employment 8

8.0 EMPLOYMENT

8.1 employment approach

The UDS area is the economic focal point of the South Island and to a certain degree it can be said that economic failure in the sub-region will have a significant effect on prosperity in the entire Island.

While the economy has agricultural origins that are still very important today, it has successfully adapted to the industrial movement and is now visibly leaning towards a more 'suburban', service-oriented structure.

This most recent sequence has been followed in all of the Western economies and has a link to the globalisation trend typified by the 1980's and 1990's. This saw most of the planet's basic secondary 'product' manufacturing re-locate to the high labour pool, low paying markets of China, India, and south-east Asia. Irrespective of the long-term sustainability of mass-produced cheap products subsidised by the availability large-scale transportation and cheap fuel, there is no way in which any local model could now currently compete with the price point of most imported goods due to their immense scales of industrial production (without heavy government market regulation contrary to current governance philosophies and legally-binding free trade agreements).

This reality is partially responsible for the recent push towards a value-adding skill-based 'knowledge' economy where the quality of original outcomes rather than the quantity of generic outputs is the primary focus of market interest. This model can however only be successful on a socially equitable basis if the education and skills demanded of more and more jobs can be provided to all social groups.

Employment is also accepted as a critical pre-requisite for a number of social issues. A common administrative perception can be that dealing with employment is an economic issue; but dealing with unemployment is a social issue. The UDS should be guided by a view that employment and unemployment are fully and legitimately both economic and social issues.

Accordingly, a re-focus of skills and emphasis may be needed in both the economic and social planning divisions of the UDS partner organisations to reflect this.

Aside from simply generating the income needed to participate in the community (and even including the means to allow siblings / spouses to participate in voluntarism), employment helps to establish pride, belonging, self-respect and self-worth, and community identity. The ability to be gainfully employed and in that employment have the opportunity to up-skill and progress can be a critical factor in a person's sense of motivation to continue participating as an active member of the community.

Employment is also, as the generator of essentially all income at some point, obviously critical to the ability to implement civic and urban design improvements, strategies to support minority or disadvantaged groups, and so on.

Maintaining a healthy economy through having ample viable employment opportunities for all sectors of the population is therefore one of the most important issues facing the UDS area. Two key 'sectors' relate to industrial and 'new economy' business services / commercial uses.

8.2 employment aims

- → Providing adequate employment land to effectively meet needs through to 2041, including the provision of suitable land for after 2041;
- → Attracting and supporting high value, high quality, high employment, value adding new economy businesses;
- → Providing superior business settings to attract small business;
- → Providing desirable strategic locations for transport, distribution and industry activities;
- → Making the UDS an urban area where mobile labour and employment sources feel, through character and quality of life issues, that they want to come and live / work / play in the sub-region;
- → Using employment to contribute to an efficiently functioning urban form within the UDS area and beyond based on the movement and trip patterns needed by people to access living, working, resting, learning, and playing environments;
- → Work towards a higher-value economy and employment that raises income levels across all sectors;
- → Ensuring that there is a good balance between the types of employment available and the ability and skills of the community to take up those opportunities.

8.3 employment issues

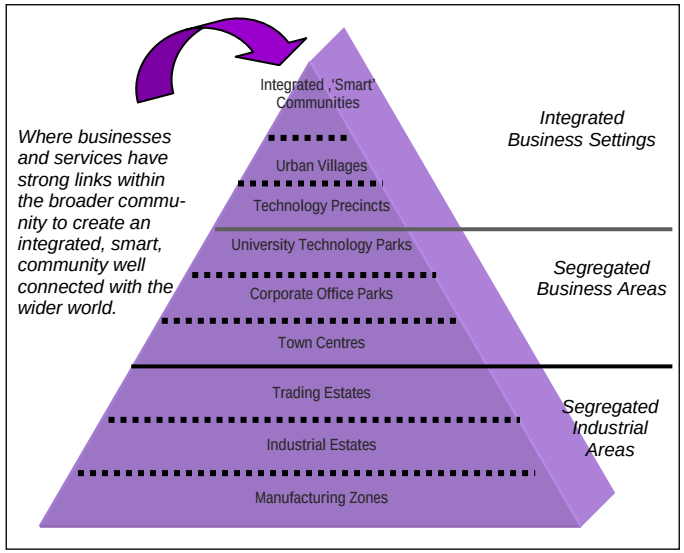
- → Ensuring a stable, adequate and affordable land supply is provided;
- → Maintaining a coherent urban form that considers the operational requirements of different employment uses in high amenity environments. In particular the needs of larger, 'dirtier' industries present a challenge if placed almost anywhere other than the isolated periphery (which may not always be an appropriate setting for other reasons);
- → Managing the transition of larger employment uses and brownfield redevelopment opportunities as intensification increases pressure and values on inner-city land;
- → Understanding structural changes to the economy over time that may limit the applicability of predictions made based on existing trends;
- → Providing employment opportunities that can be engaged by all communities, including lower-income or lower-skilled workers who may still require training;
- → Understanding the tensions between efficient supply of land and maintaining realistic locational choice for employers;
- → Exploring the opportunities to reduce suburban homogeneity and improving self sufficiency by providing more (compatible) employment opportunities within these established areas in a way that maintains urban form logic.

