form work stream sets out visually how Auckland may develop in the future, including how growth may be sequenced and identifies the existing and future location and mix of residential, business, rural production and industrial activities within specific geographic areas within Auckland.

2 Context

This section of the report sets out the higher level drivers of the preferred urban form, drawing upon high level goals as set out in the Auckland Unleashed Discussion Document, technical work undertaken as part of the preparation of the discussion document, as well previous and subsequent technical work. Each sub section sets out the main spatial issues that have helped to form the “building blocks” to developing a preferred urban form.

2.1 Direction Setting

The preferred urban form must draw from, and help to deliver, the high level goals set out in the Auckland Unleashed discussion document. These high level goals are as follows¹:

- An Auckland that puts children and young people first
- An outward looking global city with a productive, high value economy, supported by a world class international city centre
- An Auckland that acknowledges and acts on the special place of mana whenua
- A place of diverse, dynamic, safe, secure and accessible communities
- An Auckland that provides a sustainable lifestyle with high and rising quality of life for all Aucklanders
- An open, welcoming place that is attractive to investors, skilled workers and tourists and which encourages international events
- A destination recognised world-wide for its pre-eminent rural, natural and marine setting
- A place enabled by world class infrastructure and supporting services
- A beautiful Auckland that everyone is proud of.

In achieving these goals, the Mayor and Councillors have expressed a preference for a compact city model, tempered with a recognition that there needs to be a transition towards this model, given long standing preferences for more spread out forms of housing and urban development.

Central to decisions about preferred urban form is therefore the extent to which the urban form should shape future living and working preferences of the region’s population versus more passively reflect and accommodate anticipated preferences. In short: how much should the urban development ‘playing field’ be tilted towards compact urban forms?

¹ Page 13: Auckland Unleashed.

While it is important that the preferred urban form allow for people and communities to follow their own economic and social preferences without undue cost, as a starting point it is necessary to understand that current preferences are shaped by a number of factors that tend to see sub optimal urban form outcomes arise. For example:

- existing working and living patterns are exerting a range of pressures on the region's natural environment, but the costs of this are often not accounted for in decision-making by firms and households;
- a number of existing planning policy settings are inhibiting more efficient use of current urban resources, such as already developed land and infrastructure (for example restraints on urban redevelopment in existing built up areas due to concerns that current residents have about future growth in their area);
- major infrastructure such as roads and rail also shape urban form, yet such investment is often made on the basis of decisions to relieve bottle necks, rather than to lead and facilitate desired growth. For example, the western ring route will help to relieve congestion in the Isthmus area, but by improving accessibility to the western fringe of the city, pressure for urban expansion in this area will mount;
- use of infrastructure tends to be based on an average, region-wide price that does not reflect the full, on-going cost of providing infrastructure to different localities, particularly more dispersed, lower density areas.

In other words, the playing field is currently tipped in favour of urban expansion, rather than consolidation.

In addition to this inherited distortion, it is also important that the plan look forward in terms of future opportunities and pressures that will affect housing and business preferences. For example, costs of maintaining city infrastructure and systems (particularly transport infrastructure) will increase in the future, and with it people's preferences for different residential and employment locations. There are efficiencies to be gained via more compact living that can help to manage the effect of such rises, however current methods of financing and paying for urban infrastructure tend to see these costs and benefits evened out across the city, meaning that there are limited price signals as to where people and businesses can locate to minimise costs. However, as costs rise and user pays approaches increase (such as road pricing), then the effect of these on location decisions will get stronger, and need to be anticipated.

At the same time, the ability of the council to shape growth is constrained by finances and the legislation that it works under. Thus, the extent to which the community (via the council) can shape spatial decisions must also feature in the development of the preferred urban form.

The preferred urban form therefore represents a series of trade-offs between enabling shorter term social and economic choices and options while taking into account longer term costs and benefits. In making these trade offs, the following decision making principles can be applied by the council where there are spatial choices to be made:

- integrated solutions;
- improving resilience;
- increasing equity;

- being realistic;
- incorporating Maori dimension;
- improving quality of environment;
- acknowledging diversity; and
- enhancing economic performance.

As a starting point to understanding these trade offs, the following sections highlight the main spatial pressures facing the region; first in terms of urban resources (land, environment, housing, jobs, infrastructure), and then in terms of urban management tools. The critical trade-offs and choices are then discussed in more detail in Section 5.0.

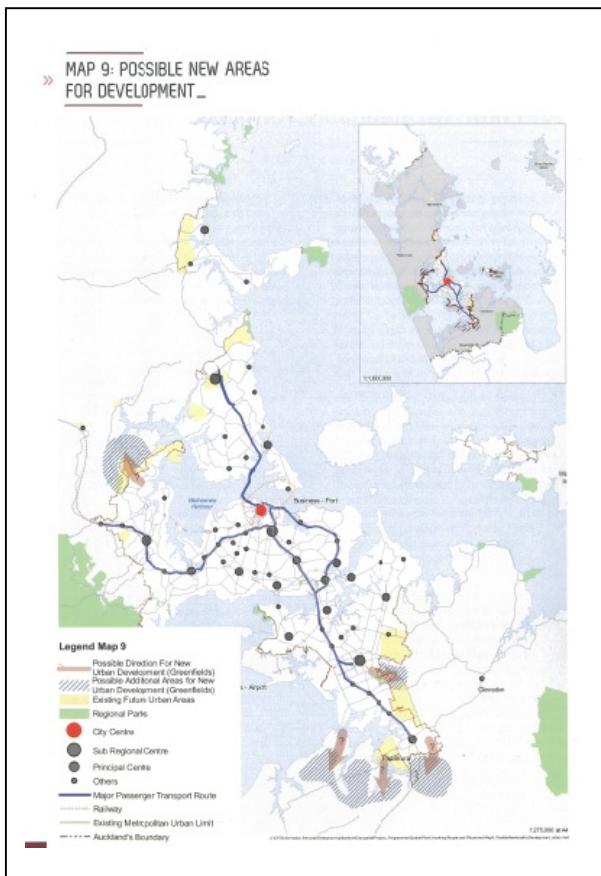


Figure 3: Map 9 from the "Auckland Unleashed" Discussion Document - provides a starting point for the consideration of preferred urban form.

In identifying what resources should be considered, Section 79 (4) of the Local Government (Auckland Council) Act 2009 provides guidance as to the content of a spatial plan, including:

- residential, business, rural production, and industrial activities within specific geographic areas within Auckland; and

- critical infrastructure, services, and investment within Auckland (including, for example, services relating to cultural and social infrastructure, transport, open space, water supply, wastewater, and stormwater and services managed by network utility operators); and
- recreational areas and open space areas within Auckland; and
- ecological areas within Auckland that should be protected from development; and
- environmental constraints on development within Auckland (for example, flood prone or unstable land); and
- landscapes, areas of historic heritage value, and natural features within Auckland.

The following sections address these various resources.

2.2 Landforms and Landscapes

This section on Auckland's landforms and landscapes has largely been drawn from technical work provided by the Environment work stream (refer People and the Environment Work Stream Technical Paper).

2.2.1 Landform

The urban form of the region has obviously been shaped by the landform of the region. In particular are the region's extensive coastlines and limited land connections between the central Isthmus and the land areas to the north, west, east and south.

Residential development has spread along the eastern seaboard, with over 40kms now separating Long Bay in the north from Beachlands / Maraetai in the east. Residential development has also been attracted to the shores of the middle sections of the Waitemata Harbour and the Manukau.

The high value placed on a coastal location has seen more affordable housing and most workplaces congregate around inland areas, shaped by the north-south pattern of first the main rail lines, then the main motorway spine.

The region has therefore developed a poly centric form of many neighbourhoods and many workplaces, generating complex patterns of movement. The limited land and bridge connections between the Isthmus and the surrounding areas funnels movement between these diverse workplaces and neighbourhoods into key pinch points. An "egg timer" effect arises, as many people from diverse home locations seek to pass through these pinch points before spreading out to range of destinations. However, the poly-centric form of diverse origins and destinations means that it is not easy to channel these flows into public transport serving defined nodes.

The pull of the eastern coast, along with planning constraints on the amount of development possible in existing built up areas has seen property prices rise substantially in coastal and central areas, reducing housing affordability with lower income households displaced to the urban periphery.

There is now a strong pressure for further business development in the southern sector, given the transport links present and land available, and ongoing pressure for residential development to occur north and east. These trends will create further imbalances.

The urban form of the region needs to respond to the basic landform of the region:

- The sub regional structure of northern-western and eastern-southern sectors arranged around the central Isthmus must be reinforced, with each sector offering the widest range of housing, employment and recreational opportunities possible so as to contain as much movement as possible within these sectors.
- The residential pull north and east needs to be countered by improving the quality of the natural and built environment in the west and south. This is particularly so if a very stratified city (in socio economic terms) is to be avoided.
- Key regional level workplaces and attractors need to be located so that they are accessible to all urban sectors. Arranged along a central “spine” following the main north-south transport corridor formed by the State Highway One and northern busway – southern rail line, major activities should be placed where they are accessible to the largest labour / customer catchment, as well as being more likely to be served by passenger transport. This includes major office hubs, as well as regional amenities.
- At the same time, intra regional vehicle movement (particularly from the north and west to the south) needs to be provided for by way of the Western Ring route, with this route more focused on transport dependent workplaces (logistics, distribution, manufacturing).

2.2.2 Landscape

The landscapes of the region reinforce the basic north-south alignment of the urban area: to the west and east are the protected areas of the Waitakere and Hunua Ranges, while there are significant areas to the north-east. National and regional policy protects these landscapes from change, essentially locating them within “no further urban development areas”, or no go areas for short. Important spatial patterns are:

- Expansion of the urban area to the west is largely curtailed by the Waitakere Ranges and foothills (now protected via the Waitakere Ranges Heritage Act).

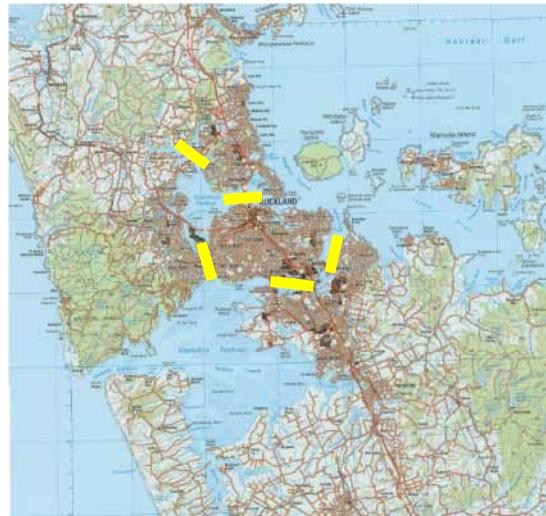


Figure 4: Auckland's harbours help to give shape to the urban area, but also form pinch points.

- To the east and south are the Hunua Ranges and water supply catchments while in the Bombay Hills/ Pukekohe west area, the presence of the highest class of soils limits development options.
- To the north, is the Okura / Weiti area, an area long identified as one that should not be urbanised. The coastal areas north of Orewa / Hatfields Beach, particularly the area around the Whangateau Harbour are also of national significance.

The natural, physical, historic and cultural importance of the Hauraki Gulf, its islands and catchments is also recognised by the Hauraki Gulf Marine Park Act 2000.

Between these “no go” areas, are a variety of landscapes that help to give shape to the urban area. These landscapes tend to form natural “green” backdrops to the urban area. They include:

- Albany and Paremoremo scarps that separate the urban North Shore from the Hibiscus Coast
- Woodhill and Riverhead forest areas to the west
- Whitford / East Tamaki Heights to the east.

While some of these landscapes are classed as being Outstanding (in terms of Section 6 of the RMA), not all of them would fall within this level of importance. Rather, their importance lies in their role in framing the urban area, providing a natural “green edge” to the city. These edges should be enhanced and strengthened through appropriate policies.

However, these landscapes do not combine to present insurmountable or continuous barriers to urban development. In particular, there are choices in relation to:

- Development north of Albany, such as at Dairy Flat, inland from the Weiti area. There is no natural western edge to development in this area. Conceivably, development could extend in a major band westward to Kaukapakapa
- Development north-west of Westgate, into Whenuapai and towards Kumeu
- Development south and south west, into Drury and Karaka.



Figure 5: Auckland's natural landscapes form a natural “green edge” to some parts of the region.

2.3 Natural Environment

This section on Auckland's natural environment has largely been drawn from technical work provided by the Environment work stream (refer People and the Environment Work Stream Technical Paper).

The urban form of the region needs to respond to a range of macro environmental pressures. The Auckland Unleashed discussion document identified the following:

- Reduction of greenhouse gases
- Climate change adaptation
- Energy use and scarcity
- Natural hazards
- Land and water management
- Water and air quality
- Coastal management
- Maintaining biodiversity.

2.3.1 Responding to global / national issues

In looking at urban form options, the national (even global) issues of climate change, green house gas emissions and resource scarcity affect all urban areas in the country.

Generally, it is anticipated that these issues are likely to drive up the costs of key urban system inputs (e.g. higher energy and petrol costs due to introduction of carbon taxes to restrain growth of green house gases and due to increased resource scarcity). In response to these cost pressures, urban areas are likely to get more densely developed, and take on more of a mixture of uses. This is because urban areas that have greater intensity of activities have lower per capita footprints, compared to less intensively developed cities – they are more efficient in using resources to generate the basic goods and services that urban residents need. This can be seen in the Auckland region's per capita ecological footprint, which is lower than other regions in the country.

While each household and business will need to weigh the consequence of higher resource inputs and whether this will influence their location decisions, it can be expected that higher costs will ramp up demand for living closer to services and workplaces (so as to reduce transport costs), as well as increasing demand for terraced housing and apartments (which are inherently more energy efficient than stand alone houses).

The question for Auckland is how the city should respond to this general pressure to make better use of existing resources, where urban expansion is to occur and how this is to be designed so as to accommodate these changes.

In other words, the urban area will need to adapt to changing inputs over the life time of the Auckland Plan. The inability of the Auckland urban area to appropriately accommodate urban redevelopment and intensification pressures driven by rising resource cost inputs represents a major risk to the future viability of the region. This is because intensification has always provided one of the most important means by which households and businesses can accommodate rising costs of urban services and minimise use of resources.

2.3.2 Natural Hazards

The region is subject to a range of natural hazards. The most commonly occurring natural hazards are flooding (from both overflow and inundation) and erosion/ land instability. The coastal environment is particularly susceptible to natural hazards in the form of erosion and inundation from storm surges. The least frequently occurring natural hazards include earthquakes, volcanism, tsunami, various meteorological effects (cyclones, tornadoes, drought) and fire.

Flooding risks are present in all rural catchments that might be urbanised, should the urban area expand. In particular are flooding problems in the Kaipara catchment and Brookby and Clevedon Valleys, as can be seen on Figure 6.

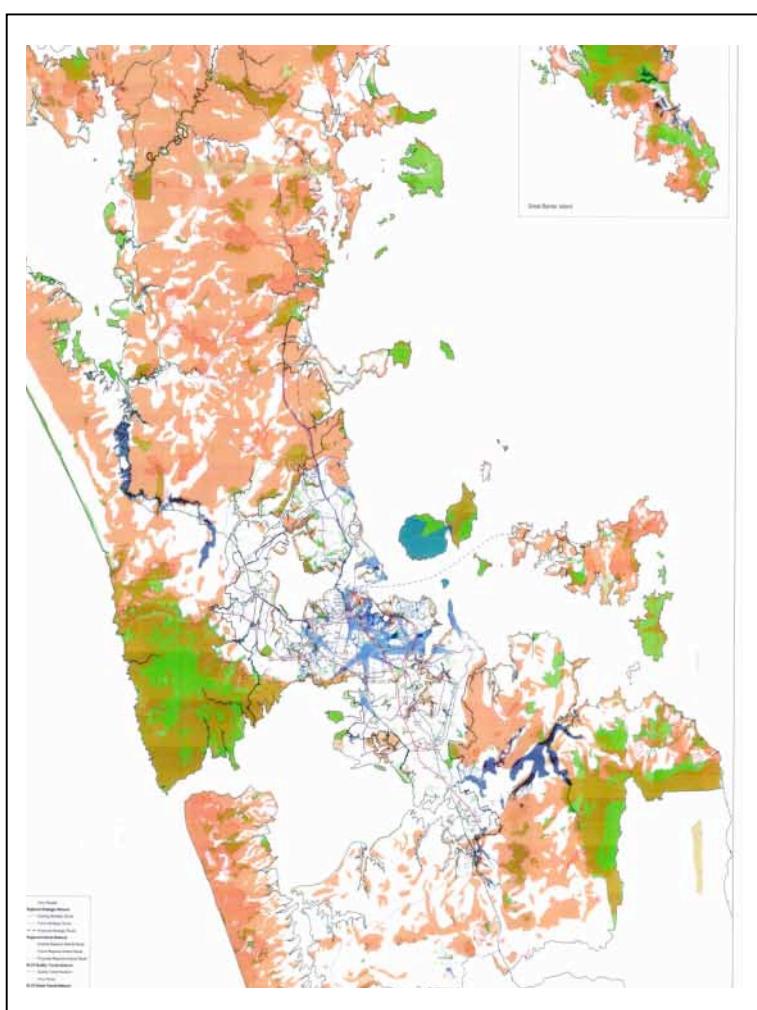


Figure 6: Map of natural constraints, including areas subject to flooding and land over 15 degrees in slope, and which may therefore be subject to instability.

Map sourced from Auckland Council

Many parts of the existing urban area are exposed to the risks of natural hazards (such as development alongside streams and waterways), while much urban development occurs close to valued coastal amenities. Further development in these areas may exacerbate the risks associated with these locations, but redevelopment also offers the opportunity to remediate existing risks and problems, if such development is comprehensive in nature. There is a major opportunity to redesign coastal and stream interfaces through this process, creating green buffers and edges that support quality urban environments and development, rather than hard engineered edges while mitigating natural hazards.

Land instability can generally be remediated at the time of urban development. The shift from rural to urban poses risks to marine environments from sediment generation, but once urbanised, urban catchments produce much less sediment than rural catchments.

2.3.3 Responding to local environmental issues

In considering the choices available for Auckland urban form, three natural environment issues stand out as being particularly important in terms of broad spatial patterns and options. These issues relate to:

- Coastal water quality
- Air quality
- Biodiversity.

2.3.4 Urbanisation of coastal catchments

The following points were identified in the 2010 State of the Environment Report for the Auckland Region in relation to water quality:

- Water quality and ecological health in the region's rivers are highly influenced by land cover in the catchment. Most of the rivers and lakes in the region are degraded to some extent. Urbanised catchments generally have poorest water quality although there are signs that this is improving.
- Plumes of sediment are often visible in the marine environment following large storms, with water clarity often taking several days to improve. Increased sedimentation is a real and significant impact impinging on aquatic environments. Large sediment runoff events can lead to sediment dumps, which smother marine life. Ongoing, incessant sedimentation leads to the slow, irreversible degradation of the marine environment, particularly in sheltered harbours and estuaries. Clear signs of this include increases in the "muddiness" of estuaries and mangrove expansion.
- Heavy metal contaminants in estuarine muddy habitats are impacting upon marine species leading to a decline in ecosystems adjacent to urbanised catchments. Concentrations of zinc in the sediments of estuaries and harbours are increasing and new organic contaminants are emerging as potential concerns. The stormwater system is the primary transporter of these contaminants. The ARC's modelling shows that stormwater is contributing large volumes of sediment, zinc, copper and bacteria to aquatic systems. Zinc levels tend to be high from catchments with historically high industrial land use. The extent of impervious surface within the metropolitan area has

increased giving rise to greater stormwater volumes and contaminant loads. In addition, there are a large number overflows from the Auckland combined stormwater/wastewater system during wet weather, which will continue until these systems are fully separated.

Map 9 of the Auckland Unleashed discussion document proposes a number of possible areas for urban expansion. These include areas to the north-west and in the south-west that generally fall outside of the ~~important landscapes~~ identified in the previous section.

The areas identified ~~drain~~ to inner harbour areas: in the case of the north-west, to the Upper Waitemata Harbour; and in the case of land in the area of Karaka, to the southern Manukau.

A long standing issue for Auckland has been the adverse effects of urbanisation on these sheltered coastal catchments where sediments generated by earthworks and subsequent contaminants from urban activities tend to accumulate. This is in contrast to the higher energy, open water catchments along the East Coast, where sediments and contaminants tend to be more readily dispersed.

Figure 7 below is from the Auckland Regional Policy Statement (as prepared in the mid 1990's). This highlights areas that are ~~susceptible~~ to degradation due to poor flushing characteristics. Highlighted are the upper Waitemata and the Karaka area in the southern Manukau.