8.4 prosperous economies

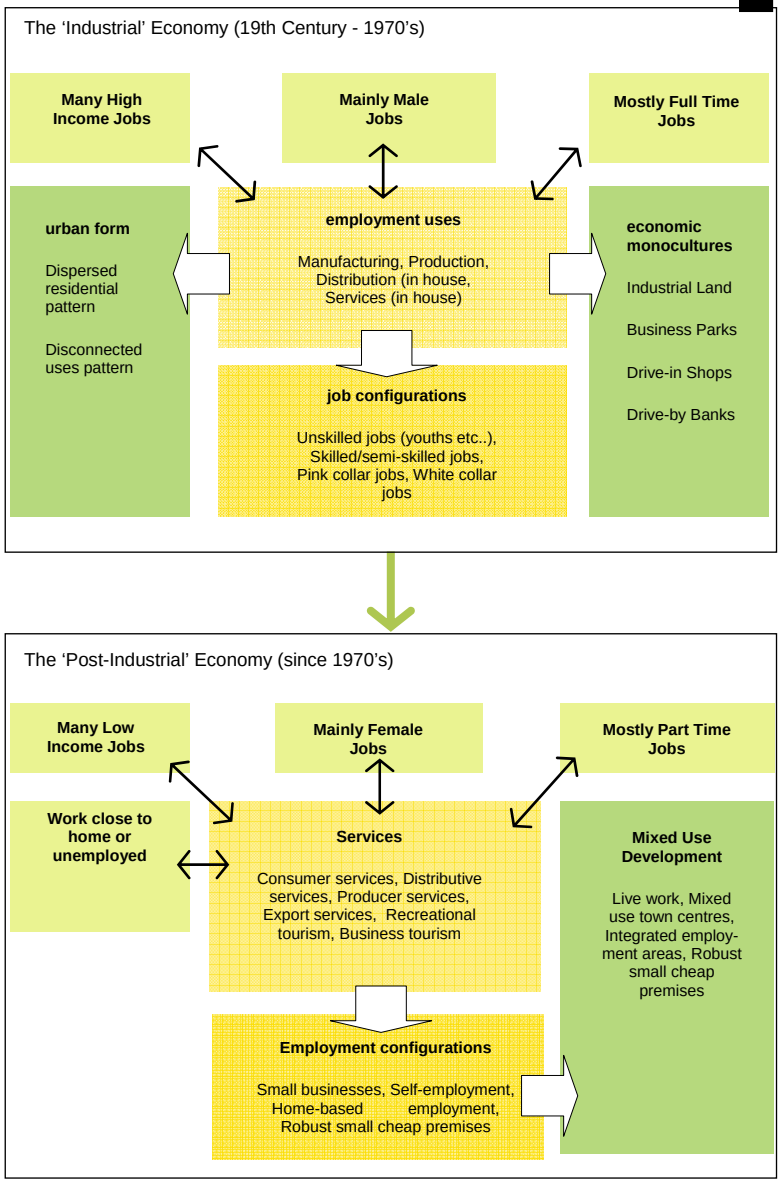
The UDS employment approach is underpinned by a conceptualisation of urban employment ecologies. Excluding primary agricultural / horticultural production, these range from the 'dirtiest' forms of industrial and manufacturing based employment through (more dominant up until the 1970's) to the cleanest, most integrated 'smart' and knowledge based settings that help to focus a community into a connected, high-quality environment (increasingly dominant since the 1970's). These tend to be high-value uses, needing smaller sites and most notably employing less people per firm. Research in Western economies by Prosperous Places suggests that in general between 60-80% of new jobs are in firms of 20 people or less; 60-80% of these involve 6 people or less, with most being residential compatible.

In a 'new' economy, integrated business settings are encouraged where possible. To be successful however it must be driven by a desire for high value-adding intellectually-based ventures that can be exported to other areas and generate further income (although this can be a useful outlet for part-time or student employment, which can be harder to accommodate in experience or knowledge based employment). A poor outcome would be a focus on more basic consumer services that are lower paying and require much lower skill levels.

While some of this need will be met by existing tertiary education markets, a significant emphasis on more traditional apprenticeship programs may play an important role in the UDS. Issues relating to community accessibility - the ease with which people who seek a particular type of employment are able to access it physically as well as in terms of their skill levels, are of particular relevance to a prosperous economy.



ABOVE: FIG 8-1: The employment pyramid. This conceptualises the range of uses from larger-scaled, less-skilled, lower-paying industrial manufacturing through to smaller scaled, higher-skilled, higher paying integrated business settings. Prosperous Places, 2006.



ABOVE: FIG 8-2: Western economies have changed significantly since the 1970's. It is likely that further changes will be likely well before 2041, but how or to what is difficult to predict. Prosperous Places, 2006.

8.5 growth and employment

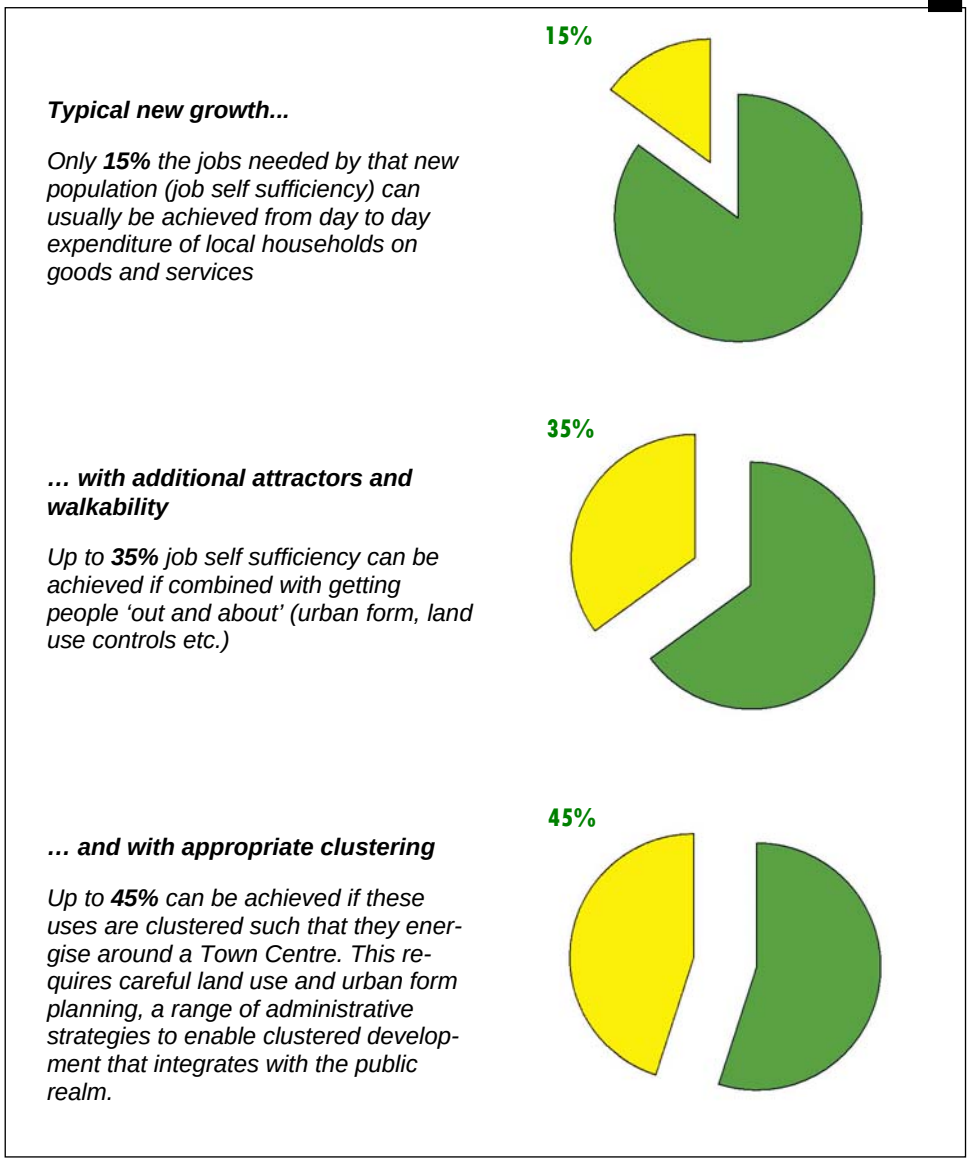
The way in which new growth is delivered can have a large impact on the provision of local jobs.