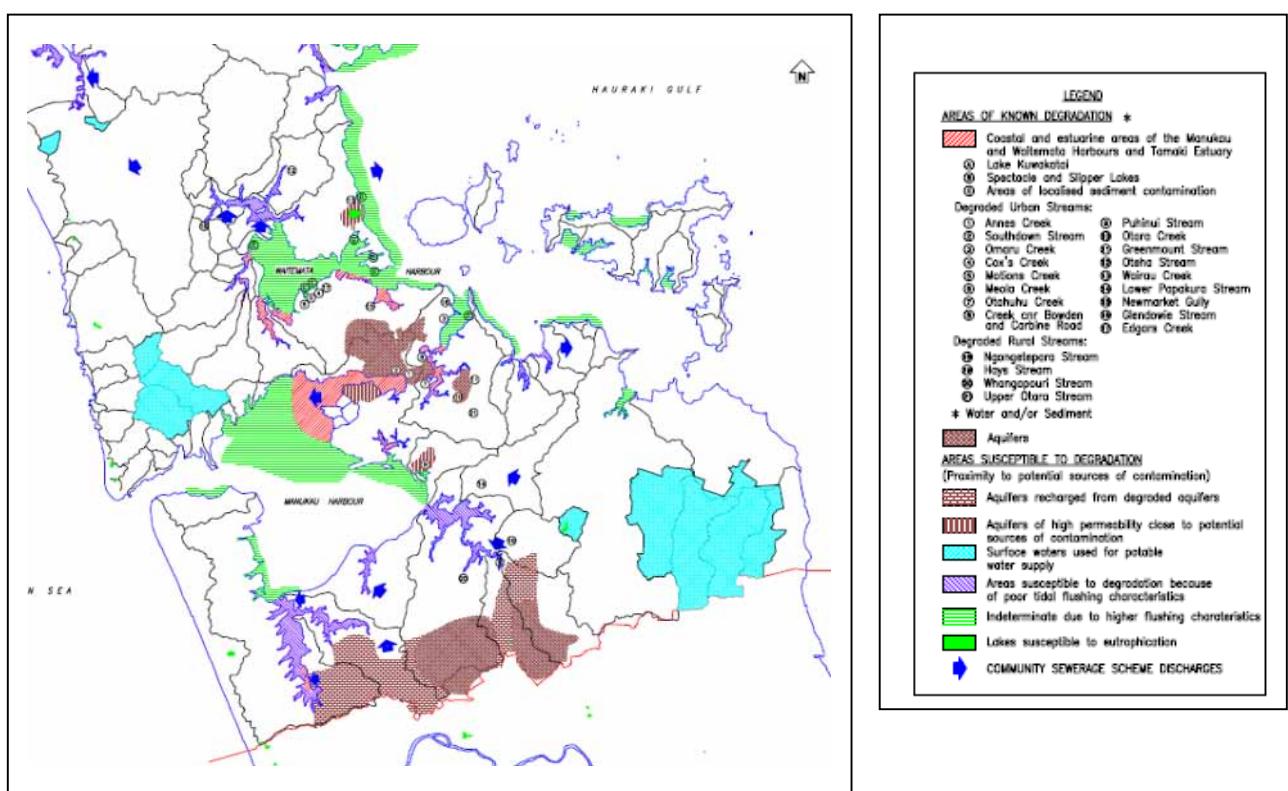


Figure 7: Areas Susceptible to Degradation (source: Auckland Regional Policy Statement)

Best practise methods of sediment control and stormwater management (low impact design) are helping to mitigate the effects of urbanisation on coastal environments and it may be that through

appropriate subdivision design, it is feasible to urbanise new areas in a way that will reduce risks to the environment, compared to a continuation of pastoral / farming activities.

2.3.5 Enhancement of existing urbanised waterways and coastal areas

At the other end of the spectrum, an emerging issue is the need for restoration of existing urban areas already degraded by urbanisation. Previous regional growth policy reinforced development of already degraded catchments ahead of urbanisation of undeveloped catchments as a way of maintaining environment values. However, a consequence of this was further degradation of catchments where people lived and recreated on a day-to-day basis. This tended to undermine urban intensification strategies.

There is the opportunity to use the urban redevelopment process to help improve the environment of the many degraded areas within the current city limits. In particular are areas like the Tamaki River, the inner Manukau and the Whau River (see Figure 8 below). Monitoring undertaken by the ARC indicated that these areas have low concentrations of organisms that typically live in soft marine sediments².

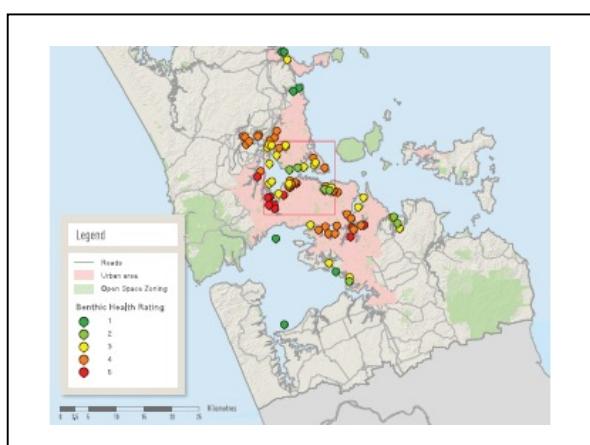


Figure 8: Benthic Health Rating (Note: red dot indicates low / poor rating, while green indicates positive or healthy rating. Source: State of the Environment Report, 2010.)

Most urban streams in the region are also in a poor state. Riparian areas need to be extended and revegetated and stormwater flows from properties attenuated prior to discharge to streams so as to control stream bank erosion. Flooding hazards also need to be remedied and in some catchments these works are likely to require major redevelopment. This provides an opportunity to accommodate urban consolidation as well as environmental enhancement. Major urban streams, such as the Wairau, Oratia / Opanuku, Oakley and Puhinui have the potential to add to green infrastructure, supporting and enabling well designed compact living along their edges.

² Page 193: State of the Environment Report, 2010.

2.3.6 Air quality

Map 9 of the Auckland Unleashed document proposes a range of areas for urban intensification, many of which are near to public transport routes. These routes themselves are often near to, or follow major roads. An emerging issue is the conflict between urban intensification and health effects of living near major transport corridors.

With respect to regional air quality, emissions of PM10 and PM2.5, particulates and NO₂ all need to be reduced substantially to meet national standards and protect human health. Motor vehicles and domestic heating are the major contributors of these pollutants.

In spatial terms, locations close to main arterial roads are particularly affected by high levels of air pollution and this is likely to restrict the potential for residential intensification along major road corridors. The State of the Environment report makes the following comments about spatial issues associated with air quality³.

- Fine particulate (both PM10 and PM2.5) levels at busy roadsides are higher on average than those at urban and residential sites due to emissions from motor vehicles, particularly diesel vehicles. However, because fine particulates stay suspended in the air for up to 30 days, their distribution does tend to disperse across the urban area.
- NO₂ and CO levels are highest at roadside sites because motor vehicle emissions are the major source of these air pollutants. Benzene levels close to busy roadsides are significantly higher than levels in urban or industrial areas due to emissions from petrol vehicles and evaporation of petrol.
- Relatively high concentrations of NO₂ were broadly aligned along the south-east to northwest route of State Highway 1. The highest concentrations occurred in the CBD and Newmarket areas. The high NO₂ concentrations found close to motorways generally decline as distance from the motorway increases, although the concentrations can remain elevated at distances of 300 metres from the motorway.

2.3.7 Biodiversity / Green Network

The region retains only 27 per cent of indigenous land cover but fortunately still contains a diverse range of New Zealand's terrestrial biodiversity. Several ecosystem types are severely depleted in the region and are under threat from further loss and fragmentation of habitats (as a result of urban or rural land development) and the impacts of invasive species.

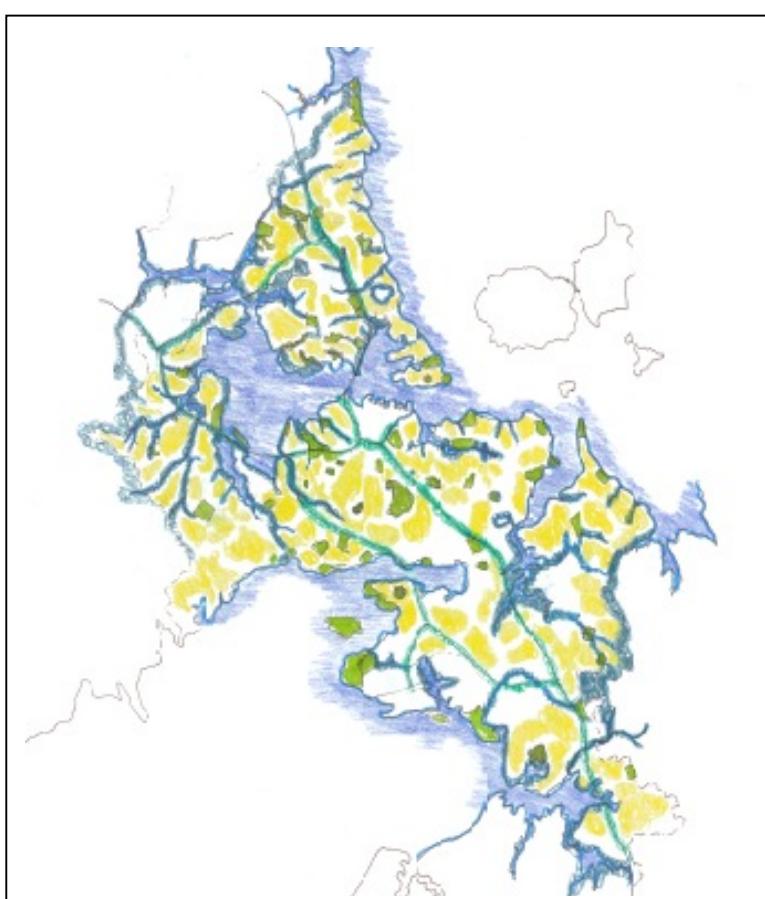
At the macro scale, there are proposals for regional-level wildlife links, such as the north-west link that would connect the Gulf Islands with the Waitakere Ranges.

The network of streams within the urban area provides a major opportunity to enhance bio diversity and to improve the quality of the urban environment. Along with major road corridors (motorways), enhancement of stream corridors can help to give shape to the region's pattern of neighbourhoods, as expressed in the conceptual diagram of the blue and green networks set out in Figure 9.

³ Page 115: State of the Environment Report, 2010

As is discussed in the section on housing, improving the amenity and quality of the natural components of the urban environment is crucial to achieving a compact urban area. Restored streams and improved coastal edges are vital ingredients in this and the opportunities to improve streams, coastal edges and open space networks should play a much larger role in determining growth patterns than has been the case in the past.

Figure 9: Blue and Green Networks Concept



2.4 Rural Production and Rural Recreation

The following section of this report is based on information derived from the Rural technical work stream. (Refer Rural Work Stream Technical Paper).

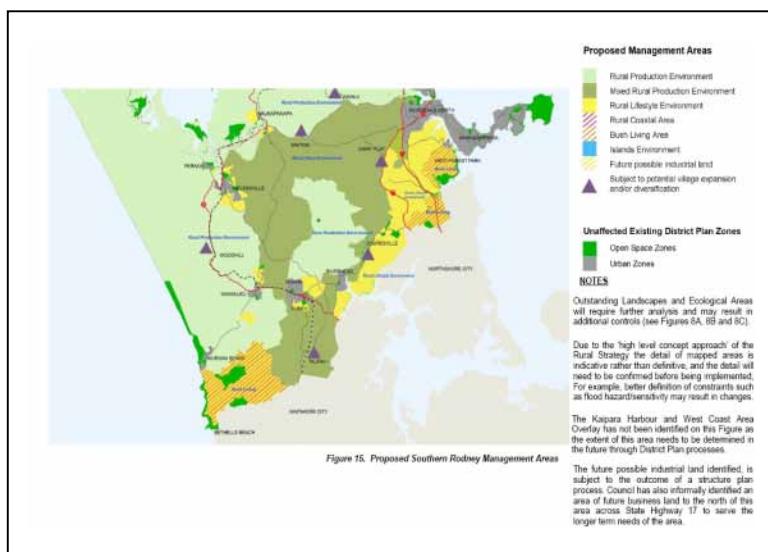
The physical extent of the rural area in the Auckland region is significant. Ninety per cent of the region is deemed rural and only ten per cent urban.⁴ Within the rural areas there are a wide range of settlements serving a variety of functions and these settlements are subject to a range of growth pressures. The rural area also provides important production and recreational functions. In terms of urban form options, the main choices present themselves on the edge of the current urban area, to the north-west and the south-west.

⁴ Rural work stream technical work (Auckland Plan)

2.4.1 Rural Production

The Rodney Rural Strategy is a reference document that was prepared by the former Rodney District Council. This document identified areas of the district which should be maintained for rural production, as well as areas suitable for more mixed rural and rural lifestyle activities. See Figure 10.

Figure 10: Rodney Rural Strategy



In the northwest, Woodhill and Riverhead forests are identified as rural production area, as well as most of the area between Kaukapkapa and Orewa.

In the Taupaki, Kumeu, Coatsville and Dairy Flat area, a mixed rural environment is foreseen. Along the northern edge of the urban area is a band of rural-residential development.

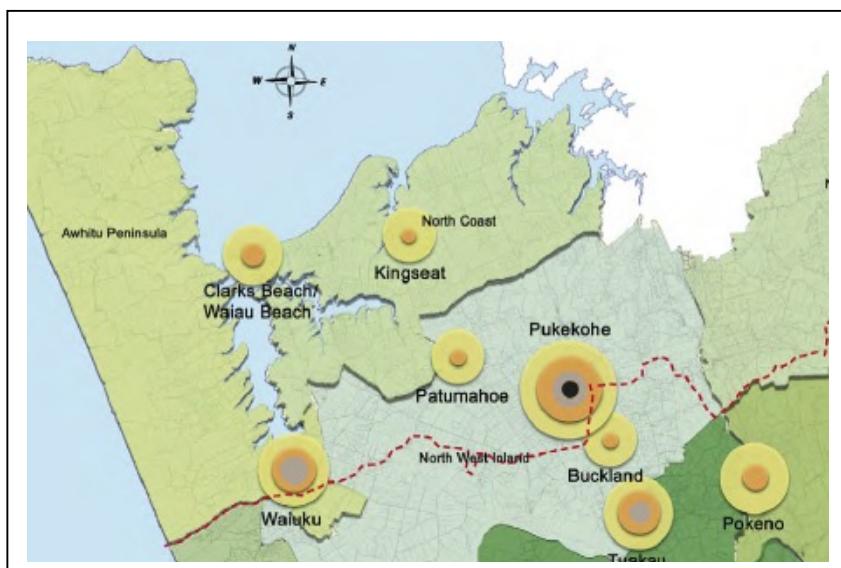
The Franklin District Growth Strategy (prepared by the former Franklin District Council) divides the south-west into two areas: North Coast (covering Karaka) and north-west inland (covering the area around Pukekohe). Refer Figure 11.

The Strategy notes that the Karaka area presents somewhat of a dilemma in that it has a large proportion of the versatile and fertile soils in the region (the soil resource present is typically land with slight limitations for arable use and is suitable for cultivated crops, pasture or forestry) but is significantly fragmented in terms of landholdings.

While the Karaka area is identified as an area with low landscape value, the Manukau Harbour coastal edge is classed as having high landscape values and is unsuitable for intensive urban development. However away from this edge, and subject to appropriate standards and criteria, urban development could occur without seriously foreclosing on future options in terms of rural production in the wider southern area of the region.

This is because the most versatile land within the former Franklin District lies around the outskirts of Pukekohe, Pukekohe Hill and west of Pukekohe. These soils are excellent for arable use such as cultivated crops and if well managed, are particularly valuable for market gardening. Given the uncertainty of future agriculture and horticulture technologies and global demand for food, these soils need to be preserved from inappropriate subdivision and development. Crop practices and trends change over time, however once land has been subdivided, it is impossible to reverse.

Figure 11: Franklin District Growth Strategy



2.4.2 Regional recreational activities / areas:

In addition to the extensive regional and local parks network, there are a number of areas on the edge of the urban area that contribute to the recreational attributes of the city and region and therefore have value in terms of providing recreational opportunities close to urban populations that support overall liveability. These include:

- Bush clad Waitakere and Hunua Ranges, providing walking and hiking,
- Woodhill / Riverhead forest, - horse trekking, mountain biking, running
- Hauraki Gulf Islands – boating, walking, swimming,
- Clevedon / Whitford in the east, Kumeu / Taupaki in the west and Matakana in the north – rural sporting events, touring, food / wine.

While some of these recreational areas overlap with "no go" areas, there is not a complete match. The recreational benefits of the rural production areas could be replaced elsewhere, for example, it is possible that the rural production capability of some areas will decline over time (as happened with the vineyard and orchards of the Waitakere foothills). However, the proximity of these production areas (and the recreational benefits they provide) to the urban area helps to

build a sense of identity to the city and region that is beneficial and would be lost if replaced by urban expansion.

2.5 Infrastructure

A significant input into the development of the preferred urban form was the technical work arising from the Infrastructure work stream. This included transport and the three waters (water, wastewater and stormwater). The following section reflects the information made available to the Preferred Urban Form work stream.

2.5.1 Transport Infrastructure

The region's transport system has had a major impact on its urban form, second to that of the natural environment and the landscape.

State Highway 1 forms the main north-south spine in the region and its continued expansion has tended to elongate the city along this artery. The route is very congested in its central sections, and as a result there has been pressure for business land uses to relocate to locations north and south.

In the near term, the western ring route (SH 20) is the next large investment that will alter travel patterns, and with it, land use development. It is likely to accelerate growth to the west, as the route provides significant travel time benefits for western locations, in terms of access to key destinations like the Port and airport and to labour pools. There is also some benefit to the inner Isthmus from a reduction of some traffic along key arterials feeding into the city centre.

The AMETI project in the east will alter the accessibility of the eastern suburbs, but not to the same extent as State Highway 20. Its main influence will be on the Glen Innes / Panmure area, where accessibility to the south (State Highway 1) will be improved for business areas, while east-west running passenger transport routes focused on the central city will see some lift in levels of service.

Longer term, there are a number of major influences on urban form including:

- The price of motorized travel is expected to double over next 20 years, as fuel prices increase, carbon charges increase and there is a move towards full road pricing as an alternative means of raising transport infrastructure revenue, as well as to act as a demand management tool.
- The regional land transport strategy signals changes in the approach to parking in centres and areas to be intensified and well served by passenger transport. There will be a shift towards parking maximums, rather than minimums. This may enable some centres and corridors to intensify where land use demands are high (reduced need to provide large areas of on-site car parking will help to make more effective use of land), but on the other hand in areas of softer demand, where activities are more customer driven, then the imposition of parking controls may see a relocation of activities.
- The City Centre rail link will significantly raise service levels across the network, with the main beneficiary being the western line, where travel times in the city centre will be cut by 10 minutes or more. The loop should also raise the accessibility profile of CBD fringe areas like Newton and Newmarket.

An additional Waitemata harbour crossing is likely around 2030. The inclusion of this proposal in the Auckland Plan is an important issue. There are questions over the form and timing of the crossing (bridge / tunnel, road / rail). If it goes ahead, an additional crossing will improve growth pressures in the north of the city, with the principle choices being whether this capacity should be used to assist with business development rather than residential development, and the form of this development: compact or expansive.

At a regional scale, the roads of national significance – to the north and south – will tend to reinforce the north-south alignment of the region and the congestion that the central parts of the region will experience. Major growth pressures can be anticipated in the northern coastal settlements unless the proposed Puhoi to Wellsford road of national significance is tolled.

Adverse transport infrastructure possibilities include the possible closure of the North Auckland rail line. This would affect rural areas in the west and put greater focus on State Highway 1 improvements north of Puhoi.

2.5.2 Physical Infrastructure

In terms of core infrastructure such as water and wastewater infrastructure constraints mapping, it can be concluded that the north and western fringes of the urban area generally have more constraints than southern and central areas. This partly reflects that the bulk infrastructure assets are mostly in the south (e.g. wastewater), or come from southern areas (water and energy).

The constraints present do not represent a fundamental block to development in the north and west, rather the question becomes one of timing so that financial commitments to upgrade infrastructure can be planned for and programmed.

Within the central area, an upgrade of the central wastewater interceptor is required before major urban redevelopment can be accommodated, beyond what current zonings allow for. This is timed for 2020 at the earliest.

Satellite type urban development generally comes with a high infrastructure cost, compared to redevelopment of existing areas or extensions to the urban area. For example, coastal areas to the north and east of the current urban fence are highly constrained in terms of the costs of providing for additional infrastructure.

2.5.3 Social / Community Infrastructure

Providing a good quality of life for all communities (i.e. recreational opportunities, community gathering places, community safety, education and health care) is vital to Auckland's future.

The provision of social infrastructure has tended to follow urban expansion and so its effect on growth planning options in terms of urban expansion is minimal (although there would be benefits from closer integration in the planning process).

Having said that, social infrastructure capacity does need to play a stronger role in determining the shape of compact city proposals. In terms of social infrastructure:

- The focus is on how to retain and enhance existing services in areas of redevelopment and growth as there are limited opportunities for additional space (for example, how to use school spaces more efficiently for community use).

- Consideration needs to be given to developing the skill base in deprived areas but also enabling integration across communities. Currently, low skilled workforce is located in the south near low skilled employment, but there is a need to consider how to provide opportunities for this workforce to access higher value jobs and education in other localities to prevent inter-generational deprivation.
- There is currently growing disparity along geographic lines, as lower income households get displaced to peripheral areas as housing in inner and middle ring suburbs is redeveloped and becomes more expensive. Currently, an important driver of mixed neighbourhoods is the stock of state housing in central and coastal areas. However, as redevelopment pressure becomes stronger in the middle ring suburbs and state housing areas like Tamaki, Northcote and Mt Roskill rise in value, then there is the likelihood that these areas will be eyed for sale and eventual redevelopment, and there will be continuing displacement of lower income households and a reduction in the extent of diversity. There is a strong and growing need for an affordable housing strategy to be put in place that will ensure a flow of affordable units in areas subject to urban redevelopment pressures.

2.6 Economic Development / Business

The following section is based on information made available through the Economic technical work stream of the Auckland Plan process as well as technical information from previous Council documents (refer Economic Work Stream Technical Paper).

2.6.1 Economic drivers:

The Auckland Council's Economic Development Strategy (2011) is aimed at enabling a step change in the economy, particularly focusing on innovation systems, skills and education, a vibrant attractive city (i.e. waterfront, marine, tourism areas), and a 'can-do' council.

As at 2011, approximately 680,000 people were employed in the Auckland region. By 2041 employment is projected to be 960,000 employees under a medium growth scenario. Major areas of business / employment growth are anticipated to be in the service / business sectors, rather than industrial (manufacturing). Refer Table 1.