Where possible, the provision of jobs locally is supported as this can significantly help to achieve multiple aims of sustainability and less explicitly several of the assumptions and hopes underpinning the UDS and the community-endorsed "Option A":

- → Reduces vehicle trips;
- → Reduces time spent travelling (which can then be spent elsewhere in the community even if it is not lost 'productive' employment time);
- → Helps to incrementally reduce traffic congestion at peak periods;
- → Helps make places that are occupied '24/7', efficiently using space;
- → Encourages more healthy lifestyles based on more walking, cycling, and physical activity;
- → Helps facilitate people connecting as a part of their community based on the active time they spend in it rather than just a convenient abode where rest in the evenings;
- → Helps generate outcomes where income generated in one location is spent in one location as people begin to use other local support services (lunch bars, convenience retail, child care centres, printing centres, other business services, and so on);
- → Contributes to more flexible lifestyles where people are often able to enjoy more flexible hours, 'nip home' for lunch with family members, and so on;
- → Helps reduce the dependency of retail and other uses on the prosperity of other areas and through traffic for trade and viability.

An approach that focuses on the integrity of centres is the best way of achieving this outcome, and within town centres the broadest range of activity types possible should be encouraged within a framework of building towns that have strong identities underpinned by quality built character and public realm.

Larger-scale industrial uses can operate at an inherently non-local scale, requiring too many employees and inputs to be realistically met by one locality (although some famous ventures in England during the industrial revolution and also the New Zealand 'think-big' projects of the 20th century did involve building their own towns around them that still survive in various states of prosperity today). These are more about strategic location and accessibility - particularly passenger transport. An easy solution can be to progressively locate industrial uses at the periphery or at strategically well-connected urban sites. Traffic to them can generally flow in the counter direction to peak flows (out of town in the morning rather than into town), and the low cost of land and lack of neighbours can help make financial and reverse sensitivity aspects more positive. However this can disconnect employees from their home community and if not managed can create future contaminated soil issues on the otherwise agriculturally productive hinterland (not needed today but possibly desired in the future).



ABOVE: FIG 8-3: Typical relationships between the nature of employment generated with growth depending on the management approach taken.

8.6 current employment trends and recent growth

Industrial, wholesaling, transport and utility service activities account for almost half (46%) of the Canterbury Region's wealth creation in 2001, but a lesser proportion of employment (36%).

The Canterbury Region is presently more reliant on *'manufacturing'*, for its wealth creation than New Zealand as a whole - in 2001, 22% of the Canterbury Region's wealth creation (measured by 'gross regional product') came from *'manufacturing'*, compared with 17% for New Zealand as a whole.

Wealth creation from 'wholesaling' and 'transport' was slightly less (5% each for the Region compared with 6% nationally), as were 'utilities and depots' (7%, compared with 10% nationally).

'Construction's' contribution of 7% matched that nationally (*Statistics New Zealand* figures quoted by *'Property Economics'* 2006).

Compared with the 'Auckland Region', the 'Greater Christchurch Region' has slightly more 'new economy' jobs (equivalent to 26.4% of the resident population, compared with 25.5% for the Auckland Region in 2005).

The 'Greater Christchurch Region' has comparatively more jobs in 'electrical and electronic equipment manufacturing' (211 more jobs), 'scientific research' (130 more jobs) and in accommodation (315 more jobs).

The 'Greater Christchurch Region' also has comparatively more jobs than the Auckland Region in the community services sectors of 'hospitals and nursing homes' (305 more jobs), 'community care' (288 more jobs), 'other heath services' (375 more jobs) and 'government administration' (193 more jobs).

Over the last 5 years (from 2000 to 2005), only 31% of all of the Greater Christchurch Region's urban employment growth came from activities requiring *'industrial'* land:

Construction:

5,185 jobs (13% of the increase) (48% of construction employment is in industrial estates, the balance 52% is dispersed - including self-employed, contractors, and trades people working from home)

Manufacturing:
2,594 jobs (7% of the increase)

Wholesaling:
2,273 jobs (6% of the increase)

Transport and Storage:
1,886 jobs (5% of the increase)

Total:

11,975 jobs (31% of the Region's jobs growth)

However, new *'Service Sector'* employment growth far exceeded that of *'industrial land'* uses, increasing by 26,296 jobs over the same period. The *'Services Sector'* created 68% of all employment growth in the Region between 2000 and 2005 (twice the increase in the number of jobs that industrial land uses provided).

Over the last 5 years (from 2000 to 2005), most employment growth has been generated by 'finance and business services'. These increased employment by 9,030 jobs (23% of the urban employment increase in the 'Greater Christchurch Region').

Major components of this recent *'Service Sector'* employment growth included:

Business Services:
7,275 jobs (19% of the Region's total urban employment increase. 40% more jobs than the increase in construction, and equivalent to 60% of all the jobs created by all industrial land uses)

Heath Services:
2,830 jobs (7% of the increase)

Community Services:
1,420 jobs (4% of the increase)

Education:
1,120 jobs (3% of the increase)

Other major sources of the Region's recent employment growth include:

Retailing:
5,505 jobs (14% of the Region's employment increase)

Accommodation, Cafes:
2,570 jobs (7% of the increase)

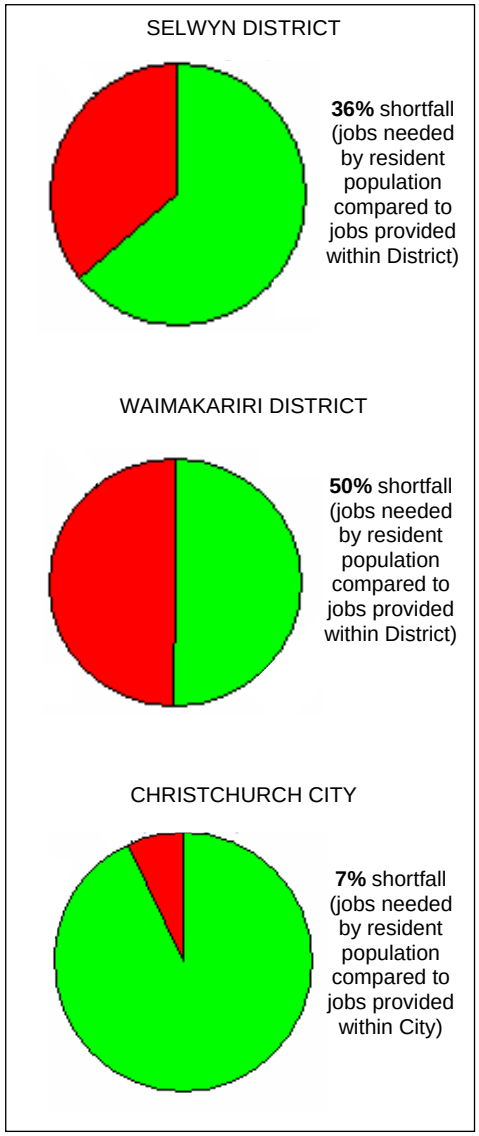
Personal / Other Services:
2,113 jobs (5% of the increase)

8.7 what this means spatially

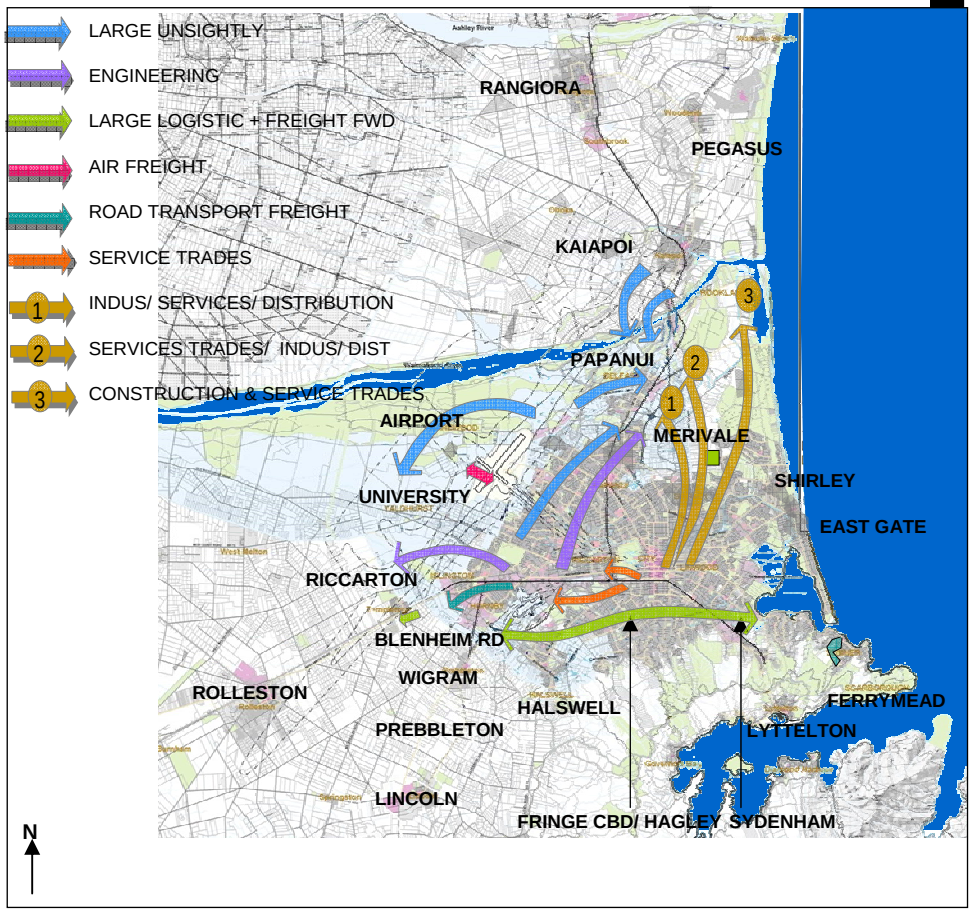
Peak industrial land demand has been predicted to be reached by 2011 and after 2021 the total demand for industrial land is projected to decline (Property Economics). The sub-region however still needs to find suitable land and strategic locations for large scale transport and distribution activities and support services in addition to land for less attractive industrial land uses to 2041 and beyond.