Table 1: Forecast employment growth by sector

Sector: People Employed	2011	2041	Change
Finance / Business Services	117,447	217,578	100,131
Community-related (education, health, arts, recreation)	129,431	205,999	76,568
Manufacturing	91,434	121,005	29,571

The land use demands generated by this growth are substantial. Table 2 provides a first order assessment of floor space demands, based on raw land use types (that is, different employment categories are grouped into similar land use types). The large construction sector is not included in this analysis, as it involves many types of businesses, many of which do not operate from a specific premise or location.

Table 2: Indicative floor space demands

Type of land use	Additional employees 2011 to 2041	Floor space per employee (m ²)	Additional floor space (m ²)
Office-type	106,772	20	2,135,440
Retail / shop front	19,055	35	666,925
Community-related	76,568	35	2,679,880
Industrial / business area	40,068	50	2,003,400

Land demands to accommodate this floor space vary: office type employment can be accommodated in multi-story buildings while industrial type floor space is usually on one level and often is accompanied by large outdoor storage and yard areas.

As of 2006, about 45 per cent of regional employment occurred within centres, with a further third in business (industrial) areas. The remaining employment was located in residential and rural areas.

Table 3: Current employment locations

Type of business environment	Employees (2006)	Share of Total
Centre	282,418	45%
Business	182,663	29%
Other	163,726	26%
Total	628,807	100%

In terms of spatial issues, important aspects include:

- Protection of existing business land and the need for additional (attractive) greenfield business land for land hungry activities such as warehousing, distribution and manufacturing (Group 1 activities)
- The clustering of office-based activities to help promote productivity and to manage transport demands from the associated intensive commuter movement patterns during the peak periods
- Provision for specific clusters of place-dependent industries like boat building (coastal areas), minerals and aggregates (where deposits are accessible) and rural production like vineyards and horticulture
- Town centres will need to accommodate a substantial growth in retail floor space and activities devoted to community and personnel services.

2.6.2 Greenfields business land needs

Previous work by the Business Land and Economy Group (BLEG) has identified the need for between 640 and 720 hectares of greenfields business land by 2031, for Group 1 activities. At least 300 hectares of business land is needed up to 2021. Further greenfields land will be required post 2031, but the general trend in the economy is the swing towards services, while there are some options to recycle and reuse brown fields industrial land. This may lessen the need for additional greenfields business land post 2031.

A number of options to provide for this level of development have been identified, with the main options (in terms of their ranking) as being set out in Table 4 below:

Table 4: Possible greenfield business land areas

Area	Ranking	Possible Area (ha)
Westgate / Whenuapai	1	500
Kumeu	2	50
Drury	3	350
Paerata	4	100
Silverdale	5	100
Glenbrook	6	100

The rankings are based on criteria related to factors such as:

- Transport
- Landform
- Infrastructure
- Proximity to labour.

There is also the need to consider the retention and better utilisation of existing business land as well as relying upon greenfield expansion, in terms of accommodating manufacturing, industrial and freight and distribution type activities.

2.6.3 Making better use of existing business land

To date, regional policy has proposed that Group 2 business activities (office, retail and service) be accommodated within town centres and corridors. This has been on the basis that there is a large amount of capacity available within centres to accommodate growth. Table 5 sets out data from the Auckland planning model on the capacity that could be available in the various types of centres.

Table 5: Employment within centres: 2006 and capacity

Centre type	2006 Employment	Share	Potential employment capacity 2041	Share
City centre	82,097	29%	165,000	31%
City fringe	41,321	15%	60,000	11%
Sub regional centres	59,183	21%	124,200	23%
Town centres	92,756	33%	169,691	32%
Local centres	7,061	3%	15,827	3%
Total centres	282,418	100%	534,718	100%

The capacity available (around 250,000 workers) is in excess of likely demands, given that not all office, retail and community activities will, or can, locate in centres.

However, it is recognised that this is a fairly simplistic approach to considering demand and supply. Therefore, there is a need for greater recognition of the different types of centre-related activities, particularly higher intensity office-based activities that tend to cluster together in selected business centres to exploit agglomeration benefits versus more dispersed retail, community and service-orientated activities that tend to locate in relation to population catchments.

To understand these relationships, Table 3 in Appendix Three provides a rough order break down of the employment make up of the main employment areas within the region. The data is from 2006. Employment is broken down into three main types:

- Industrial: manufacturing, construction, transport, wholesale

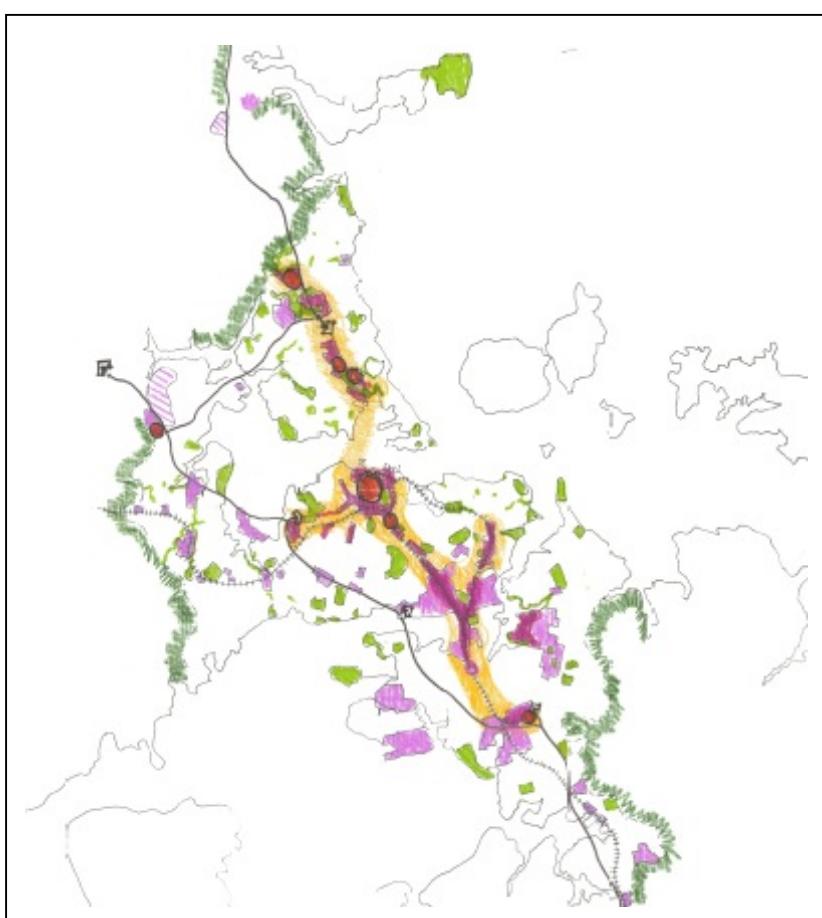
- Retail service: retail, cafe, accommodation real estate, health and public and personal services
- Office: business and financial services, education.

This analysis helps to highlight the main functions of the various existing business areas, and in particular those business areas that should be retained for general industrial use, compared to those areas that should be allowed to redevelop to a higher intensity so as to capture the benefits of agglomeration of office-based business activities.

- Highlighted purple are those areas where some form of control on the worker-intensity and/or activity mix of future development may be required to help retain these areas for industrial type activities.
- The red highlighted areas are the reverse, areas where greater worker intensity should be enabled via significant expansion of building height, FAR and building coverage limits.

The pattern that emerges is of a central, intensive employment spine that follows SH1 corridor from Albany in the north to Manukau City Centre in the south (refer Figure 12 below). This route is served by both the motorway and rapid transit network and therefore can accommodate the intensity of worker trips involved. The pattern also facilitates that business-to-business interaction required to help stimulate the agglomeration benefits from the co-location of higher order business activities. Within the central corridor, employment capacities need to be expanded to help accommodate employment pressures. While the Central City and Fringe area are likely to capture a high proportion of future office space, not all office based activities can or will wish to pay the rents involved.

Figure 12: Central spine concept



This spine will need to be provided for by way of additional height and building intensity, allowing for mid to high rise office buildings, such as that already seen in the Greenlane / Great South Road area and at Smales Farm on the North Shore. Areas for expansion of capacity should include:

- Apollo Drive / Constellation Drive
- Southern Wairau
- CBD / CBD fringe
- Great South Road
- Penrose (by train station)
- Tamaki
- Great North Road – Unitec / Mt Albert.

Industrial / distribution orientated business areas are likely to increasingly have more of a correlation to the western ring route, having more of a focus on movement of goods and services between regions, as well as to and from key distribution points (ports / air port / distribution centres). Locations along the western ring route are likely to benefit from the improved vehicle accessibility provided by this route, once it is in place by 2017. These areas should be retained for more land extensive, freight intensive activities.

The sub regional spread of employment opportunities is addressed in Section 3 of this report.

2.6.4 Equitable spread of retail and community services

The following discussion relates closely to technical work undertaken in the Centres and Corridors Work Stream. Reference should therefore be made to the Centres and Corridors Works Stream Technical Paper.

An equitable spread of retail centres across the region is needed to ensure that communities retain and enhance their access to day-to-day services and facilities. There is a tendency for retail activities to become concentrated in key regional centres, some in new/emergent centres like Sylvia Park and others in planned centres like Albany. While the form of the region helps ensure some spread of regional centres across the main urban sectors, within each of these sectors there is a reduction in the strength and vitality of some town centres as retail gets concentrated into the key regional centres. This in turn weakens the social and community infrastructure within smaller centres, and those households that are less mobile and less able to reach the regional centres suffer a reduction in their amenity and utility.

Each sub region needs major service / retail hubs that can offer mid level, sub regional services. These centres do not need to be the location of major population growth, as capacity within these centres should be devoted to employment and service activities. Beyond this, there is a need for a dense network of well functioning centres, the number and distribution of which responds to the existing and planned population growth. That is, these centres are essentially catchment-driven.

With Auckland's population increasing by 44 per cent over the next 30 years, the development capacity available within centres to accommodate retail activities will need to increase by a similar amount. It is estimated that in 2007, the retail sector (excluding automotive) comprised some 3,300,000 m² of floor space. Future additional core retail floor space demand is projected to be around 82,000m², or approximately 18 hectares of at-grade land (assuming a floor area ratio of

45%). Some 52-55 per cent of total retail floor space growth is expected to be Large Format Retail, with some 63-66 per cent of new food and grocery, and comparison retail, in this format. Added to this would be floor space to accommodate commercial services (banks, real estates, hotels), as well as community-focused activities like medical and recreational activities. Existing centres will therefore need to expand to accommodate this growth, while new centres are likely to emerge.

Policy for new retail centres should provide for existing centres to grow their retail base, in line with anticipated population growth in their catchments. This is so that existing centres are not just protected from decline, but enabled to expand and develop their offering.

Spatial proposals should therefore cover:

- Complementary relationships between major centres at a sub regional scale in terms of relative roles in terms of employment, retail and community activities and residential intensification e.g.: Albany and Takapuna; Newmarket and CBD; Westgate, New Lynn and Henderson; Botany and Manukau City Centre.
- Filling in gaps in the network of centres. For example, the east has a weaker network of centres than the inner Isthmus, and the centres present in the east are predominantly retail focused.
- Retaining and expanding capacity for centres to accommodate more retail and community-related activities.

Accommodating large format retail developments (some estimates indicate that up to 50 per cent of future floor space will be in the form of large floorplate retail) will require specific responses:

- Large format retail needs to be excluded from business areas with high accessibility to the motorway network, so as to retain opportunities for business / employment uses. Once established, large format retail ramps up land prices and sees investment in workplaces and factories slow down.
- Commercial zonings around larger retail centres needs to be expanded to provide locational options for large format operators, so trade-offs are needed:
 - Large Format Retail should not be located adjacent to the Rapid Transit Network. The capacity of this network should be maintained for high transit intensity activities.
 - LFR generally does not mix well with residential development; centres that might be expanded to accommodate LFR should be ones that have limited appeal as residential environments,
 - A regional spread of LFR opportunities is needed.

Centres suitable for large format retail may therefore include Silverdale, Albany, Westgate, Botany and Manukau City Centre. Other centres are likely to be able to accommodate some LFR, provided commercial zonings are expanded. For example, this could include Henderson, Stoddard Road and Papakura.

- Out of centre large format retail development should be subject to some form of financial disincentive that recognises the public (unaccounted for) costs involved. For example, a financial levy that recognises the transport and infrastructure costs that such developments

impose on public resources. Additionally, they need to be subject to urban design criteria that require a more sophisticated design response that will enable them to transition into full service centres in the future (and is more in keeping with the design issues faced by centre developments).

2.7 Housing

This section has been derived from the housing technical work stream. Reference should therefore be made to the Housing Work Stream Technical Paper.

Housing is a primary component of urban form. A key issue is the demand for compact housing typologies and the drivers of people's preferences for more compact living arrangements and the extent to which this should influence urban form, within the overall framework of a compact city approach.

Previous regional growth strategies have emphasised a centres-based approach to urban intensification, with a priority placed on centres served by rapid transit. This model has been only partially successful, in part due to limited demand for people to live in these locations, but also limited moves to increase allowable densities around centres and to improve the quality of the environment. It is therefore necessary that the new Auckland Plan pay closer attention to people's living preferences and the extent to which these preferences can be shaped to better achieve compact living patterns.

Also of note in this section is the issue of housing affordability and the importance of addressing this issue in the Auckland Plan.

2.7.1 Housing Demand

To 2051, around an additional 450,000 households are anticipated, under a medium growth scenario. Approximately 330,000 new households are expected over the next 20 years to 2031.

The following figures are from Statistics New Zealand, and are for the period to 2041. The seven former councils are grouped into three sub sectors, reflecting geographic factors:

- North-West: Rodney, Waitakere, North Shore
- Central: Auckland
- South-East: Manukau, Papakura and Franklin.

The northern sector sees the largest number of households added, reflecting the older population, and with it the greater number of smaller households.

Table 6: Household projections

	2006	2041	Change	Share of change
North	166,610	303,680	13,7070	36%
Central	139,210	258,660	11,9450	31%
South	126,070	251,490	12,5420	33%
Total	431,890	813,830	381,940	

Source: Statistics NZ

2.7.2 Housing Preferences

Location demands can be considered from a range of perspectives. Demand can be considered from the following points of view:

- The type of housing: stand alone versus a flat or apartment
- The location of the house: urban sector
- The type of community: existing community or a new community
- The price of the house: expensive or modest

In reality, people's housing choices reflect a combination of these factors.

2.7.3 Type of house

Table 7 below presents data from 1991 to 2006 in terms of the percentage of housing that is attached versus detached, based on Statistics New Zealand categorisations.

Table 7: Detached versus attached housing

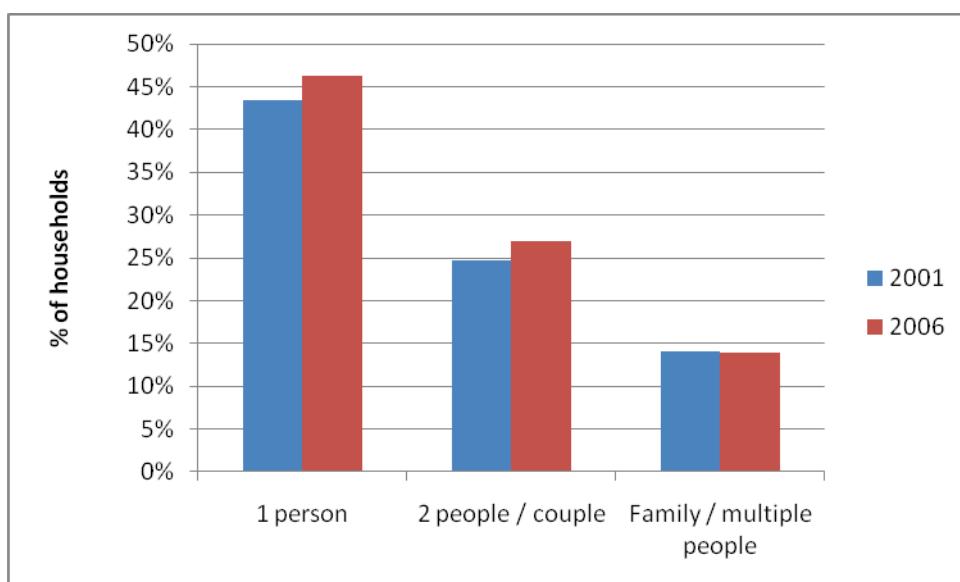
Year	Detached	Attached
1991	77%	23%
1996	78%	22%
2001	77%	23%
2006	76%	24%

Source: Statistic NZ

It should be noted that the 2006 census had a large “not defined” category, much larger than previous censuses. If the homes in the “not defined category” included many flats and apartments, then the percentage attached housing would be closer to 28 per cent.

The demand for standalone houses versus a flat or apartment can be correlated with lifecycle stages, with demand for flats and apartments strongest amongst the younger and older age groups (single and couple only households), with the middle age (family-orientated) group more aligned with stand alone houses (refer to Figure 13).

Figure 13: Percentage of households in attached dwellings, 2001 and 2006, by type of household



Source: Statistics NZ

The changing demographics of the region are therefore likely to drive some “natural” increase in the demand for flats and apartments. If the 2006 demand for attached houses is maintained to 2031, then flats and apartments should comprise over 28 per cent of regional housing stock, up from 24 per cent. In other words, current preferences indicate that one in every three houses will be attached. This arises from the fast growth of single and couple only households.

This forecast assumes no change in preferences between stand alone versus flats and apartments. Two major drivers of preference will be people’s desired location choices, and house prices in these areas.

2.7.4 Housing preferences: geographic

People’s housing preferences are strongly related to location. On the edge of the urban area, there is a general expectation that most housing choices will be in the form of standalone houses, while in more central locations, flats and apartments tend to be more common, as land values

rise and there is a substitution of building intensity for land. This pattern can be seen in the following figures from the 2001 and 2006 census (refer Table 8), with data on the percentage of dwellings classified as attached. North Shore and the central Isthmus (Auckland City) recorded a much higher (and increasing) percentage of attached dwellings than other areas.

Table 8: Percentage of attached dwellings, 2001 and 2006 census

Area	2001	2006
Rodney District	12.2%	11.5%
North Shore City	22.8%	23.5%
Waitakere City	14.8%	15.3%
Auckland City	33.4%	37.7%
Manukau City	18.1%	17.6%
Papakura District	14.9%	14.5%
Franklin District	8.9%	7.8%

Source: Statistics NZ

Conversely, demand for attached dwellings fell in the peripheral areas of Rodney and Franklin.

As indicated above, the west and south are likely to take a substantial proportion of growth due to the relative youthfulness of their populations. This is likely to see an on-going demand for stand alone houses. In contrast, the central and northern suburbs have an older population; these areas also have fewer opportunities to accommodate stand alone housing and so if people wish to remain within these two urban sectors, then their choices will increasingly be focused on attached dwellings. In other words, the demand for flats and apartments will increase in northern and central areas.

2.7.5 Housing Preferences: New versus existing communities

In terms of new communities versus existing communities, consistent with a degree of sector loyalty there tends to be a preference for new households to seek housing in established suburbs, where there are existing family and community networks, rather than new suburbs. Similarly with migrants.

This can be seen in data on the location of additional dwellings built in the region, between 1996 and 2006 (refer Table 9 below).

About 10 per cent of housing went into rural areas, and rural townships. A further 32 per cent was accommodated by new subdivisions on the edge of the urban area. The bulk, 58 per cent, was accounted for by existing suburbs, in the form of infill and apartments and flats.

Table 9: Location of new housing by census area unit

Location of development	1996	2006	Change	Share of change
Rural townships	12,759	17,301	4,542	5%
Rural areas	22,515	28,176	5,661	6%
Urban: Greenfields	31,308	61,602	30,294	32%
Urban: existing communities	308,586	363,696	55,110	58%
Total Region	375,168	470,775	95,607	100%

Source: Statistics NZ

It may be argued that the extent of greenfields housing was restricted by regional planning policy over this time, depressing the demand for housing in new communities. However, over the ten year period 1996 to 2006, some quite substantial greenfield housing areas came on stream (Albany / Greenhithe, West Harbour / Sturges Road, Dannemora and Flat Bush), and so households had a reasonable choice in terms of new versus existing community.

New communities were restricted to areas in the north, west and south east. There were a number of brownfield development areas in the central area that delivered new housing, both stand alone and attached. Not all housing in the new greenfields areas were stand alone houses. An increasing proportion was attached units.

The issue for the spatial plan is the extent to which there will continue to be high demand for new households to locate within existing communities. Much new housing over the period 1996 to 2006 within existing communities was in the form of infill (stand alone housing on small lots). Increasingly, additional housing in existing communities will have to be in the form of attached housing (duplexes, terraced housing and apartments). An important driver of spatial outcomes will be the extent to which people are willing to switch their preferences from stand alone to attached houses, so as to continue to reside in existing communities, as opposed to new communities on the edge of the urban area.

2.7.6 Housing Preferences: affordability

Table 10 below illustrates household incomes and housing affordability from the 2006 census. In 2006, median household income was around \$65,000. That means 50 per cent of households earned less than this figure. Household incomes have grown since 2006, by a small margin (perhaps ten per cent).

The table estimates the number of households, the various income bands, and based on these bands, the price of a house that they can afford. This information is based on an income to house price ratio of four.

The first column is 2006 data from the census. The second column is the 2006 income data updated approximately to 2010 figures. The third column is the per cent of households in each

band, as per 2006 distribution of households. The final column is the maximum house price that the various household bands could buy at a house price to income ratio of four (normally three is the cut off for affordability), based on the 2010 income figures.