Business services needs can be mostly met through careful planning of intensification and redevelopment within towns and new nodes (Greenfield growth areas). Bigger industries can be anticipated to move away from the CBD and places such as Hornby in response to growth, rising values, and facilitated suitable locations further towards the periphery. Progress on strategic roading improvements (notably the Northern Arterial (Belfast) or Southern Arterial (Hornby / Halswell) will play a part in what areas get opened up or made more viable to industry.

Overall based on current statistics, each of the three local authorities fails to provide sufficient jobs to meet the number required by their resident populations (this is not to say that all residents actually do, can, or want to work in the same area they live in). A comparison of the population needing council services to the actual income-generating population that can be accommodated gives a useful gauge to how sustainable services may be within an area (keeping in mind that numerous jobs in a District will be held by people from other Districts, skewing the reliability of such a service sustainability ratio).



ABOVE FIG. 8-4: Current status of employment provisions and shortfalls in Selwyn, Waimakariri and Christchurch



ABOVE FIG. 8-5: Employment sector trends and future directions. Notable are likely movements into Belfast and north Christchurch, and out from Hornby and the CBD.

8.8 key industrial land issues

→ **industrial land demand**

'Peak industrial land demand' is expected to be reached by 2011 and after 2021 the total demand for industrial land has been projected to decline.

→ **locating industry**

The Christchurch Region needs acceptable location/s for *'less attractive'* land uses that every Region needs (e.g. timber yards, storage and production of cleaners, detergents, paints, chemicals, food additives, water tanks, bricks, stone, tile, concrete, clay, and glass products).

Unless suitable location/s can be found and guaranteed these activities will continue to go anywhere they can – reducing urban quality / efficiency and restricting the future of all the Region's industrial areas (they will favour large sites with cheap land on the fringe of the urban area – near the Region's rural towns, like Rangiora and Rolleston).

This would likely make it far more difficult to attract other high value, high quality, high employment, high 'value adding' activities into the sub-region.

→ **transport and distribution**

The Region needs suitable land and efficient locations for large *'transport and distribution'* activities and support services (i.e.' logistics').

The Port – More land is needed for transport and distribution activities linked with the Port, there is a shortage of suitable land for them near the Port.

The Airport – The Region needs to provide land for activities linked with, and those able to benefit from, the airport e.g. air freight services, manufacturing small high value products; manufacturing or secure storage for overseas markets 'in bond'.

The Region needs *high quality' business settings* good *quality' premises,* for *'clean production'*.

The Region's future is considered to lie in:

→ **rural processing**

Higher value, export produce; restaurant, gourmet and connoisseur markets; medical, health and food supplements e.g. the recent moves to high value olives and walnuts for discerning tastes; and neutraceutricals.

→ **specialised, high value & high tech products**

In small quantities, for niche markets or tailored to individual customer needs.

→ **high value, creative, 'designer' products**

Using innovation, creativity, private and crown research institutes to compete globally.

The Region's future is ***not*** considered to be in large 'smoke stack' industries, and 'mass production' where it is impossible to compete against South-east Asia's economies of scale and cheap labour markets.

INDUSTRIAL LAND SUPPLIES

There is approximately 2,400ha of industrial zoned land in Christchurch City.

Of this, around 332ha remained vacant (June 2005). This was principally broken down as:

→ Islington - 79ha

→ Styx - 60ha

→ Wigram - 29ha

→ Hornby North - 22ha

→ Bromley - 17ha

Take-up rates are approximately 28-30 hectares (10yr avg.), giving at best around 12 years of supply.

Future potential industrial areas are available however, as is capacity in Waimakariri and Selwyn:

→ South-West Christchurch

→ Special Purpose Airport Zone

→ Memorial/Russley

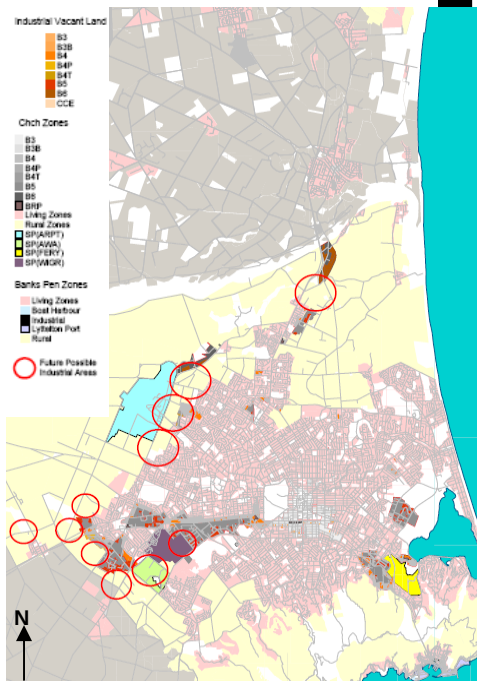
→ Belfast

→ Opawa/ Heathcote

→ Templeton

→ Islington

There are uncertainties over how much industrial land will be required over the life of the UDS.



ABOVE FIG. 8-6: Vacant industrial land and opportunities for new industrial land (not to scale, source:

8.9 approaches to predict future land needs

It is important that his strategy has an eye on the long term future, beyond the present planning horizon. It needs to ensure strategically located land is preserved for future employment uses beyond 2041 so that future employment land can be supplied at strategic locations, appropriate business clusters can continue to form and expand, and superior business settings can be created well distributed throughout the Region beyond 2041.

The community can not afford a strategy that sees it runs out of employment lands by 2041 because business and industry has few efficient locational choices.

There are two main approaches available to predict future business land needs:

→ A 'business as usual' approach; and

→ A 'precautionary' approach."

Accept a business as usual approach:

→ *Recognise, accept and perpetuate the existing artificially constrained shortage of land (With limited land only released by owners, mainly when there is a 'design and build' opportunity);*

→ *This results in activities having few, if any location choices, and being forced to locate where ever they can;*

→ *This will perpetuate the existing situation of 'difficult to locate' and low amenity and visually less attractive activities, blighting most industrial areas because they little choice where else to go;*

→ *Existing activities not moving, even when there are reverse sensitivity or high land values incentives to move (because there is no where else to go, therefore for them to leave they are effectively going out of business);*

→ *Existing and new activities acquiring far more land than they need and hanging on to this land, not releasing it for other uses (because of the lack of anywhere else to locate, or expand to, or the extraordinary high costs);*

→ *Low value, low employment, extensive, and difficult to locate objectionable land uses taking up peripheral land (like the I-zone) because this is all that is affordable and / or available;*

→ *Little ability to better balance the resident workforce with employment across the Greater Christchurch Region (with consequential traffic, environmental, fuel use, balance of payments, roading, and transport infrastructure costs);*

The consequences of this approach will likely:

→ Lock the UDS Region into lower than achievable growth and economic and business efficiencies;

→ Provide less, if any, opportunities for effective business clustering;

→ Result in successful, lower amenity business settings, in which to grow 'new economy' and other businesses and employment;

→ Reduce the ability of the UDS to grow their businesses and employment, compete against imports and capture export markets;

Assuming major structural adjustments will release significant more existing industrial land, and depending on the release of future industrial land by future users runs all these risks.

Accept a precautionary approach:

While being realistic, this approach would seek to:

→ *Undertake a Regional 'Industry Lands Strategy' with sufficient land at different locations to readily adapt to changing needs and changing market forces;*

→ *Recognise and address the present shortages in industrial land;*

→ *Recognise and provide more land for transport, storage and logistics (including land needed to be provided at strategic locations to address the identified shortage for port linked activities, and recognising the 80% increase in the Regional transport task identified in independent studies);*

→ *Take the most reasonable 'precautionary' approach that the future Regional employment structure will be more like than the existing economy than a radically different economy (given the structural adjustments that have already worked their way through the New Zealand economy) – rather than risking assuming major additional 'structural changes' will mean there is little, less, or no need, for more land;*

→ *Identifying sufficient suitable land for difficult to locate activities and large site, low employment land uses (so that new and existing operations can move there, rather than staying where they are, so they do not become subject to 'reverse sensitively' including nearby land being proposed in the UDS for residential uses, so that other employment land is able to better used for higher employment, and 'new economy' industries eg the I-zone);*

→ *Ensure there is sufficient employment lands to secure the Region's potential for full employment;*

→ *Identify strategic locations that would be efficient for future industries;*

→ *Protect land to enable the development of significant industrial clusters (in the way that Porter has shown leads to 'competitive regional economies');*

→ *Provide opportunities for clusters of 'new economy' activities well distributed throughout the Region;*

→ *Distribute employment opportunities to give a better balance between residents and employment to create a more economically and environmentally sustainable and robust Region (able to adapt to the influences of the global economy and unforseen economic and structural changes).*

8.10 place-based land supply predictions

Statistical analysis will always underpin future land need projections however a place-based approach can allow a more refined and sophisticated means of estimating what can actually be delivered 'on the ground'.