Table 10: Incomes and housing affordability

Income band (2006)	Assumed income mid point (2010)	Share of households	House price to income ratio of 4
\$20,000 or Less	\$ 16,500	14%	\$ 66,000
\$20,001 - \$30,000	\$ 27,500	10%	\$ 110,000
\$30,001 - \$50,000	\$ 44,000	17%	\$ 176,000
\$50,001 - \$70,000	\$ 66,000	15%	\$ 264,000
\$70,001 - \$100,000	\$ 93,500	17%	\$ 374,000
\$100,001 or More	\$ 143,000	28%	\$ 572,000

This analysis suggests that if future households have a similar income profile to households in 2006, then of the 450,000 future households to 2051, only about 30 per cent are likely to be able to afford a house over \$400,000 (in 2011 dollar terms). There are another 30 per cent who need a house in the \$275,000 to \$375,000 range. Finally, there are 40 per cent who probably cannot afford to buy a house, but need affordable rental accommodation.

Current median priced homes are in the order of \$450,000. A substantial number of dwellings need to be offered in the mid priced ranges if housing affordability is to be improved. This in turns affects urban patterns and planning, if there is a preference (and planning support) for households to locate within existing urban areas. Current policy is seeing land and house prices in existing urban areas rise rapidly as demand remains high, but supply is constrained through zoning controls. A substantial increase in the supply of redevelopment opportunities will be needed to help moderate these cost increases and bring the price of houses to be supplied through urban redevelopment into more affordable ranges. This key point is explored further in the section on tools (how to make a compact city work). The next section considers existing capacity.

A fuller discussion of housing and living affordability issues is provided in the Housing Work Stream Technical Paper.

2.7.7 Residential Capacity

Data from the former Auckland Regional Council estimated that as of 2006 there was capacity under existing zonings to accommodate a further 175,000 dwellings, or approximately half of the expected growth to 2031 of 330,000 dwellings⁵. Around 150,000 of this capacity is within the existing urban area, or planned urban expansion areas. This estimate involved taking a fairly conservative approach to determining infill potential. However, it did allow for considerable use of business zoned land for housing – an option that is questionable given employment and retail demands outlined above.

A critical issue is that the urban area will need to see additional growth over the next 30 years and therefore a wider approach to enabling urban redevelopment will be needed than that previously set out in regional policies, in order to accommodate 'base' growth, but also to help stimulate the market for compact living.

Further work was undertaken on capacities for the Auckland Plan which updated previous local authorities legacy work (as reflected in the Auckland Growth Model version 1) to account for new opportunities identified since 2010 (e.g. City Centre Masterplan, New Lynn Urban Plan, Transformation Projects and potential for development of high amenity areas). In addition to accounting for new interventions potentially available to the Auckland Council and partners, this further work suggests that the planned metropolitan and rural areas could potentially accommodate approximately 410,000 additional dwellings.

It is noted that to achieve this amount of growth within the urban area will require a programme of well planned, coordinated and sustained interventions to achieve. The assessed potential for dwelling growth is illustrated in the table contained in Appendix 1 to the Preferred Urban Form: Residential Capacities report (attached as Attachment 1 to this report). This table considered the results of various market feasibility estimates (such as the Feasible Development Calculator) as well as the Auckland Council Growth Model results to determine a new Total Residential Growth Potential.

The Market Feasibility Calculator considers factors such as building age, average capital value, average site size, availability of vacant land, and land for infill or redevelopment, which are used to build a picture to understand where and how the market can respond, where it may be more feasible to increase capacity as well as the types of interventions that may be needed to realise that potential. This enables the analysis to not only consider a theoretical capacity, but also includes a market feasibility perspective to inform the likelihood of the theoretical capacity being taken up, or in some cases, exceeded.

A cautious approach to the intensification target suggested in the revised figures above would be to plan for approximately 310,000 dwellings to be accommodated within the planned urban area. This reflects some reduction in the relatively high growth suggested for most centres by the legacy policies which would be taken up in newly identified neighbourhoods and centres.

⁵ Capacity for Growth Study, 2010

2.7.8 The Combined Picture

The picture of future housing preferences is complex. There is a need to focus policy on improving diversity, supply, quality (sustainability and design), and affordability (focus on affordable living, rather than just affordable rent) across all urban sectors.

Housing supply needs to be provided through lateral expansion and intensification. The intensification market is growing, but is perhaps currently, at most, 40 per cent of the current market. This market needs to be stimulated.

From a housing perspective:

- Greenfields expansion needs to be weighted towards areas that are likely to offer mid priced / more affordable housing, rather than higher priced housing;
- They also need to be located near major "blue collar" employment areas to help match housing with employment opportunities;
- The market for compact housing needs to be actively supported and enabled if market share is to be expanded from the current 60 / 40 split between stand alone houses and flats and apartments;
- Urban intensification and redevelopment will need to take a variety of forms to reflect local characteristics, offering appropriate opportunities across all neighbourhoods, at a much wider ranging scale than seen to date. Infill type development will become less prevalent and urban redevelopment more prevalent.

3 High level tools

This chapter explores some of the main tools that are likely to be used to implement the Auckland Plan. They are discussed here as they help to shape the preferred urban form and help to highlight the trade offs and choices involved.

3.1 Sub-regional Approach

An important feature of Auckland that has been noted is the extent to which its geography reinforces a sub regional approach to housing, employment, retail and recreational opportunities. In particular is the way that the two Harbours and the Isthmus tend to reinforce the north and west as one unit, the central Isthmus as another and the south and east as a further unit.

More detailed refinement of this simple model is possible (including specific recognition of rural areas and satellites like Warkworth and Pukekohe). However, at this simple level, this categorisation helps to understand the issues and tools needed.

The sub regional structure of the urban area can be considered in terms of housing, employment and services, and in terms of the current situation and future needs.

3.1.1 Housing / population

A feature of Auckland is that there is a high degree of urban sector loyalty; that is people tend to stay within the urban sector within which they currently live, when they shift house. This will reflect family and community ties, but also affordability and choice.

One measure of sector loyalty comes from the census. The census records people's address at the previous census (2001, for the 2006 census). This data shows that most people lived within the same broad area as they did the five years before 2006.

Table 11: Urban sector loyalty, 2001 to 2006, based on census data

		Home Address in 2001			
		North-west	Central	South East	Elsewhere
Home Address in 2006	North-West	70%	5%	2%	23%
	Central	5%	62%	4%	30%
	South-East	1%	5%	70%	24%

This sector loyalty tends to shape people's acceptance of different types of housing. Population growth is expected within all three urban sectors, with roughly a third of growth in each sector. To

the west and south, some of that growth can occur through urban expansion, as well as redevelopment. To the north and within the central area, most growth will have to be accommodated by way of urban redevelopment.

Within each sector, there is also a need to offer a range of housing choices in terms of price and types of housing:

- The central and northern areas are the more expensive areas where housing affordability is worse and there is a need to maintain mixed communities by enabling affordable housing
- To the west, there is a need to widen housing choices, in reflection of demographics and lifestyle changes, particularly compact housing options that are affordable and attractive to families
- To the south and east, there is a need to maintain options for larger families, younger families.

3.1.2 Employment

At the most basic level of jobs / housing balances, it has long been apparent that the north and west is underprovided with jobs, relative to its population. The former North Shore City took a number of steps to increase local employment so as to reduce the pressure for outward commuting, as did Waitakere City. Meanwhile, the amount of employment in the south has steadily risen, faster than the population, reflecting land availability and key transport links.

Table 12 sets out the ratio of jobs to people, for the three urban sectors, between 2001 and 2010. The relative under provision of jobs in the north and west is apparent.

Table 12: Ratio of jobs to people

Sector	2001	2006	2010
North-West	0.28	0.30	0.29
Central	0.70	0.72	0.70
South-East	0.32	0.35	0.33

While more jobs in the north and west would help to better manage commuter flows, a balance is needed between dispersal and clustering of jobs, as highlighted in the discussion on employment.

As well as the total number of jobs, are the type of jobs and the extent to which they match the labour force of the sub regions. Table 13 compares the broad make up of the sub regions workforces with the number of jobs in that sub regional sector.

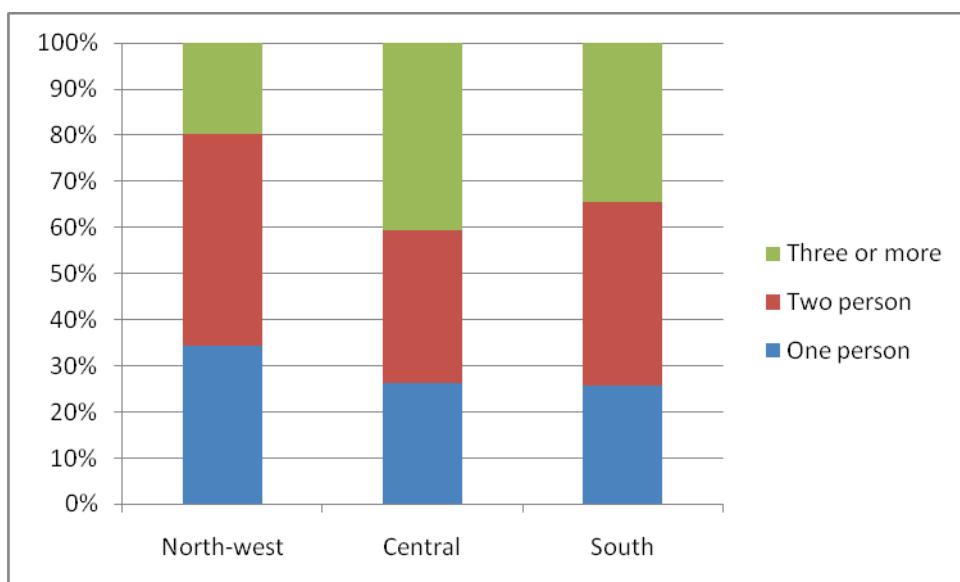
Table 13: Types of jobs by sub region, 2006

Sector	Industrial			Office		
	Workforce	Jobs	Ratio	Workforce	Jobs	Ratio
North-West	77550	47481	0.61	79065	45828	0.58
Central	52176	69321	1.33	76560	106266	1.39
South-East	77988	55041	0.71	46713	32262	0.69

3.1.3 Types of housing

In terms of the types of housing that is likely to be demanded across the sub regions, extrapolation of current demand for stand alone versus flats and apartments indicates a rough 55/45 per cent split in terms of additional housing to be provided between 2011 and 2031. This split is derived from looking at the future number of households by size (one, two and three or more people) as set out in Figure 14 below, and then their current demand for flats/units compared to stand alone houses (see Table 16).

Figure 14: Projected size of households by sub region

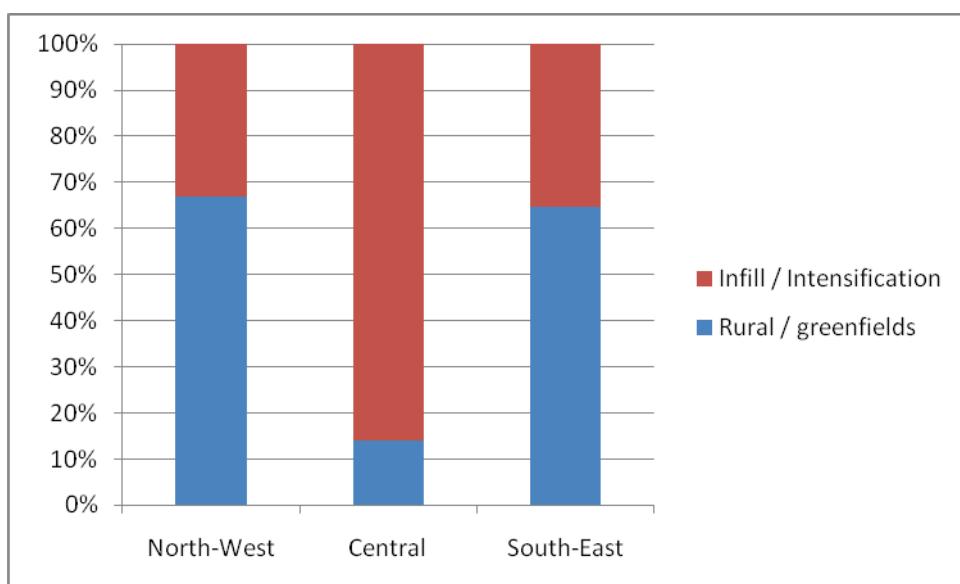


There is a much higher demand in the central Isthmus area, compared with the more suburban orientated areas to the north, west and south, for flats and units. The former North Shore City area sits in between these two ends of the spectrum, with around 45 per cent of future households likely to desire a flat or unit. The figures can be said to represent a base demand for flats and units.

Table 14: Base demand: flats/units versus stand alone

	Percentage of total in 2006	Percentage of total in 2031	Share of dwellings 2011-2031
North-West	17%	22%	32%
Central	32%	48%	76%
South-East	21%	24%	28%
Region wide	23%	31%	45%

Figure 15: Estimated demand for different housing types



The ability to increase the market share of flats and units is discussed in more detail in the following section related to planning tools. In short:

- The central area can only grow through redevelopment, given that greenfields land is no longer available, while infill choices are now severely constrained. Thus the share of growth accounted for by flats and units will need to rise towards 100 per cent over time. In particular will be the need to develop typologies that will appeal to family households and larger households, given that around 30 per cent of future demand in this sector is anticipated to involve family type households. Otherwise these households are likely to look towards existing suburban areas or new greenfields to meet housing needs. The downside of this pressure is likely to be a reduction of affordable housing choices for lower income households, as redevelopment will need to involve increasingly expensive development options, such as mid rise apartments.
- In the South, demographics as well as affordability issues are likely to see most demands remain for stand alone houses, albeit on increasingly smaller sections. There will be a demand for compact housing options, but it is not one that is likely to be easily stimulated given income profiles and the choices available.

- In the north-west, there is more of a mixed picture between the former North Shore and Waitakere and Rodney. The share of growth accommodated by flats and apartments needs to be supported strongly in this sector if the overall compact city model is to be progressed. This matches the anticipated demographic move towards single and couple only households.

3.1.4 The combined picture

The sub regional needs that are evident and which need to be planned for can be summarised as follows:

	Housing	Workplaces
West-North	More housing choices, particularly in terms of compact housing options	More jobs to help stem outward commuting, particularly "blue collar" jobs.
Central	More affordable housing so as to help retain mixed communities Compact housing typologies suitable for families	Focus on redevelopment and concentration of business activities into key corridors
East-South	Great opportunities for affordable, stand alone homes, including homes for larger families, minor household units, infill units	More white collar jobs to help balance job opportunities with labour force needs

3.2 Metropolitan Urban Limit / Urban Growth Boundary

A key tool of previous urban development strategies has been an "urban fence". The use of such a tool has come into much criticism due to its relatively blunt nature and potential for the costs of the tool (constrained land supply) to outweigh the benefits of the tool (environmental protection).

The July 2010 report of the Minister for the Environment's Urban Technical Advisory Group made the following comments about urban limits:

182. We consider that sequencing of urban development is desirable in order to constrain infrastructure costs and to achieve an urban form that meets the needs of both the city's existing and new residents. MUL's on their own are a blunt instrument for achieving these outcomes and, when applied in a rigid way with infrequent reviews, they place pressure on land prices across the urban area while paying insufficient regard to the housing preferences of the majority of New Zealanders.

183. The Auckland Council may choose from a variety of tools in preparing its spatial plan, and it is our view that no tool should be off limits. Provided the spatial plan has clear objectives and takes a collaborative approach, it is imperative that a range of tools is available. To illustrate this point, it is possible that MUL's may be replaced with a policy of

zoning current and future urban areas (for residential, industrial and commercial uses) with progressive rezoning of new urban land based on well articulated principles. However, the decision on which tool to use in which situation should be left to more detailed consideration by the Auckland Council. MUL's may well have their place, as will other tools. This policy approach can be clearly articulated in a spatial plan or in equivalent planning documents.

184. Progressive rezoning of newly zoned land enables infrastructure provision to be coordinated with land use decisions. Proper pricing of infrastructure (both at the capital stage and operating stages) will assist in ensuring that the residents of new subdivisions meet the full costs (including emissions and congestion costs) associated with new greenfield development, thereby providing proper incentives to achieve appropriate density.

In considering how urban expansion should be managed by the Auckland Plan, the following issues are relevant:

- Fixed line / flexible line
- Rate of expansion
- Process for expansion

3.2.1 Fixed line in places / moveable in others

The current Metropolitan Urban Limit (MUL) covers a range of environmental and infrastructure conditions. It is now generally acknowledged that any tool to manage the outward growth of the city should distinguish between fixed 'No go' areas and a moveable Urban Growth Boundary (UGB).

"No go" areas would cover high quality environmental and landscape areas. These are areas that the community do not want traded off for development – i.e. keep them green / not developed.

An urban growth boundary would go around the rest of the urban area. This would be a moveable boundary, depending upon demand and the specific costs and benefits of extensions. A boundary is needed to manage the following effects of urban growth:

- Amenity / landscape: there is a need to undertake catchment / structure planning to identify locally important resources to protect and plan around (bush, streams, archaeological etc)
- Infrastructure: development should not "leap frog" and therefore there is a need to ensure infrastructure can be extended efficiently.
- Urban form: there is a need to ensure that greenfields development offers a mix of housing, employment, services and facilities.
- More efficient urban outcomes: currently there is not a level playing field between urban intensification and expansion, with many factors favouring expansion (under pricing of roading, incorrect pricing of infrastructure, zoning of existing urban areas that restricts urban redevelopment, for example). UGB's are a crude tool to recognise and internalise these costs in the development process.

There is therefore a sound basis to have an urban growth boundary. The question is then how such a boundary should be moved.

3.2.2 Rate of expansion of the Urban Growth Boundary

The rate of expansion of the UGB needs to reflect demand, but it also needs to reflect the fact that due to incorrect pricing of various urban resources (roads, infrastructure and urban redevelopment), then demand for urban expansion is likely to be greater than it otherwise should. Until these issues are addressed directly, (i.e. via congestion pricing, full marginal cost pricing of infrastructure and zoning for redevelopment is freed up), then there is a need to restrain urban expansion to reflect the full costs involved.

However, the extent of the restraint can result in costs that exceed the benefits (i.e. high house prices), so it is not a "halt" to urban expansion, but rather more of a "slow down".

The extent of restraint needed to better match costs with impacts is not known at this stage. The process involved in any urban extension needs to be able to factor these costs in.

3.2.3 Process for expansion of UGB

The key issue is therefore how greenfields land is to be released. This is more important than the amount of land to be released, as identified in the 2007 report on housing supply in the Auckland Region, prepared by Motu:

...simple calculations of "X years of supply" are of limited use. A fifteen year supply of land that is dribbled onto the market in a prespecified fashion - giving individual landowners effective monopoly rights – may result in far higher land prices than a wide-ranging auction process that handles seven years worth of land at once⁶.

Land release needs to happen either as a "big bang", with lots of land released so as to increase competition between landowners (so as to reduce/keep a lid on land costs), or else release needs to be managed so that a few landowners do not end up land banking and putting costs up.

Given that Auckland doesn't have an endless supply of greenfields land (due to coastal areas /protected landscapes – the "no go" areas), then the process of release needs to be managed.

Planning-led, managed release could involve the council first undertaking structure planning to determine location and mix. However, this has the potential to either under or over shoot the best mix of land uses and public benefits, and therefore may raise costs of development too much or not enough.

The criteria as to what areas could be developed could build upon those in the ARPS, such as the extension:

⁶ Housing Supply in the Auckland Region, 2000–2005. Prepared by Motu Economic and Public Policy Research, for the Centre for Housing Research, Aotearoa New Zealand and Department of Building and Housing and Housing New Zealand Corporation, March 2007.

- is not within a “no go” area
- is contiguous with existing urban development
- can be efficiently connected to existing physical infrastructure or serviced by new infrastructure; and
- areas prone to the impact of natural hazards such as flooding or land instability and areas which if urbanised are likely to induce flooding or instability elsewhere, are avoided;
- conflicts or incompatibilities between adjoining land uses are avoided or mitigated to ensure that existing activities are able to continue;
- the development can avoid environmental impacts and can offer a range of environmental and social enhancements

However, the criteria would need to include more than this, in terms of urban design, mix of activities’ and environmental performance.

A structure planning process would need to be completed prior to providing for subdivision of Greenfield areas. The structure plan must demonstrate that the area can:

- achieve sound urban design and amenity outcomes including a form and intensity of development that is appropriate to the natural and physical constraints of the land.
- facilitate the creation of residential neighbourhoods with distinct identities which are designed to meet residents’ requirements, particularly for attractive, convenient and safe neighbourhoods.
- be sequenced/staged in a comprehensive manner in order that:
 - the land is utilised efficiently to achieve appropriate densities; and
 - there is alignment of infrastructure and growth.

Summary

The Auckland Plan will need to set out a sophisticated approach to the release of greenfields urban land. This is from the point of view of driving sustainable outcomes in the areas to be released; not delivering a windfall gain to the areas that are to be identified for expansion, but also to ensure that to a greater degree there is a level-playing field between urban expansion and intensification.

3.3 Quality Compact Housing

Making quality, compact housing attractive to a wide range of households is important to the success of the preferred urban form. While a constraint on the rate of urban expansion is

important in helping to set the framework for a more compact city, demand for compact housing options cannot be driven by restricting alternative housing options (i.e. new housing on the edge of the city). Demand for quality compact housing within the existing urban area needs to be a first choice for many households if the overall strategy is to work, rather than be a second or third choice. As identified in the section on housing demands and the sub regional picture, the market for flats and apartments needs to be stimulated if most growth is to be accommodated within the existing urban area.

A major concern raised with regard to the 1999 Regional Growth Strategy was the slow take up of intensive housing opportunities, with often low quality development arising from a miss – match of development opportunities with market demand.

Background work on intensive housing options and housing preferences indicates that to make a compact urban form work, there needs to be a much closer alignment between where people are happy to live in more intensive housing and development opportunities. In other words, there needs to be much greater opportunities for people to live close / adjacent to amenity features like open spaces, coastal areas, expansive views, vibrant village centres, or close to the city centre. Experience indicates that people are generally accepting of the idea of trading off private outdoor space for proximity to public open spaces and amenities (i.e. small private outdoor living space provided it is close to public 'living' spaces of high quality).

Analysis of the market feasibility of urban redevelopment (which considers factors such as building age, average capital value, average site size, availability of vacant land, and land for infill or redevelopment) can be used to build a picture of where and how the market is likely to respond to calls for greater levels of urban redevelopment.

Urban redevelopment is most feasible in areas of high land values, generally being areas close to coastal areas and/or close to the central city area. In these areas, demand for housing is high while urban redevelopment involving the aggregation of sites and the replacement of two or three houses with a group of flats or apartments is a feasible proposition for a developer, provided zoning allows for this.

Redevelopment elsewhere in the urban area of the scale needed to accommodate growth demands is potentially feasible, provided that there is a significant programme of well planned, coordinated and sustained interventions in areas to lift their amenity.

The issue for the spatial plan is that while redevelopment in the higher value areas will be important, these areas cannot meet all needs, in terms of affordability, sector demands and housing types. Compact housing options need to be spread across the city so there are local choices to encourage people to transition to quality compact neighbourhood areas, whilst retaining a sense of place, proximity to friends and services etc (e.g. aging in place). However to make this feasible in development economic terms, significant investment will be needed in public amenities.

It can therefore be considered necessary for the spatial plan to follow the market for intensification, but at the same time be able to shape the market. A variety of compact housing options need to be planned for, depending upon context and community such as:

- In central – urban - neighbourhoods (close to city centre), intensification needs to be in the form of mid to high rise apartments in the "fingers" of land that run between the heritage areas / character suburbs (e.g. business land following road corridors).

- In coastal communities edging the Hauraki Gulf, significant intensification is possible in all areas, but transport / infrastructure / community issues are likely to confine redevelopment to the coastal bays (not headlands), and clusters on surrounding “back drop” ridges.
- In middle ring, inland communities, feasible development opportunities needs to provide for smaller, site-by-site compact housing options including duplex type units, modern day sausage flats (three or four town houses, on a single section). Larger scale developments are possible where larger sites exist and on-site amenities can be provided. Need to maximize use of these sites (extra height, density possible). All best located around existing and new reserves, where good views can be secured (ridgelines) or on the fringes of neighbourhood centres.
- In middle ring, inner harbor edge communities, significant redevelopment should be planned for and facilitated. Harbour view in Te Atatu Peninsula provides an example of the lift in density and quality of development and natural environment possible in middle ring suburbs with a water edge. Redevelopment of existing suburbs would need to be facilitated through public action, particularly in relation to site amalgamation.
- In existing outer ring, inland, working communities: compact housing options involve the ability to add housing in a low cost way. For example, add a minor unit, divide an existing house into two units, extend an existing house to accommodate extended family (more building coverage), build an infill unit.

Planning-based pre-requisites for quality compact must involve a mix of regulatory and non-regulatory actions including:

- A wide variety of opportunities with potential development capacity in excess of likely take up;
- Accessibility, ten minute walkable distance to rapid transit / quality transit network (but quality transit network will need to be extended in some cases to better serve where people want to live);
- Ensure city-wide costs / charges do not act as an incentive for urban intensification;
- Development contributions to be aligned with actual infrastructure demands from intensive housing;
- Consenting process to focus on design outcomes, not density rules;
- Neighbourhood input into the development process early on – could save on notification time / cost delays later. People need to be better informed of future possible changes and the benefits of these;
- Targeted use of redevelopment agencies (e.g. middle ring, inner harbor edge communities).

3.4 Living Environments: Neighbourhoods

The above analysis indicates the need to shift from a centres-based approach to compact housing options to what could be termed a 'neighbourhood approach'. A centres-based approach was the essential strategy of the 1999 Regional Growth Strategy. This approach gained only limited traction outside of the CBD and in some key, market attractive centres.

To make a compact city feasible, there will have to be major changes to the urban form of the city, and a major reshaping of the planning system. These changes need to be considered at a neighbourhood level if they are to help drive improved urban outcomes.

The Auckland urban area is made up of a large number of neighbourhoods (over 200). It is these neighbourhoods that help to define the city, and they are the focus of much day-to-day activity. While town centres can be part of these neighbourhoods, neighbourhoods are not necessarily based around a town centre. However, any future commercial development should be based around existing centres or a case made for new mixed use where this adds to the sustainability of the urban form. In a change of focus from previous growth strategies, the preferred urban form places a greater emphasis on neighbourhoods, rather than town centres.

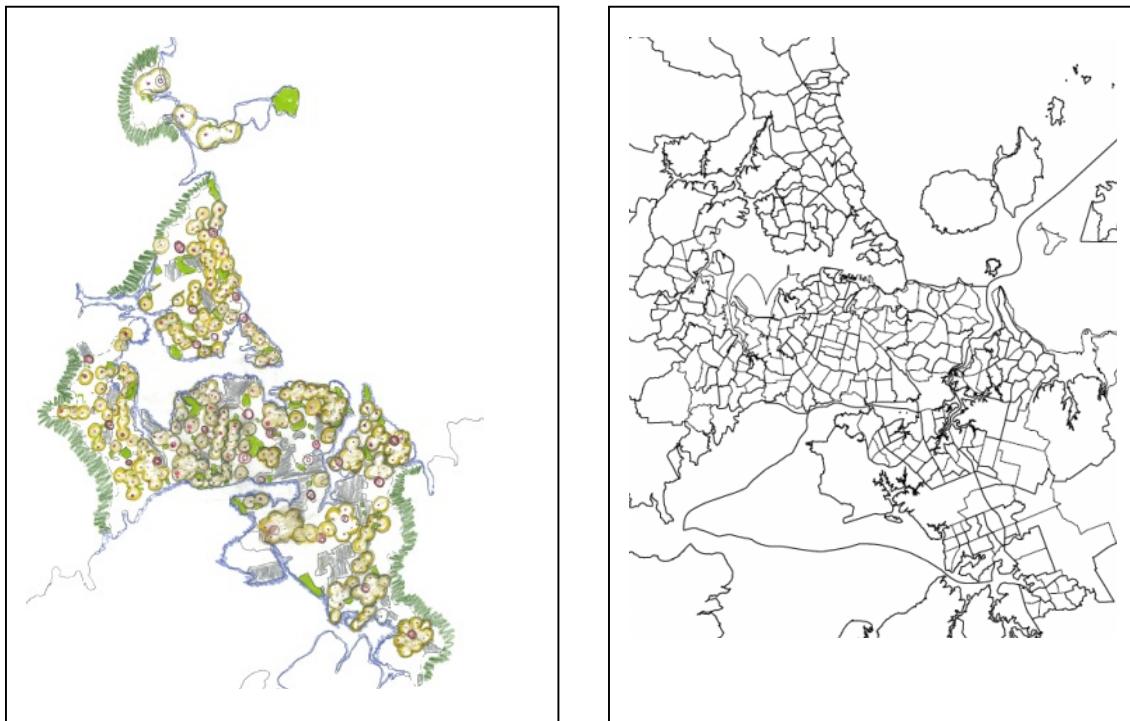
Planning for growth needs to strengthen existing neighbourhoods, while also providing a framework for new neighbourhoods. Outcomes for all neighbourhoods should include:

- Improved natural environment
- More access to local services / shops
- Safer streets, parks and public areas
- More walking / cycling routes
- Improved bus services
- More housing options
- More local workplaces.

There are various ways to define neighbourhoods using physical and social dimensions. Even taking a physical dimension approach leads to a range of sub types:

- Heritage / post war / new recent
- Coastal – ridgeline – inland
- Suburban - urban
- Walking – car based.

Figures 16 and 17 present a number of different ways of representing neighbourhoods.



Figures 16 and Figure 17: Different ways of looking at neighbourhood structure

For the purposes of the Auckland Plan, the region has been broken down into a range of neighbourhood sub types, based on the extent to which their physical characteristics support urban redevelopment (refer Figure 18 below).

These neighbourhoods are not fixed entities, nor do they represent groupings of people with similar social and economic backgrounds. Rather, they represent areas that have broadly similar characteristics in terms of physical attributes that may help to assist with urban redevelopment and intensification, taking into account the factors outlined in the previous section on making compact housing work. In particular is the overriding importance of proximity to valued open spaces and coastal areas, as well as proximity to central Isthmus workplaces and amenities. In these areas demand for intensive living options is high, but often this demand is constrained by zoning controls.

New neighbourhoods will be developed on the edge of the city as part of greenfields development, while they will also emerge within the urban areas as parts of the city intensify and further develop.

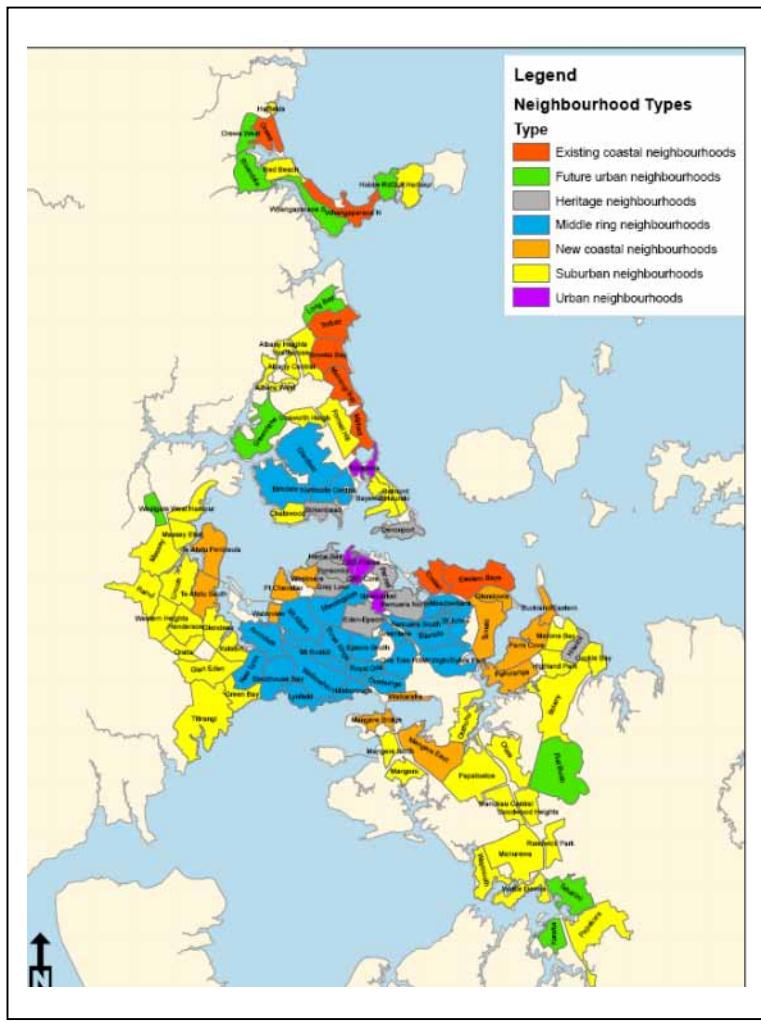


Figure 18: Possible neighbourhood categorisation

Table 15 below sets out estimates of current and possible future housing numbers in each of these broad neighbourhood categories. This analysis has drawn upon a range of inputs including outputs of work in market feasibility of redevelopment, developer perspectives, as well as moderation of growth pressures in highly valued environments. In other words, the figures set out below assume a degree of 'spreading out' of redevelopment pressures from higher valued areas to more moderately priced areas that have amenities and features that could be improved to improve the attractiveness for market-led urban redevelopment.

Broadly the pattern adopted is:

- Heritage neighbourhoods see some growth, but not extensively so, reflecting protectionist policies
- Outer suburban neighbourhoods see growth through already planned expansions and developments, but not major redevelopment, given the recent age of building stock.
- Inner Isthmus areas that are not within heritage areas (eg CBD, Takapuna, Akoranga, Newmarket) see significant growth, given the strong fundamentals of proximity to

amenities and high values. These are called urban neighbourhoods, split between existing and future.

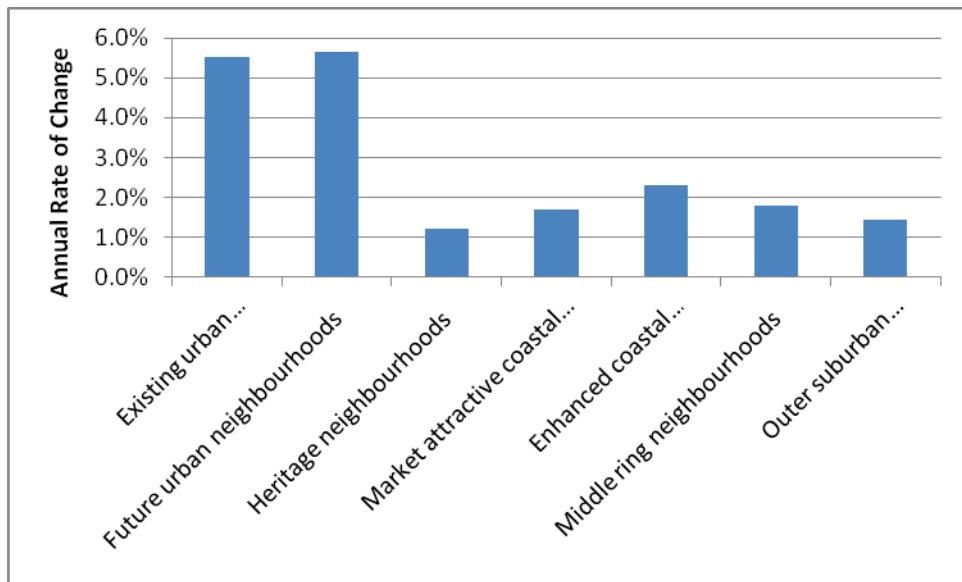
- Coastal areas are divided into two: existing coastal communities that are currently attractive for market-based redevelopment and coastal neighbourhoods that could be made to be more attractive through appropriate investment (so called new coastal communities)
- Middle ring suburbs are expected to see an increasing share of growth as transport costs rise and their proximity to central workplaces and amenities becomes more valued. In these areas, redevelopment offers significant opportunities to extend green spaces, restore streams and improve local neighbourhood sustainability, but this process will need to be stimulated.

Table 15: Current and possible future number of dwellings

	2006	Percentage of total	20011-2041	Share of growth – 2011 to 2041
Existing urban neighbourhoods	18,699	4%	75,000	18%
Future urban neighbourhoods	8,184	2%	34,250	8%
Heritage neighbourhoods	33,493	7%	14,750	4%
Market attractive coastal neighbourhoods	36,630	8%	24,200	6%
Enhanced coastal neighbourhoods	38,941	9%	37,950	9%
Middle ring neighbourhoods	112,122	25%	79,025	19%
Outer suburban neighbourhoods	150,450	33%	80,800	20%

While in raw numbers the scale of change to be accommodated by the various neighbourhoods looks substantial, this change is spread over a 20 to 30 year period, and will be incremental in nature for many areas. Rather than focus on the total quantum of change, it is more appropriate to consider the rate of change, as this provides more of a guide as to how an areas look and feel will be modified over time and the ability of an existing community to adapt to this change.

Figure 19: Expected annual rate of change in number of dwellings, by neighbourhood type



Within these different types of neighbourhoods, housing typologies will vary, depending upon land supply and development economics, for example as set out in Table 16 below. Table 16 is not a definitive picture, but rather sets out the general trend evident in cities that as areas redevelop, then there is a transition in building typologies towards apartments in the more highly valued areas.

Table 16: Potential types of dwellings, by neighbourhood, for growth between 2011 and 2041

	Apartments	Terrace units / flats	Town houses /Infill	Stand alone
Urban environs	100%	0%	0%	0%
Existing Coastal	60%	20%		20%
New Coastal	40%	20%	10%	30%
Middle Ring	15%	25%	30%	30%
Future urban neighbourhoods	50%	30%	20%	0%
Urban expansion neighbourhoods	10%	20%	40%	30%
Suburban neighbourhoods	0%	20%	30%	50%

Heritage Neighbourhoods	0%	10%	20%	70%
Rural Settlements		10%	10%	80%
Rural				100%

Inevitably the scale of development and redevelopment that needs to be accommodated means that the character of areas will change over time, as is the case for most cities throughout history. The issue for Auckland is how to use the process of redevelopment to improve public amenities and spaces within neighbourhoods. This will require a strong focus on urban design; there also needs to be some form of “planning gain” that can be sought from the redevelopment process, that is, improvements to local services and facilities. Existing communities need to see some benefit from additional development, and planning gain is one way for this to occur.

3.5 Enabling Redevelopment of Centres

A further important tool is that associated with the redevelopment of existing centres and neighbourhoods in areas where market demand for compact housing need some support. Local examples of this include Flatbush and Harbour View (Te Atatu), Northcote, New Lynn town centre and Hobsonville, all with varying extents of public land ownership, redevelopment timeframes and ability to internalise funding over time.

Work by central government identified a number of critical success factors that will influence the extent of which positive urban change can be catalysed by the council. Important factors are:

- There must be sufficient funds available to implement upgrade plans including required capital works and amenity improvements. This would include harnessing/coordinating the application of current funding and a new funding stream that is more explicitly targeted to projects that achieve identified outcomes of sustainable urban development. The funding is not simply to carry out projects on the edge of an area, or as catalyst or stimulant projects. It needs to be of a scale that allows participation as a landowner, either with significant Council and/or government landholding in the project area or at least with the capability of participating fully in the local property market. The funding needs to be seen as a rolling resource used to make change occur and then released to be used in the next project and area. The ‘planning gain’ or value uplift derived almost wholly from the redevelopment process, including release of significant development potential by public works, should be harnessed for the funding of these projects.
- The structure of land ownership can be a significant frustration to the ability of a Council to initiate comprehensive redevelopment. An appropriate land development agency should have sufficient funding available to acquire key strategic land assets at reasonable rates before the value uplift that comes from realising a more intensive potential. As part of this, there needs to be available a statutory power to compulsorily

acquire land to unlock the potential for developments to deliver a clear public benefit. This power should be one of a package of tools to facilitate redevelopment and generally used only as a last resort option where otherwise redevelopment would fatally stall or be misdirected. Clearly defined compulsory acquisition powers could be created as part of separate enabling legislation to establish dedicated urban development agencies, and would need to be seen as paying fair and even premium compensation. The reduction of private risk or uncertainty related to land amalgamation is potentially a strong attractor of private sector investment in town centres, but transparency and fairness are critical.

- Successful urban redevelopment projects have clear objectives, individual accountability and dedicated organisational focus. A localised agency with a clear lead, co-ordinating role; a champion at the area-strategy level, and buy-in and interest at city-region and central government levels are all critical. There needs to be a balance between providing for local input and the longer term benefits from larger scale investment and redevelopment.

The above factors mean that any substantial involvement in the urban redevelopment process will have to be prioritized and targeted. Three or four major redevelopment projects need to be identified and resources directed to these, rather than be spread around a number of lesser scale projects. The redevelopment process needs to be targeted at suburbs that are close to the line in terms of market interest in redevelopment, but need a helping hand to get them over the line. In other words, investment should not be directed at neighbourhoods that are attractive in a market sense, nor where market interest in compact housing is likely to be very costly to sustain.

Candidates for redevelopment support should include:

- Emerging, but not yet fully expressed, market interest;
- Existing public assets that can be leveraged and augmented in a way that will create value;
- Areas where there is an environmental benefit to be realised; and
- Geographic spread.

3.6 Funding

Funding of the Auckland Plan will play an important role in shaping urban form. This is from the point of view of incentivising certain outcomes, as well as the way in which city-wide costs and charges are levied affects location choices.

As noted in the Government's position on the Auckland Spatial Plan⁷, efficient and enduring urban form (including maintenance of housing affordability) will require much smarter shaping of

⁷ Para 34, FINANCIAL INSTRUMENTS AND FUNDING

behaviours involving the use of market- and incentive-based tools, efficient and flexible pricing of infrastructure and service delivery, demand management, and private sector participation.

Three important areas are related to:

- Development contributions
- Transport funding
- Funding redevelopment.

3.6.1 Development Contributions

Development contributions can be used to shape locational choices by making the true costs of growth in different areas more transparent (and ensuring that certain forms of development are not effectively subsidised). However, development contributions typically only cover the upfront costs of infrastructure extensions (not on-going maintenance and operations); they are often levied across quite broad catchments; while the cost of paying the contribution gets incorporated into the price of the house / section. This tends to dilute the extent to which the impact fees help to reveal the marginal costs of service delivery to different parts of the city.

More accurate and targeted pricing of the capital and on-going costs of providing infrastructure and services can help ensure that people's behaviours and locational choices are fully-informed and reflect people's true, cost-adjusted preferences. Therefore, one possible alternative to current development contributions would be to institute a full-cost pricing regime that builds operating costs, capital investment, debt servicing, and ongoing maintenance costs into a monthly service charge that varies between areas.

3.6.2 Transport Funding

As has been identified in the Auckland Unleashed discussion document, it is likely that within the life of the Plan, some form of road pricing is likely to be introduced to help manage demand for use of road space, as well as a way of generating funding for public transport projects.

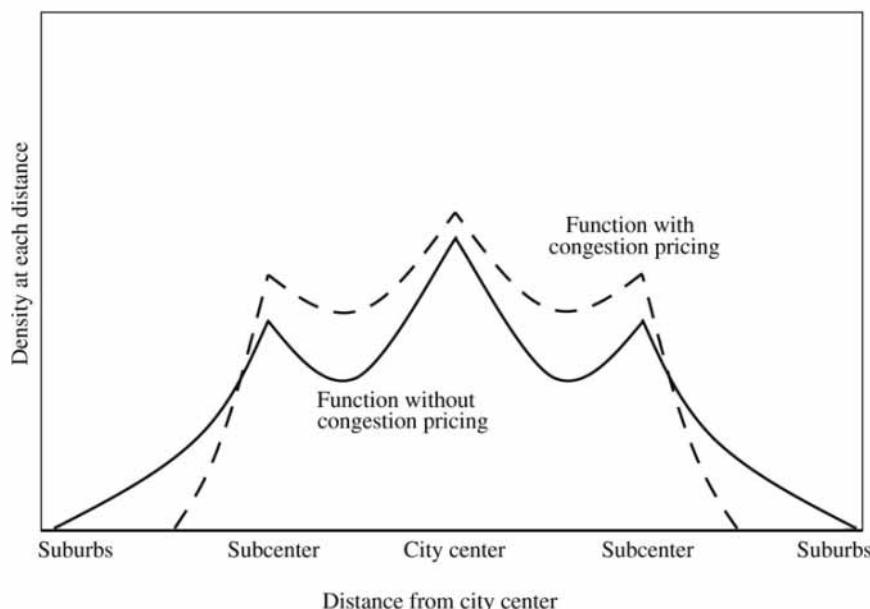
It has long been acknowledged that motorists do not pay directly for the use of roads, particularly during busy times, leading to excess demand relative to supply. Fuel taxes are an indirect means of modifying travel behaviour, as there is no direct correlation between the use of roading infrastructure and the cost of this.

By undercharging vehicles for using the region's roadways, policymakers have also reduced the per-mile cost of commuting (including out-of-pocket and travel time costs) for most motorists and distorted the development of metropolitan areas by inducing households to live in more distant, lower-density locations, thereby contributing to urban expansion.

With congestion pricing in place, it is likely that there will be additional demand for people to live closer to work places and services, thereby helping them to manage higher costs of using roading infrastructure during peak periods.

Figure 20 below illustrates the impact of road pricing on urban form. It shows that with road pricing in place the city may not expand outwards as much as it might have otherwise. At the same time there will be greater demand for housing to be located in middle ring suburbs which are those areas that lie between centrally located employment areas and the main suburban employment areas (e.g. East Tamaki, Wiri, Rosebank).

Figure 20: Road pricing and urban form



Sourced from: Toward a Comprehensive Assessment of Road Pricing Accounting for Land Use, Brookings Institute

3.6.3 Funding redevelopment

Negotiated, partnership-based value uplift capture mechanisms (such as Tax Increment Financing (TIF) or land readjustment tools) are often used to help fund and incentivise urban redevelopment. For example, developers may choose to invest in an area ear-marked for redevelopment if they can share in some of the savings associated with coordinated infrastructure investment.

TIFs are in common usage in the USA, both to increase the supply of affordable housing and for other purposes (such as enhancing public spaces). They are popular as they are seen as rates neutral by the developers and the community in the designated areas (i.e. the rates paid associated with that local area are the same whether or not a TIF has been established); and it seems that development in an area is a source of funding for affordable housing in that area.

Despite their popularity in the United States, TIFs may be less applicable in New Zealand. Here, rates are lower than comparable American city taxes; they are likely to respond only slowly to rises in land values; and there may be a shortfall in other operational areas, if some funds are directed towards redevelopment expenses and not compensated by a cross-subsidy from elsewhere.

Sources of funding are needed to help stimulate redevelopment in areas that are at the margins in terms of market feasibility for redevelopment. A planning gain system may be one such source.

Planning gain refers to the increase in the value of land which results from planning consent being granted for developments. This increase in land value mainly accrues to the owner of the land, but a levy or tax may be applied to divert some of the planning gain to the public sector (for example, to fund affordable housing or improvements to community facilities). It is therefore not directly related to the avoidance or mitigation of adverse effects of the development. Rather, planning gain recognises the wider perspective of the planning system helping to support private gain.

4 Trade offs and Choices

Drawing upon the previous sections, this section of the report sets out the high level trade-offs that need to be made in terms of developing the preferred urban form.

4.1 Urban Expansion and Compact Growth

At the highest level of trade-offs is the extent to which the playing field for urban development should be tilted away from urban expansion towards urban redevelopment. The Mayor and Councillors have indicated a desire to follow a compact city model, but the extent of the support for this model (in planning and financial terms) will be determined through the spatial plan (and associated funding) process.

Unchecked, and based on current patterns, demand for greenfields land is likely to see up to 10,000 ha of land consumed over the next 20 years. It should be noted that even at this level, the existing urban area takes half of new housing development. There is the ability to bring within the urban footprint this area of development without encroaching into very sensitive environmental areas, although it would involve a significant expansion of the city towards the north-west and the south-west, given that those two areas have the least natural environment constraints.

There are different costs and benefits to weigh:

- Expansion of this scale would require a major commitment to extension of road-based transport infrastructure and other networks, and the high per capita operating costs that come with such extensive networks. While additional workplaces need to be provided as part of expansion plans, the amount of cross town travel will increase, along with the average length of commutes. The natural environment and rural communities on the edge of the urban area would see major change, but even in existing urban communities, a degree of change will continue to occur via infill and redevelopment.
- A more compact urban area will reduce impacts to the natural environment on the edge of the current urban area, but will bring a higher level of change to existing urban communities. Investment will be needed in infrastructure upgrades and improvements. Per capita infrastructure costs may be reduced compared to expansive models, but investment will be needed to upgrade public transport and improved amenities.

In considering these costs and benefits, there is not a level playing field between urban expansion and urban redevelopment: transport investments and pricing of transport infrastructure tends to favour urban expansion, while urban redevelopment is slowed by knee jerk NIMBY type reactions to redevelopment proposals.

So at a basic level, there is a reason to restrain urban expansion and support /enable urban redevelopment. Added to this is need to anticipate changing location and lifestyle preferences. Ultimately though, the final mix of greenfields versus urban redevelopment is a balancing act, driven by the extent to which urban redevelopment can be enabled and made attractive to a wide range of households and firms. The preferred urban form assumes a degree of planning support

for the compact city model, as this is the stated ambition of the Mayor and Councillors, with the extent of support ultimately depends upon how much money the council are willing to invest in existing neighbourhoods to assist and shape the redevelopment process. The preferred urban form (as outlined in the section above on tools) recognises this choice by proposing a method by which greenfields urban land can be brought on stream in a way that ensures some flexibility in housing supply. In particular, there is no continuous hard and fixed urban fence: the line is fixed in places, but extendable in others. However, rather than pre-plan these extensions, the preferred urban form establishes principles to be adopted for their identification and release. The rate of that release is really dependent upon how successful the compact city model is implemented.

4.2 Urban redevelopment

Support for and enablement of a wide range of compact living options is dependent upon two key choices:

4.2.1 Market-led versus plan-led urban redevelopment

To ramp up demand for urban living, there is a need for the zoning system to more closely follow people's locational preferences in terms of compact living options. There is usually a trade off between acceptance of closer living conditions but easier access to recreational amenities like coastal areas and larger public open spaces. Left to themselves, market forces are likely to see urban redevelopment focused on certain neighbourhoods, particularly those that offer an "amenity advantage", such as access to coastal areas, large reserves, expansive views or close proximity to inner city, character neighbourhoods. This is likely to lead to large scale infrastructure works to cope with the additional population, while significant change to the character of desired areas is likely to be seen.

On the other hand, a "plan-led" approach to urban redevelopment would see redevelopment pressures more evenly spread across the urban area so as to better match growth with infrastructure capacity and to lessen the impact of concentrated change on the character of areas. However for this to work, there need to be incentives created so redevelopment pressures are redirected from high amenity areas to areas where amenity can be improved. An example would be improvements to the amenity of the middle ring suburbs, such as improved parks and open spaces. This would require investment by the council, yet council's finances are constrained. There is therefore a trade off between working with the market and shaping the market.

A middle course is needed, with the extent of plan-led redevelopment dependent upon investment in infrastructure and amenities that will support urban redevelopment in less commercially desirable areas. The extent of investment needed needs to be identified, as it is a key parameter.

4.2.2 Centres versus neighbourhoods

Previous planning has attempted to focus urban intensification in and around town centres on the basis of support for public transport and proximity to services. This approach also limited the extent to which suburban residential areas may see redevelopment (areas of change versus areas of stability).

Experience to date is that there is only a limited market for centre-based living. Currently, the transport benefits of living by a centre are small, relative to the costs involved. At the same time, there is also a centres-first approach to retail and office activities. This then creates multiple demands on centres – in terms of accommodating retail, employment and residential demands.

As identified above, to broaden the market for intensive living, a wider range of opportunities needs to be provided. Thus a neighbourhood approach to urban redevelopment is advocated whereby a range of urban redevelopment opportunities should be identified in each neighbourhood, some of which is centres-based, but not all of it. As discussed, redevelopment around amenities like blue and green networks and open spaces is needed to help support compact living.

The type and form of redevelopment needs to be shaped to fit the context of each neighbourhood, and so a neighbourhood approach needs to be accompanied by a commitment to detailed neighbourhood-level planning. The ultimate shape and form of the city can only be worked through at this level of detail.

As a corollary of this, public transport systems will need to take on more of a "network" approach. Investment on the amenities of neighbourhoods, particularly features like open spaces, stream corridors and green recreational networks is needed to help stimulate the market for compact living options.

A more broad-based "equal-share" approach to urban redevelopment is proposed. The extent of acceptance of this approach will largely determine the acceptance of the compact city model.

To date, planning for the redevelopment of urban Auckland has been strongly influenced by existing residents concerns about future changes. Commonly, this can be called the NIMBY response – no development in my back yard. Across an urban region, the cumulative effects of NIMBY-type reactions to growth proposals are substantial, with significant adverse effects on new households that are barred from entering the regional housing market, reduced housing affordability and the overall reduction in the efficiency of the urban system as development gets pushed into more environmentally sensitive areas and in ways that raises infrastructure operating costs. However, at the local level, NIMBY-type reactions are often driven by reasonable concerns about more traffic, impacts on local infrastructure and the like. There needs to be a better means of balancing out local costs with region-wide benefits of urban redevelopment.

4.3 Location and nature of Greenfields development

4.3.1 Rural production versus urban expansion

Potential areas for urban expansion that are free of major environmental constraints are generally occupied by a range of rural production activities. While in simple economic terms, the replacement of rural activities with urban activities is likely to see an increase in economic output (overall), there are nevertheless costs associated with lost landscapes and reduced opportunities for productive rural activities. Unconstrained urban growth also has the potential to lead to poor urban form outcomes and stretched infrastructure.

In the south, there is a trade off between the productive values of the Karaka lowlands and urban expansion west from Drury. To the north is the potential for urban development into the rural activities in the Kumeu / Taupaki area.

4.3.2 Catchment issues, transport and infrastructure

All areas on the edge of the Auckland urban area have a degree of sensitivity to urban expansion. Development inevitably involves some form of impact on coastal water and stream systems. Greenfields urban development generally proceeds on the basis of structure plans, often undertaken for a water catchment scaled area. The incorporation of low impact subdivision techniques has the ability to reduce many development impacts on the natural environment.

From an infrastructure viewpoint, larger scale expansion is likely to be preferable to bit-by-bit expansion. This is particularly so for network infrastructure like public transport, water and wastewater. While distributed infrastructure is possible in the future, presently there is a preference for centralised systems.

Public transport extensions (rapid transit network) should play a larger role in determining the shape and location of urban expansion areas. This is to avoid the problems seen in Flat Bush, Long Bay and Hobsonville where urban growth has occurred in areas poorly served by public transport. It may also mean that larger extensions are better than smaller ones, if that extension can support installation of new rapid transit infrastructure.

Expansion in the north-west has the potential to add jobs to the north-western sector, helping to improve job-housing balances in this sector. However, it is more likely to be car dependent, unless expansion is of a scale where it can support an extension of the western rail line into the Whenuapai area.

Expansion south-west has the advantage of being close to the major infrastructure networks (road, rail, water, electricity etc). It therefore has more potential to be designed to be supportive of transit orientated outcomes.

5 Key Proposals

Natural Environmental

Issue	Spatial Response
Long term protection of regionally and nationally significant environmental resources (e.g. Waitakere / Hunua ranges, Gulf Islands, Okura/Weiti, Whangateau / Tawharanui) and regionally significant landscapes that help to shape the city's and region's identity (Mahurangi/Waiwera; Albany / Paremoremo Escarpment; Riverhead / Woodhill; Waitakere Foothills, Awhitu, Pukekohe / Bombay Hills, Whitford / East Tamaki Heights.	<ul style="list-style-type: none">Establish "no go" areas where further urban development is not feasible (i.e. retain and extend the metropolitan urban limit line in some areas).
Restore degraded coastal areas (sheltered coastal areas close to the oldest urban areas).	<ul style="list-style-type: none">Targeted land use change alongside Tamaki River, Inner Manukau, Whau River to remove older industries and redevelop mixed uses (with incorporation of sustainable urban design principles)
Extend green linkages / networks within and around the urban area (such as north-west wildlife link).	<ul style="list-style-type: none">Extend open space networks/ restoration projects along main urban stream corridors: Lucus Creek, Wairau Creek, Oakley Creek, Tamaki River, Oratia / Opanuku, Whau, PuhinuiEncourage bush restoration lots in rural areas to form ecological corridors.
Protect freshwater and marine environments (streams and coastal areas) and terrestrial	<ul style="list-style-type: none">Establish urban growth boundaries around the current urban area, for areas not within "no-go" areas, the

ecology from the adverse effects of urban development (sediment, contaminants).

shifting of which can only be undertaken once integrated catchment management planning has been completed and agreement has been reached over implementation of low impact design practises.

Natural Hazards

Flooding risks will increase due to climate change. Catchments in the older parts of the city will need major works to reduce risks.

- Target urban redevelopment to areas where redevelopment can assist with managing flooding problems through major works, such as Wairau Valley in the north, Oratia / Opanuku, and parts of the Oakley catchment in the Isthmus.
- Use the redevelopment process to create softer interfaces between flood channels and urban development (not hard engineering faces).

Sea level rise, coastal inundation.

- Areas and infrastructure likely to be subject to coastal inundation over the next 100 years should be targeted for redevelopment and progressively developed so as to minimise risks. This may involve a combination of:
 - Managed retreat
 - Coastal protection structures
 - Raising ground levels

Rural Production

High quality soils are a scarce resource that should be protected for future generations.

- High class soils in the Pukekohe area (Class 1 soils) shall be protected from urban growth and rural residential development and contained within a "no go" area.

Areas of rural production should be retained for rural production.

- Rural production areas are identified to the north and north-west, as well as in the Pukekohe / Karaka area. These areas are to be retained for rural production with urban and countryside living restricted
- Mixed rural areas are to be identified in the Whitford / Clevedon Area, as well as through Coatsville / Matakana. These areas are to provide for a mix of productive and countryside living opportunities.

Rural settlements.

- Enable the expansion of existing rural settlements as a means of meeting housing demand and preferences.

Housing: General

Need to better match housing opportunities, with current housing preferences, while recognising that some preferences are "skewed" by the way various city resources that people use are under or overpriced, in terms of wider social, economic and environmental costs. Between 1996 and 2006, approximately 35 per cent of new dwellings were constructed in greenfields areas, and 50 per cent via infill/redevelopment. The other 15 per cent were accommodated in rural areas.

Demand for greenfields land is high due, in part, to restrictions on infill / redevelopment in existing suburbs, low pricing of the true costs of motor vehicle use, and under recognition of the environmental impacts of urban expansion.

Urban redevelopment is constrained by current planning controls that limit the number of new homes that can be built in areas of the city that people want to live in, such as near areas of high natural amenity and good quality public facilities.

- Until such time as economic signals create a level-playfield between urban expansion and urban redevelopment, there will be a degree of "planning support" for urban redevelopment. This will be in the form of an urban growth boundary managing (not stopping) the outward expansion of the city and a plan-led approach that positively enables urban redevelopment.
- The goal is to see urban and rural expansion pressures decline by 15 to 20 percentage points (so that the combined total of growth outside the urban area is no more than 25 per cent of total) and to support and accelerate urban redevelopment pressures by a similar amount. This will require a significant shift in housing preferences.

Auckland has over 200 neighbourhoods. There is a need to enable change within all these neighbourhoods (new and existing) to help make them more resilient to future changes in housing preferences / conditions. These include:

- Safer, healthier and more attractive neighbourhoods that enable community interaction
- High quality open spaces and streets
- A range and mix of housing outcomes and scales in each neighbourhood

- All existing neighbourhoods will see a level of change in terms of the types of housing present and the number of dwellings. The level of change will reflect:
 - Location within the urban area – areas closer to amenities and more central areas will see more change than newer suburbs on the edge of the city
 - The current character / context of the neighbourhood. Heritage areas will generally see less change than other suburbs

- Transport options, particularly more walking, cycling and passenger transport options
- Better ability to cope with increasing risks from natural and man-made hazards (flooding, sea level rise / coastal inundation).
- Development economics, including the ability for the market to deliver quality housing outcomes
- Opportunities to improve the natural environment through redevelopment.

Housing: Urban Living

Demand for housing close to the city centre is exceeding supply, as evidenced by very high property prices for inner suburbs.

Redevelopment to add housing supply is most likely to involve mid to higher rise apartment development in and around the City Centre, as well as close in suburbs like Takapuna and Northcote that are not within heritage areas.

To help meet demand for more compact living options and to expand the market for compact housing, redevelopment around amenity features needs to be enabled, including more housing adjacent to local shops and services, public open spaces and areas with expansive views. In these areas there is a natural market for intensive living options that, if not enabled, will see the overall market for compact living options significantly reduced.

- Enable mid to high rise apartments within a central “zone” (but outside of heritage areas) in areas of high amenity and good public transport accessibility, such as around the northern edge of Newmarket (by the Domain), Newton, Great North Road, City Centre/Wynyard, Takapuna West, Barrys Point Road, Akoranga.

- Redevelopment is to be enabled in locations that offer amenity advantages to occupiers of compact housing, this will include:
 - In the vicinity of local neighbourhood shops and services, such as within 50 to 100 metres of most local corner shops
 - On the edges of larger open space areas, such as reserves greater than 5000m² in area;
 - Alongside “Avenues” – collector type streets that offer high quality streetscapes. Within coastal bays (but not headlands).
- Redevelopment is to take a variety of forms, to suit the landscape and urban

New neighbourhoods are needed within the current urban area so as to help accommodate future population growth pressures, make effective use of current urban infrastructure, help address housing affordability and help to enhance and upgrade the natural environment. These new neighbourhoods are to be located in areas where the redevelopment process can be used to help restore and upgrade the natural environment. Candidates for new neighbourhoods include the Tamaki River, the inner Manukau coastline and the Whau River / Henderson Creek areas.

Compact living options need to be enabled beyond areas with natural advantages or areas where major redevelopment is anticipated. Middle ring suburbs need to redevelop in response to changing demographics, transport and cost pressures.

context. It may involve terrace type housing, and or mid rise apartments.

- Redevelopment is to strengthen neighbourhood structure through the addition of new linkages, improved streetscapes and quality urban design.
- Where redevelopment is to take the form of taller development, visual effects and impacts from overlooking and shading on adjacent housing areas need to be mitigated.

- Three to four major urban transformation projects are needed to create new urban communities of 15,000 to 20,000 people each (approximately 100 hectares each). These areas may be located in former business land areas near to areas of open space / coastlines and transport routes, or involve substantial redevelopment of existing suburbs.
- Their redevelopment could be facilitated by dedicated urban redevelopment agencies, and would likely extend over a long period of time.

- Urban intensification of middle ring neighbourhoods that do not have natural amenity features needs to be supported through investment in the quality of the natural environment and public realm. This is likely to involve improving reserves and open spaces, restoring streams and adding to coastal reserves and esplanade networks.

Housing: Greenfields

Greenfields residential areas are needed to meet housing demands and preferences for housing in new areas. They need to offer a range of housing types and prices and be geographically spread across the region.

Greenfields housing areas need to be located in a way that strengthens the overall urban form of the region, enhance the natural environment and be developed around multi-modal transport systems.

Greenfields housing areas need to be identified and their development staged in a way that does not lead to land banking behaviour and/or ineffective use of infrastructure and urban land.

- Urban expansion is to occur outside of the “no go” areas defined by the regionally significant landscapes and natural areas.
- Expansion of the urban area is preferred over satellite-type development due to the ability to extend urban infrastructure (physical and social).
- Proposals to expand the urban boundary should be assessed against criteria related to:
 - Sustainable urban design features
 - Passenger transport connections
 - Mix of housing
 - Environmental effects and enhancements
 - Wider urban form benefits
 - Regional spread of opportunities.
- Proposals to expand the urban area are to be managed so that land banking behaviour is not encouraged. A number of options are identified as to possible areas for expansion.

Table 17: Summary of Issues Relevant to Areas for Possible Greenfields Growth

Silverdale	<ul style="list-style-type: none"> • Development acceptable with setbacks from coast and Weiti Stream • Western edge difficult to define – would need to avoid spilling into catchments that drain into the Kaipara • Likely to deliver affordable housing options • Will need major investment in amenities to make attractive – away from coastal area.
Whenuapai / Kumeu	<ul style="list-style-type: none"> • Drains to Upper Waitemata harbour • May add to flooding issues in Kaipara catchment • Potential to add to affordable housing options • Close to major employment centres.
Beachlands	<ul style="list-style-type: none"> • Major infrastructure constraints • Unlikely to deliver affordable housing • Significant distance to workplaces with ferry being the main public transport option.
Brookby	<ul style="list-style-type: none"> • Flooding and land stability (ground conditions) • Large wetland areas • Unlikely to add to affordable housing options • Limited ability to add employment opportunities • Limited ability to extend Rapid Transit Network • Resulting potential capacity not significant compared to cost of development, loss of rural land and overcoming constraints
Drury	<ul style="list-style-type: none"> • Flooding issues to be resolved • On rail network or network could be extended • Likely to offer affordable housing options • Good transport links

	<ul style="list-style-type: none"> • Will require new centre / public amenities
Karaka	<ul style="list-style-type: none"> • Would require strong policy to contain westward spread. • Good accessibility to rail network • The area contains three wetland management areas (Note: only a small number are protected across the region). • Area also contains coastal fringe wetlands.

Business / Economic

Issue	Spatial Response
<p>There is a need for up to 780 hectares of greenfield land for Group 1 business activities. Group 1 business generally consists of land hungry activities, that are often freight / vehicle dependent, but are not necessarily big employers. The current focus is on the south, in areas such as East Tamaki, Airport/ Wiri and Drury. There is only a small focus on the north and west, creating an imbalance in terms of housing and jobs.</p> <p>Group 1 land needs to be adjacent to motorway junctions, on relatively flat land and near to workforces.</p> <p>There is likely to be some displacement of Group 1 activities out of existing business centres as land values rise.</p>	<ul style="list-style-type: none"> Identify two large greenfields business areas to south (Drury) and west (Westgate Hobsonville) in the order of 250 to 300ha each. Smaller areas in relation to Silverdale (north) and Pukekohe (south) 50 to 100 hectares each. Identify existing business land where employment intensity should be restrained to protect land for Group 1 businesses (e.g. North Harbour, Rosebank, East Tamaki, Airport – areas with good roading connections, but limited passenger transport options).
<p>Group 2 business activities consist of a mix of business, service and some retail activities of a variety of intensities:</p> <ul style="list-style-type: none"> Highest intensity employment should be able to cluster so as to exploit agglomeration benefits. Activities should be within 15 to 30 minutes travel time of each other to enable business to business transactions. Mid level intensity activities should be able to locate close to workforce / customers e.g. town centres, local business areas. 	<ul style="list-style-type: none"> Provide for a high intensity “central business corridor” extending north and south of the city centre for worker-intensive Group 2 business activities. Corridor needs to be based on main north-south transport spine to enable effective movement of workforce and business interactions. Retain sufficient capacity in second order business centres that enjoy good vehicle and public transport accessibility to provide for on-going growth of these business activities (e.g. Albany, Rosedale, Takapuna, East Tamaki, Penrose, Unitec, Manukau, Henderson).
<p>Business land with the potential to be more</p>	<ul style="list-style-type: none"> Enable areas like:

effectively used for mixed use development (residential and smaller workplaces). Generally involves business land adjacent to waterways, coastal areas. Equivalent to former docklands in other cities.

Barrys Point Road
Orakei
Onehunga foreshore / Favona
Span Farm / McLeod Road
Whau

to transition into higher density, mixed use areas. Therefore, provide opportunities for existing businesses to relocate to new Group 1 land on edges of the city.

Variety of industries with specific locational requirements (like marine, aggregates, noxious).

- Identify and protect for these uses.

Matching skills, workforces and job opportunities on a sub regional scale:

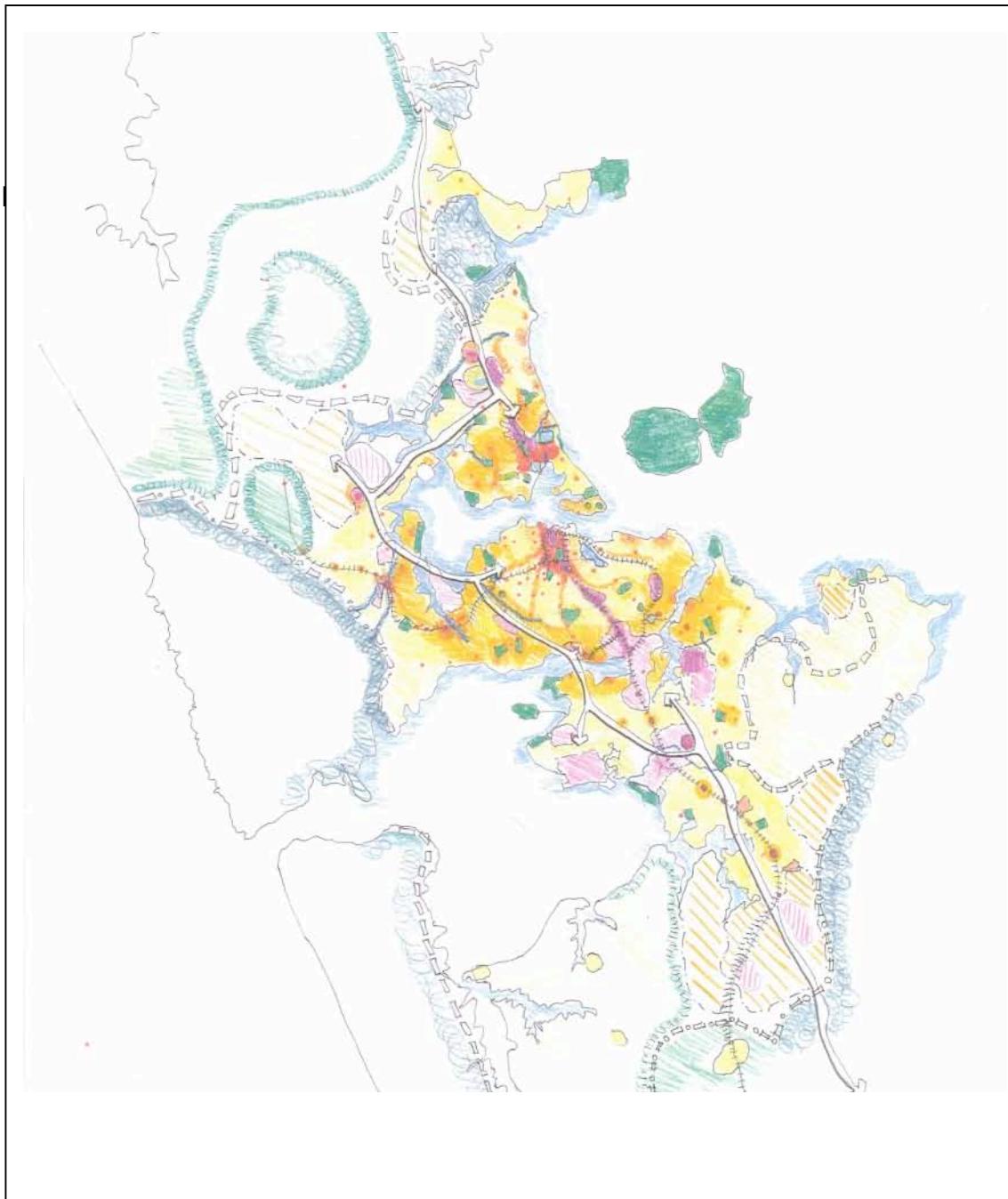
- North is well provided with higher end jobs
- West is poorly provided with jobs
- Central has an over representation of Group 1 type activities, given transport constraints
- South requires a greater number of higher end jobs.

- Increase the amount of Group 1 type employment in the west and north to help reduce outflows from west and provide for growth in northern sector "blue collar" workforce
- Concentrate employment in Isthmus on people-intensive business activities along main public transport routes helping to retain motorway capacity for cross town freight / goods distribution
- Identify innovation precincts in the south (e.g. MIT / Manukau centre)

5.1 Preferred Urban Form: Summary

The above proposals result in a preferred urban form that can be described in summary form as follows and as outlined in the sketch concept presented in Figure 21 below.

Figure 21: Preferred Urban Form Sketch Concept



Key features of this urban form are as follows:

- The urban area sits within the established green areas of the Waitakeres and the Hunna Ranges and the emerging rural residential and rural production areas of Taupaki, Riverhead / Coastville and Karaka / Pukekohe.
- Within these rural / residential and rural production areas, existing towns and settlements expand at a measured pace.
- Within the urban area, an intensive core develops around the current City Centre, Newmarket and the Takapuna / Akoranga area. This core recognises the inherent regional accessibility of these areas, their connectivity to each other, as well as the range of amenities present, including harbour edges. This area accommodates the most intensive office and residential development.
- Around this core is a ring of neighbourhoods that have an emphasis on heritage protection and maintenance of existing character. Some redevelopment occurs of the business areas that are within these heritage areas, such as the main road corridors that thread their way through Grey Lynn, Newton and part of Mt Eden areas of the central Isthmus.
- A middle ring of suburbs is earmarked for more substantial housing redevelopment. These suburbs benefit from proximity to both central and peripheral employment areas, while also having often poorly developed interfaces with green and blue networks that would benefit from redevelopment and enhancement. They also have a housing stock that is likely to be of an age where redevelopment becomes more likely over the life of the plan (i.e. housing built in the 1950's and 1960's). Market economics support the redevelopment of some of these suburbs; otherwise public investment in amenities will be needed to aid the process of redevelopment. Redevelopment will take a variety of forms and need to be considered on a neighbourhood-by-neighbourhood basis.
- Beyond this is an outer ring involving suburbs that have recently been developed or where change is currently undesirable due to their distance from workplaces and infrastructure.
- Threaded through this pattern is the patch work of existing town centres. Some of these centres will also attract housing and see a degree of change within their environs. Others will be the focus of expanded retail activities and community services.
- Employment areas have a more linear pattern to them, compared to the more 'concentric rings' pattern for housing. A central spine of intensive office-based development emerges along the current State Highway One / Rapid Transit corridor, extending from Albany in the north to Manukau in the south. This corridor involves both motorway and rail/busway transport infrastructure.
- Complementing this north-south axis is a more westerly aligned axis involving more land extensive industrial and business activities following the route of the western ring route. This axis extends southwards into Wiri, Takanini and Drury, as well as west to Rosebank Road, Lincoln Road and Westgate / Hobsonville.
- Staged urban expansion occurs to the north-west and the south-west. This involves new business areas for Type 1 business activities, as well as for housing. The exact

boundaries of this expansion and the rate of expansion is determined through a more detailed planning process that takes into account the environmental constraints present, ability to obtain public benefits from this expansion, as well as the success of urban intensification policies.

6 Sequencing and Prioritisation of Areas for Growth

Existing district plan provisions provide a significant amount of capacity for growth within the urban area, rural settlements, greenfields and countryside living for the ten year period to 2021. Existing zoning provides the basis for the region's current development capacity, whereby zoning is in place and sites are serviced by the water and wastewater network.

Additional capacity will need to be planned for and released over this period to maintain supply into the medium term. This capacity will need to be released ahead of the market, ensuring there is always sufficient supply of capacity.

Table 18 below sets the estimates of housing and employment that need to be planned for, in terms of the 10 to 20 year and 20 to 30 year periods, for the urban area (these figures do not include rural demand).

Table 18: Estimates of housing and employment

	1-10 years	10-20 years	20-30 years
Households	115,000	100,000	100,000
Employees	100,500	92,000	83,000

6.1 Residential

6.1.1 Sub Regional Picture

Residential capacity to be provided needs to be sequenced to match market demands, infrastructure constraints, as well as the general push towards more compact urban forms. As a result, the pattern of growth, how much land is released and the form of this housing (greenfields, infill, urban redevelopment) will vary across the sub regions.

The following graphs illustrate potential housing capacity uptake over the 30 year timeframe by sub region. These graphs recognise that development patterns will vary across the region, based on demographics, market values and preferences. Specifically:

- In the central Isthmus area, most new development will need to be by way of apartments and attached housing, involving urban redevelopment.
- To the north and west, there will be a shift over time towards attached housing, via urban redevelopment, in some suburbs due to development economics and demographics. At the same time the rate of urban expansion needs to be moderated in the light of longer term urban performance issues and the sensitivities of the natural environment in the north and west.
- In the south and east, there is likely to remain a demand for stand alone houses and greenfields development to suit larger families and more financially constrained households, while at the same time there is a need to provide for aging in place and housing choices for non-family households.

Figure 22: Northern housing profile 2011 to 2041

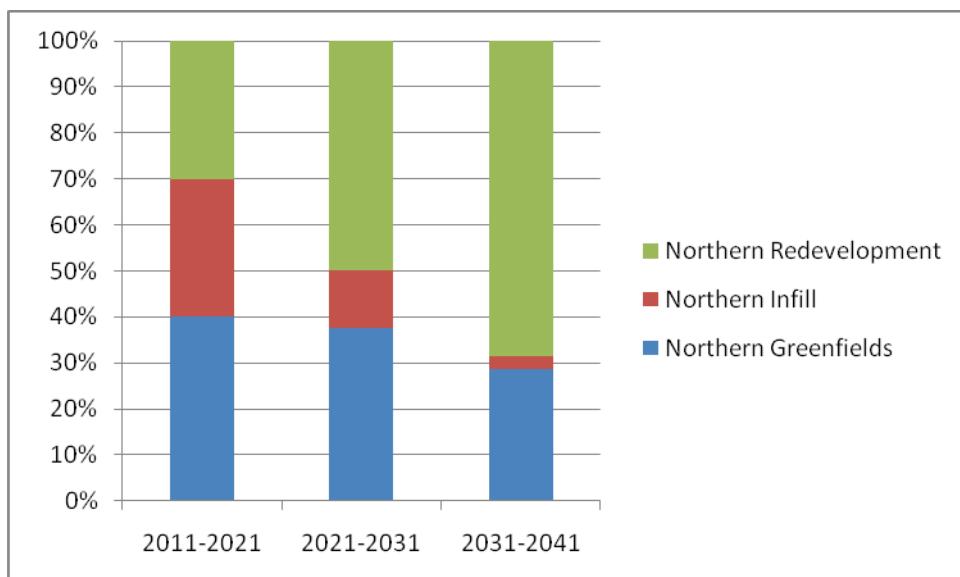


Figure 23: Central Isthmus housing patterns

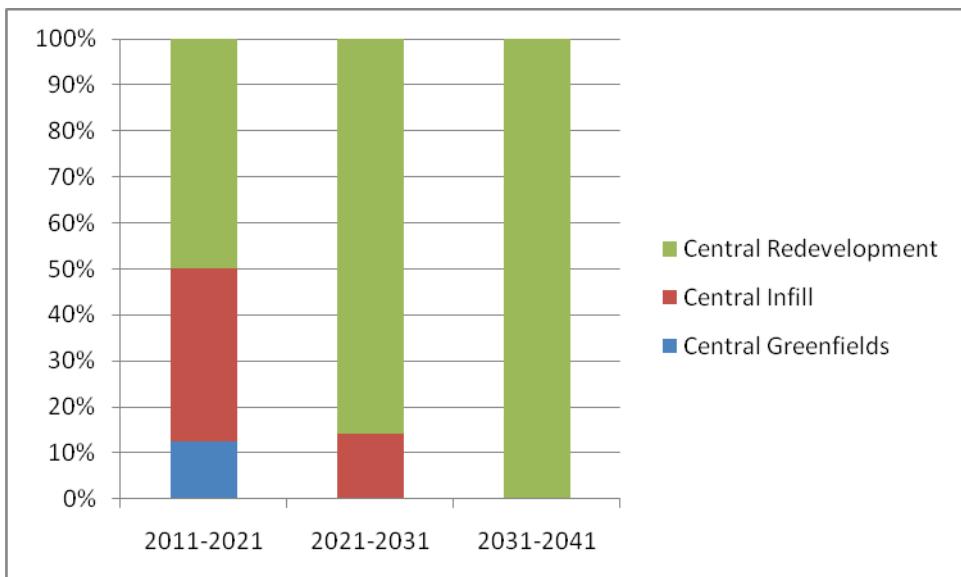
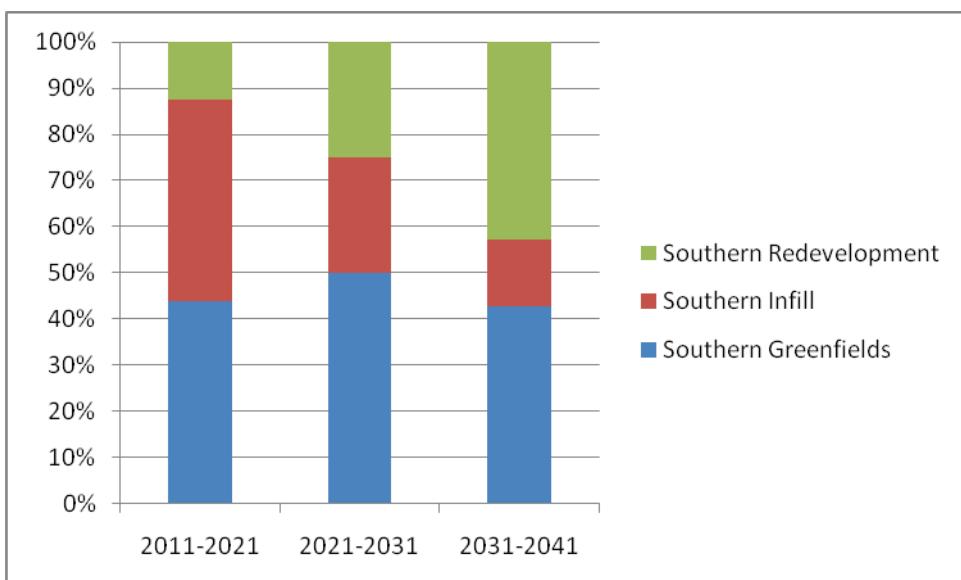


Figure 24: Southern housing patterns



6.2 Infill and Redevelopment

The prioritisation and sequencing of growth within the existing urban area needs to be undertaken in an integrated way, driven by appropriate criteria.

Originally the criteria that were recommended for assessing the prioritisation of infill growth and urban redevelopment were concerned with:

- Market potential
- Regeneration needs
- Catalyst effect
- Urban form
- Infrastructure
- Legacy work

These criteria were considered when the preferred urban form was being developed. Consideration of the “neighbourhood areas” outlined in Section 3 above - comprising areas with opportunities for centres based growth and opportunities for other growth by way of intensifying areas with higher amenity and market feasibility – resulted in the following criteria:

- Infrastructure capacity
- Market feasibility
- Planning framework
- Financial planning
- Partner demand
- Catalyst opportunity
- Role and function
- Urban form
- Strategic need

This list was then refined and a list of five criteria was used to assess each of the neighbourhood areas. These criteria were:

- Recognition of existing planning projects currently underway
- Investment in the transport network
- Other infrastructure investments, especially water and wastewater
- Centre role and function
- Ability of the private sector to develop (market feasibility)

The following section provides a fuller description of each of the criteria used in the prioritisation process.

6.2.1 Explanation of Criteria

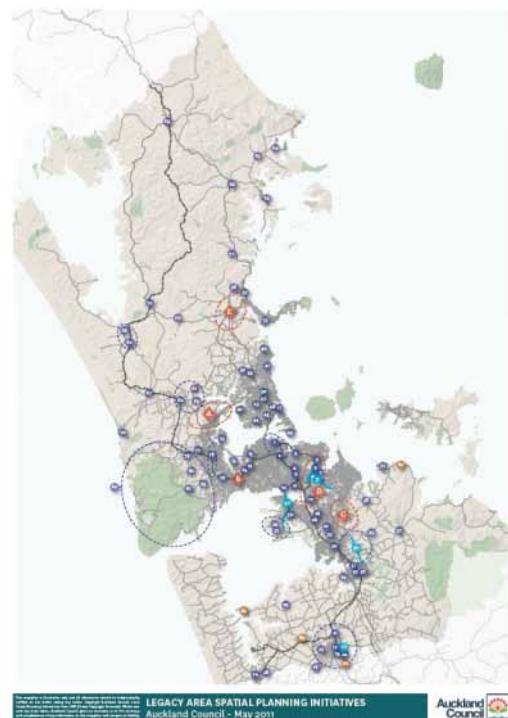
The following set of criteria has been developed to determine the prioritisation and sequencing of neighbourhoods and their associated centres to ensure that sufficient growth is provided for in alignment with infrastructure and investment.

1. Planning framework

Prioritising areas for growth, as part of the Auckland Plan, must be done within the context of legacy projects that had been commenced by the former councils. The Auckland Council has inherited 84 legacy projects, ranging from centre and precinct plans to structure plans and urban renewal frameworks, which were underway when the Auckland Council was established. A stock take of these projects identifies what stage of the planning process they are at currently.

The council has also committed considerable funds and resources to six transformational projects across the region that must be taken into account. These projects are: Northern Strategic Growth Area (NorSGA) Stage 1, New Lynn, Flat Bush, Tamaki, Silverdale North, and the City Centre).

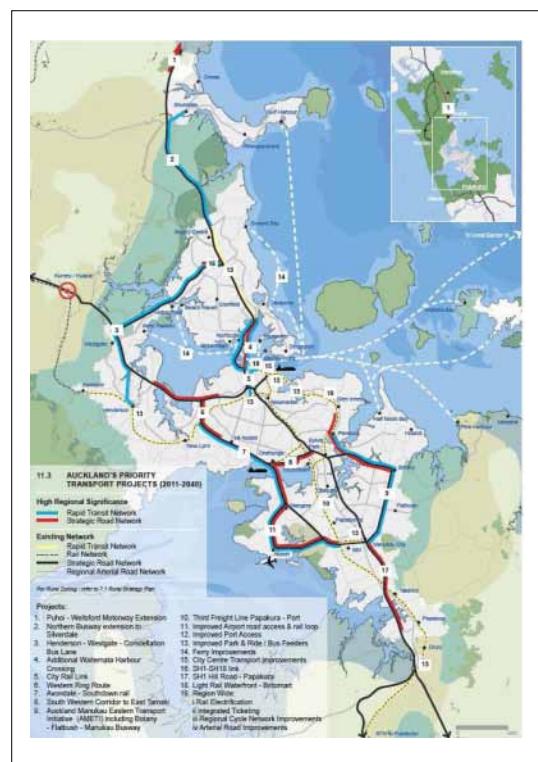
In addition, there are a range of plan changes under consideration by the council which change zoning to provide additional growth in centres and business areas.



2. Transport

Integration of land use with transport is an integral component of a quality compact city model, and a critical policy directive of the Local Government (Auckland) Amendment Act 2002 implemented through Change 6 to the Auckland Regional Policy Statement. Alignment of areas of growth and key transport projects is an important criterion to ensure growth leverages off existing investment and any underutilisation of transport infrastructure.

Areas identified for growth should be aligned with planned and funded transport investment. This includes existing investments made in the transport network, such as rail spurs to Onehunga and Manukau City, and key transport projects commitments.



Twelve key transport projects are identified in the Auckland Plan as follows:

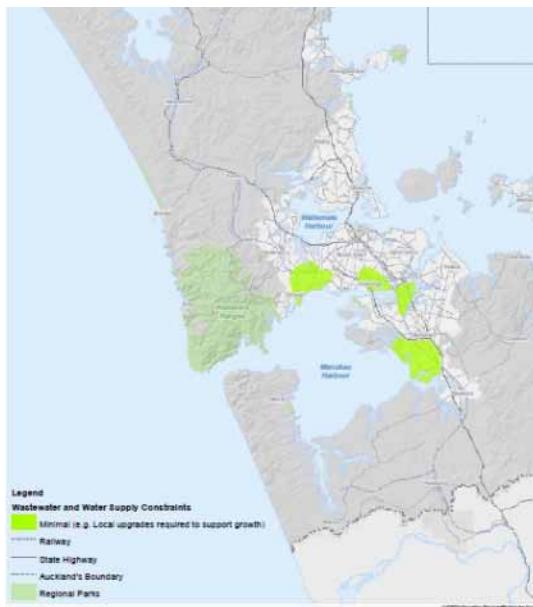
1. Rail Electrification and Integrated ticketing and fares
2. City Centre Rail Link
3. Western Ring Route
4. AMETI and Botany-Manukau busway
5. South West Corridor and East Tamaki
6. Airport Access – rail loop and SH20A + 20B upgrade
7. Third rail line Westfield and Papakura
8. Additional Waitemata Harbour Crossing
9. Puhoi-Wellsford
10. Northern Busway Extension
11. Bus lane/busway Albany-Westgate-Waterview
12. Avondale to Southdown rail

3. Water and Wastewater

The ability to service growth with water and wastewater is critical to implementation. There are a number of existing constraints to water and wastewater servicing that need to be considered when prioritising and sequencing areas for growth, particularly for the first ten years.

The Central Interceptor (wastewater) is a major constraint to identifying additional growth on the Isthmus until 2025. However, growth to existing zoning capacity can be provided for with minimal impacts until this time. Additional wastewater constraints have been identified in the South, where there are existing moratoria on connections to the network.

Expanding water supply to the north of the region is more difficult.



4. Centre role and function

Centres play an important role and function in how the region works and the creation of places. The classification of centres provides a hierarchy that can usefully be reflected in the prioritisation and sequencing of growth. The hierarchy recognises the pre-eminence of the city centre and the metropolitan centres as places where there is greatest capacity for change with opportunities for employment of a scale that will contribute to business agglomeration and higher density residential growth. These centres are prioritised highest in the assessment. In most cases this growth is already prioritised by way of legacy projects. The town centres, next on the hierarchy and the ranking for prioritisation, also represent



opportunities for growth that are individually significant in terms of the scale of change that they provide, their significance is built on the facilities and services that they provide to communities and their accessibility. Lastly, local centres generally provide for growth of a scale which is important collectively, but at a centre-level, will be relatively modest.

5. Market Feasibility

An important factor in identifying areas for growth is that development is feasible because there is market interest and it is economically viable. To determine market feasibility a model was developed that considers factors such as building age, average capital value, average site size, availability of vacant land, and land for infill or redevelopment. The model then builds a picture to understand where and how the market can respond, and where it may be feasible to increase capacity, provided that there is a level of intervention to realise that potential. This enables the analysis to not only consider a theoretical capacity, but also includes a market feasibility perspective to inform the likelihood of the theoretical capacity being taken up, or in some cases, exceeded.

It is noted that regeneration was not included as separate criterion because it was seen as part of the criterion "Ability of the private sector to develop", regeneration being the flip side of market attractiveness. This is further discussed in the Centres and Corridors workstream technical paper.

6.2.2 Identification of areas for growth

The above criteria have been applied across the region to residential neighbourhoods, centres and business areas to identify a range of priority areas for growth. The criteria have not been weighted, with priorities based on the highest combination of scores.

Table 19 below identifies priority planning and growth areas for the first ten years (2011 – 2021). Each of these areas is at different stages of planning and will require different responses for implementation to occur. The areas in Table 19 tend to reflect the commitments already made by the previous councils in the region.

Table 19: Priority areas for growth 2011-2021 (draft)

Neighbourhoods (residential)	Town centres (residential + employment)	Business areas (employment)
CBD Core	CBD	Airport (stage 2)
CBD Frame	CBD Fringe	
Takapuna	Takapuna	Wairau Valley
Orewa	Orewa	Silverdale South (Industrial) Hibiscus Coast Gateway

Neighbourhoods (residential)	Town centres (residential + employment)	Business areas (employment)
Tamaki	Glen Innes Panmure	Tamaki Campus Innovation Precinct
Avondale	Avondale	
Ellerslie	Ellerslie	Great South Road
New Lynn	New Lynn	
Onehunga	Onehunga	Te Papapa
Mt Wellington / Sylvia Park	Sylvia Park	
Manukau Central	Manukau	Mangere Gateway
Albany Central	Albany	
Otahuhu	Otahuhu	
Flat Bush	Flat Bush	
Takanini (stage 1-3)		
Westgate	Massey North	
Hobsonville Airbase		Hobsonville corridor

During the first ten years it is important that council also identifies the next group of priorities to ensure that planning commences to align infrastructure and investment / funding enabling implementation in the second ten years (2021-2031). Analysis of the region against the prioritisation criteria indicates that the following areas are likely to be identified for the second ten years:

Table 20: Priority areas for growth 2021 – 2031 (draft)

Neighbourhood (residential)	Centre (residential and employment)
Birkenhead	Highbury
Glen Eden	Glen Eden
Henderson	Henderson
Newmarket	Newmarket
Northcote Central	Northcote

Neighbourhood (residential)	Centre (residential and employment)
Papakura	Papakura
Papatoetoe	Old Papatoetoe Hunters Corner
Royal Oak	Royal Oak
Takanini (Later stages)	
Browns Bay	Browns Bay
Forrest Hill	Sunnynook
Glenfield	Glenfield
Milford	Milford
Mt Albert	Mt Albert Sandringham
Ponsonby	Three Lamps
Pt Chevalier	Pt Chev
Silverdale	
Te Atatu Peninsula	Te Atatu
Three Kings	Mt Roskill Balmoral Three Kings

6.3 Employment

The prioritisation of additional employment development for the period 2021 to 2041 can be less structured than that for residential, a wide range of opportunities need to be provided to enable economic growth and development. The main issue for sequencing and timing is major transport investment.

Generally, additional employment capacity should be added early to ensure that land costs are not an inhibiting factor to business expansion and economic growth, while certainty over the location and intensity of the main employment areas is required for planning associated with transport, bulk infrastructure and housing.

Additional capacity along the proposed central regional spine should be timed to co-ordinate with transport investments. This suggests that additional capacity in the City Centre and city fringe are considered early in the planning phase to ensure that capacity is provided ahead of decisions on the central city rail loop. As public transport links to the North Shore strengthen, and there is certainty over the nature and timing of the additional harbour crossing, then expansion can be facilitated in the corridor leading from Takapuna / Northcote up to Albany.

With regard to land for industrial and warehousing activities, early introduction of additional business land in the north-west will help to address commuter pressure from growth of the northern and western resident population. The north-western sector faces a more imminent constriction on business land supply, than the south. This area will also benefit from completion of the western ring route (SH20).

Expansion of selected town centre environments needs to proceed early to help address demands from the large format retail sector, as well as to send clear signals as to the balance between residential and business intensification around the major town centres.

Appendix One – Preferred Urban Form Methodology

Steps	Timing	Auckland Council Action
Collation of existing information/maps (including capacities, constraints, heritage, infrastructure etc). First go at revised Map 9	Week 1 9 to 13 th May	This first step relies on pulling together existing information from previous work including assessments to date and incorporating legacy work (TLA Growth Strategies).
Develop key criteria/principles for identifying areas for growth	Week 2 16 to 20 th May	As part of a workshop with the technical teams, the initial output of the previous week will be tested and further developed. An initial set of spatial criteria / principles should be developed
Update and further develop preferred urban form, based on outputs of previous weeks workshop and associated on-going work.	Week 3 23 to 27 th May	Urban form team will progress this work, calling in other expert staff as required
Evaluate areas for growth against principles Refine areas - possibly identifying new areas and modifying some (second draft) Identify additional information that is needed to understand opportunities/constraints	Week 4 30 to 3 June	This step will involve a more methodical review of the draft preferred urban form proposals against the developing principles / criteria.
Technical work inputs to provide further refinement and evaluation as scenario testing work comes available and capacity work is developed.	Week 5 6 to 10 th June	As more technical information becomes available it will be used to workshop and integrate this work with the preferred urban form. The preferred urban form will be updated and refined as this work unfolds (third draft).

Steps	Timing	Auckland Council Action
Implementation / funding issues need to be considered.		<p>A first go will be made in terms of staging / sequencing.</p> <p>A further meeting of the technical teams is likely to feedback proposals and to check alignment.</p>
Prepare final draft of preferred urban form	Week 6	Prepare final draft text and diagram(s).
Refine/review –(final map)	Week 7	Further integration / refinement, respond to feedback from other groups, governance team. Possible council workshop
Process/decision report	Week 8	<p>To be drafted simultaneously as the process is occurring, identifying the decisions made at each step to ensure there is a systematic sequence of logic as to how each step was made.</p> <p>Also need to ensure there is a process to consider other options as to how we get to each step – part of testing the logic.</p>

Appendix Two: Regional Landscapes

The Auckland Region Policy Statement (Change 8) lists the Region's important landscapes as including:

- the visually dominant volcanic cones that are now signature features of the Region's volcanic heritage and identity and the internationally unique volcanic field on which the North Shore, Auckland and Manukau urban areas are founded and which is represented by a number of natural features of national and/or regional geological significance and locally important landscape value, such as Tank Farm (Tuff Crater), Lake Pupuke, Orakei Basin, Crater Hill and Pukaki Lagoon;
- the iconic indigenous rainforest and landforms of the Waitakere Ranges and the associated eastern foothills that provide ecological linkages with the Ranges and contribute a sense of contrast and a buffer between metropolitan Auckland and the Ranges.
- the spectacle of the West Coast margins of the Waitakere Ranges, that comprise with sheer cliffs and extensive indigenous vegetation interspersed with framing the black sands and surf of Piha, Karekare and other beaches and settlements; places that now have iconic status for much of the regional community;
- the long, straight, black sand beach from Muriwai to South Kaipara head, backed by sand dunes, parkland and exotic forest and terminating in the high dunes and spit at Papakanui;
- the more passive and contained embayments of the eastern Rodney coastline, with dramatic headlands and remnant coastal forest and dune systems, framing some of Auckland's popular most heavily used recreational beaches, giving way to more remote and exposed beaches at Pakiri and Te Arai;
- the complex landscapes of inland Rodney dominated by an increasingly diverse mix of pastoral farming, forestry, vineyards, numerous remnants of indigenous forest, production activities and scattered buildings on rolling terrain;
- the contrasting expansive vistas of the large western harbours (Manukau and Kaipara) with their extensive intertidal flats, sand banks and meandering channels and narrow entrances guarded by headlands and shifting sand bars and their regional, national and international significance as bird habitats
- the contrast between the relatively narrow, urbanised and busy lower Waitemata Harbour with its focus on the port, commercial hub and the harbour bridge, and the middle and upper reaches with their important natural areas. These areas include extensive saltmarsh, wetlands and tidal inlets, shore bird habitats and unique shell bank associations, alongside escarpments and hill sides of indigenous vegetation;

- the diverse topography of coastal flats, lowlands, basins, rolling land and steep hills of the Manukau and Papakura areas, dominated by pasture and scattered stands of indigenous vegetation, with more extensive areas of exotic forestry on the steeper land, some significant quarries and rural residential development in some locations throughout;
- the richly productive rural landscapes of the Franklin lowlands; and the forest covered hills of the Hunua Ranges and its adjoining foothills, with and the vegetation corridors linking to the coastal margins of the Firth of Thames with its and the water catchment lakes, dams and related water supply infrastructure;
- the diverse form and pattern of the islands of the Hauraki Gulf and the seascapes to and from these islands, their importance for biodiversity conservation and their role as significant components of the Hauraki Gulf Marine Park;

Appendix Three: Business Area Analysis

Area Unit	Total Employees	Industrial	%	Retail / service	%	Office	%
Auckland Central West	26979	2427	9%	5949	22%	18462	68%
Auckland Central East	20037	1569	8%	4386	22%	13959	70%
East Tamaki	15765	11484	73%	1737	11%	2346	15%
Manukau Central	14565	6411	44%	4095	28%	3909	27%
Mt Wellington South	13785	10032	73%	1407	10%	2172	16%
Auckland Harbourside	13062	2280	17%	2799	21%	7926	61%
Mangere South	12756	8334	65%	2460	19%	1818	14%
Penrose	11304	7488	66%	1632	14%	2073	18%
North Harbour East	11073	6558	59%	1632	15%	2799	25%
Newmarket	10140	1539	15%	3255	32%	5301	52%
Westlake	7923	1365	17%	3894	49%	2625	33%
Takapuna Central	7407	528	7%	2409	33%	4410	60%
Ellerslie South	7200	2247	31%	933	13%	3942	55%
Parnell West	6783	1518	22%	2034	30%	3189	47%
Grafton East	6342	435	7%	4971	78%	912	14%
Rosebank	6243	4989	80%	465	7%	696	11%
Windsor Park	5163	2544	49%	1173	23%	1410	27%
Otahuhu West	5094	2055	40%	2064	41%	894	18%
Henderson South	5049	2112	42%	1839	36%	1029	20%
Lynnmall	4893	1767	36%	2247	46%	831	17%
Mt Wellington North	4791	2487	52%	1608	34%	630	13%
Te Papapa	4734	3507	74%	603	13%	561	12%
Glenfield North	4620	2574	56%	1305	28%	711	15%
Freemans Bay	4197	222	5%	1068	25%	2859	68%
Grafton West	4185	849	20%	894	21%	2424	58%
Kingdale	3948	1914	48%	1254	32%	750	19%
Wiri	3876	2226	57%	948	24%	645	17%
Mt Eden North	3738	1167	31%	915	24%	1620	43%
Albany	3663	402	11%	1659	45%	1575	43%
Fairdene	3528	717	20%	1728	49%	1056	30%
Target Road	3378	1185	35%	1404	42%	756	22%
Grey Lynn East	3075	657	21%	1002	33%	1380	45%
Ferndale	3003	1140	38%	780	26%	1050	35%
Epsom North	2946	279	9%	1581	54%	1062	36%
Eden Terrace	2934	915	31%	528	18%	1452	49%
Orewa	2829	378	13%	1347	48%	1077	38%
Onehunga South East	2808	1152	41%	1122	40%	492	18%
Kumeu	2703	1230	46%	897	33%	504	19%

Area Unit	Total Employees	Industrial	%	Retail / service	%	Office	%
St Johns	2604	1443	55%	420	16%	705	27%
Newton	2589	612	24%	636	25%	1317	51%
Bledisloe Park	2577	1023	40%	882	34%	648	25%
Pukekohe North	2532	582	23%	1167	46%	756	30%
Mt St John	2529	249	10%	909	36%	1335	53%
Warkworth	2520	597	24%	1092	43%	786	31%
Henderson North	2481	165	7%	1236	50%	1047	42%
St Marys Bay	2412	405	17%	519	22%	1455	60%
Waiheke Island	2361	672	28%	1014	43%	570	24%
Mt Hobson	2358	240	10%	1392	59%	699	30%
Browns Bay	2301	303	13%	1458	63%	510	22%
Howick Central	2259	372	16%	1251	55%	603	27%
Kingsland	2211	867	39%	852	39%	462	21%
Silverdale South	2193	1509	69%	435	20%	210	10%
Ponsonby East	2109	225	11%	879	42%	990	47%
Flat Bush	2106	981	47%	528	25%	552	26%
Onehunga South West	2082	645	31%	657	32%	750	36%
Balmoral	2070	201	10%	768	37%	1056	51%
Tuff Crater	2061	231	11%	627	30%	1176	57%
Takanini South	2004	981	49%	744	37%	255	13%

Appendix Four: Summary of Relevant Feedback on the Auckland Plan Discussion Document (Auckland Unleashed)

The Auckland Plan Discussion Document 'Auckland Unleashed' was released for informal public feedback in May 2011. Comments covered a wide range of topic areas, many of which had relevance to the Preferred Urban Form work stream. The following section provides a summary of the key points raised relevant to the Preferred Urban Form work stream.

Priority Areas

- Support for international city centre as a top spatial priority.
- Support for Tamaki and Glenn Innes as an opportunity area.
- However, questions regarding how areas were selected and concern that other areas are not ignored.

Development Strategy Map

- Need for the map to show more information such as significant infrastructure, ecological areas, landscapes, heritage, open space and environmental constraints.

Quality Compact Urban Form

- Support for quality compact urban form but needs to be more detail about where growth areas will be. Support for most growth to occur within the current urban limit. Many submissions said that compact urban form is much cheaper for infrastructure provision, particularly transport, energy and water infrastructure. Also comments that it is cheaper to expand next to the existing MUL than to intensify rural and coastal areas.
- Strong support for new developments to be near public transport links.
- High level of support for greenbelts.
- Support for intensification but some opposition to intensification in high quality areas.
- Support for regeneration of targeted areas, intensifying around town centres and/or along transport corridors.
- Overwhelming support for brownfield development over continued Greenfield development.
- Widespread support for maintaining the MUL.
- General support for well planned intensification but acceptance of some growth in well planned greenfield areas and that new greenfield areas need to meet strict criteria.
- Strong desire for neighbourhoods to retain their sense of identity and character.
- Important to protect heritage values of neighbourhoods where they exist however not the same level of protection for character neighbourhoods.

Infrastructure

- Importance of public transport as a key goal. Importance of inner city rail loop.
- Several comments regarding the need for better integration of land use and infrastructure planning.
- Strong support for intensification along transport corridors and around transport nodes.
- Provision of public transport (or roads) first before new areas are developed.

Strengthening communities

- In terms of reducing inequalities throughout the region, there was support for strengthening communities and improving quality affordable housing.

Housing

- Many submissions were received on the issue of housing as it is considered as a 'key determinant of social wellbeing.' A significant increase in housing was considered more important than other priorities identified in the discussion document. Key issues relating to housing included: significant housing supply shortfall, low level of housing affordability, lack of choice and poorly designed and built houses.

Local Centres

- Desire to see smaller centres provided for in terms of local employment and local character.

Rural and Natural Environment

- Strong support for retention of Auckland's rural environment. Strong support for coastal management and the protection and enhancement of indigenous biodiversity and heritage protection.
- Many submissions were directed at the question of what could be done to protect Auckland's unique natural and rural landscapes. Submissions acknowledge the importance of landscape.
- Mixed views around further 'lifestyle' development and subdivision in the rural area.
- Some support for some well designed growth in rural towns and villages.
- The need for appropriate land use in regard to natural hazard risk was highlighted in a number of submissions such as 'no go' zones for areas known to be affected by coastal inundation, flooding and earthquake hazards.

Business Land

- General agreement that Auckland needs more business and industrial land close to residential areas to support employment.

Location and Sequencing of Growth

- Specific knowledge of the location and timing of new areas to be developed was considered vital by many in order to provide for infrastructure.

References

- Auckland Council (2011) *Area Spatial Planning Stocktake*
- Auckland Council (2011) *Auckland Unleashed Discussion Document*
- Auckland Council (2011) *Auckland Unleashed Discussion Document Feedback Summary Report*
- Auckland Regional Council (2007) *Housing and Households in the Auckland Region. 2006 Census Series*
- Auckland Regional Council (2009) *Future Land Use and Transport Study: Future housing demand*
- Auckland Regional Council (2006), *Auckland Regional Policy Statement*
- Auckland Regional Growth Forum (1999) *Auckland Regional Growth Strategy*
- Auckland Regional Council, Business Land and Economy Group *Business Land Survey*, Auckland Regional Growth Forum
- Auckland Regional Council (2010) *Capacity for Growth Study*
- Auckland Regional Council (2008) *Profile of Higher Density Living in the Auckland Region*
- NZ Government (2011) *Financial Instruments and Funding*, Central Governments position paper on the Auckland Spatial Plan
- Franklin District Council (2007) *Franklin District Growth Strategy*
- Auckland Regional Council (2010) *Futures Report*
- Leggatt-Cook, C. (2007), *Housing demand, supply and affordability in the Auckland Region, a review of current trends and drivers*, Auckland Regional Council.
- Local Government (Auckland) Amendment Act 2002
- Manukau City Council (2010) *Towards 2060, Manukau's Spatial Plan*
- Gray, N., Hill, G (2010) *Planning Auckland's Housing Future*
- Grimes, A. Mitchell, I. Smith, V (2006) *Housing supply in the Auckland region 2000 – 2005*. Motu Economic and Public Policy Research
- Rodney District Council (2010), *Rodney Rural Strategy*
- Auckland Council (2011) *Scenarios Evaluation*
- Statistics New Zealand (2006) *NZ Census*
- Urban Technical Advisory Group (2010) Ministry for the Environment

Attachment One: Towards a Preferred Urban Form: Residential Capacities