The difficulty with purely statistical predictions is that they do not take into account the deliverability of their estimated. And if they cannot deliver the economy may either stagnate or find another way of growing that was not previously anticipated.

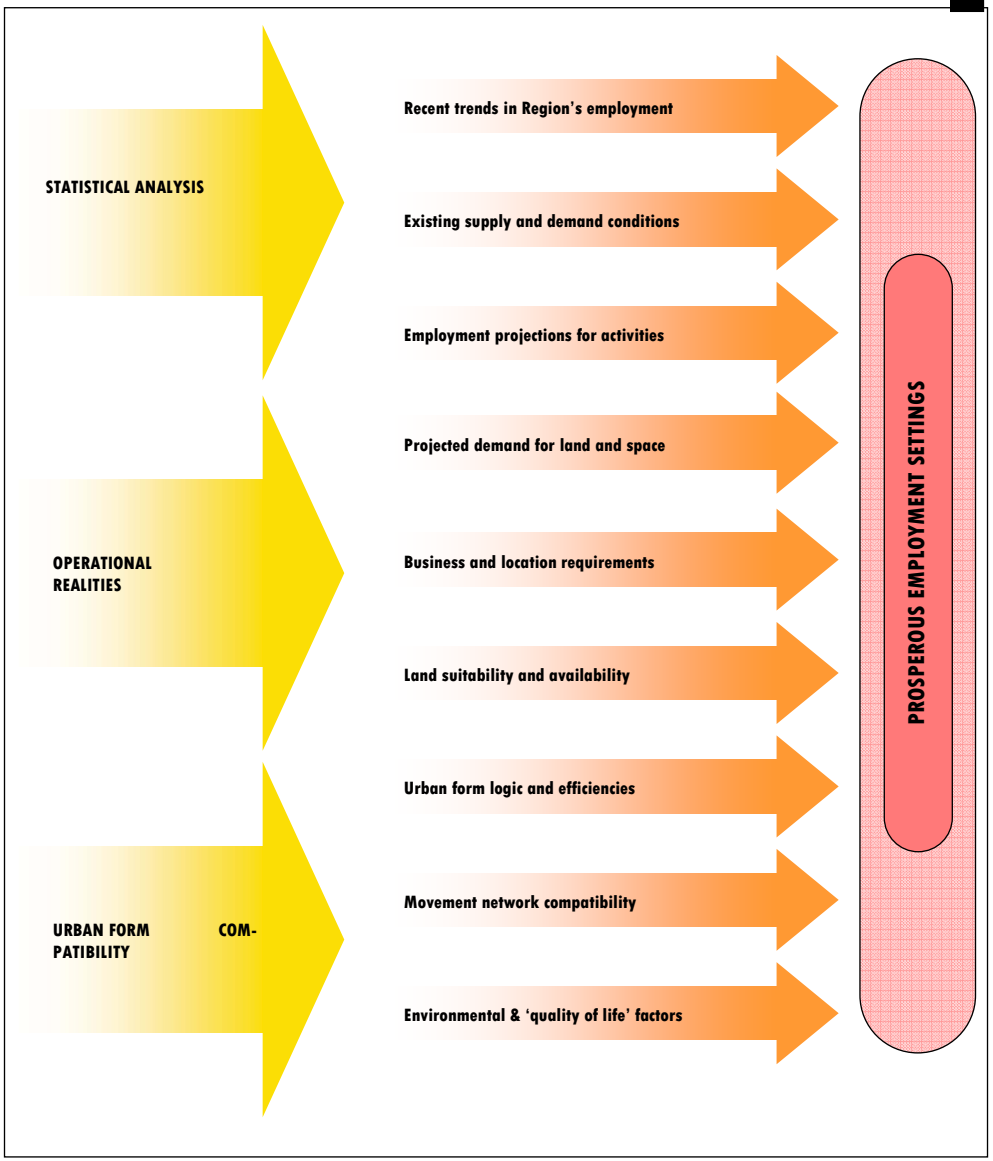
To deal with this there are two key approaches:

→ Understanding the operational realities of business activities being estimated

This involves understanding the sensitivities and needs of activities, the typical site sizes and characteristics they need, employee and servicing needs, and the practical availability of sites in the subject area that would allow the uses to actually occur.

→ Having a view on the most effective overall urban form taking into account how possible business activities could help or hinder the establishment of a more sustainable urban form consistent with the intent of the notified "Option A".

This involves taking a view on how the overall urban form would function with given activities in particular locations 'as a piece of the town' - would a location take advantage of or contribute to a worsening of convenient transport routes?



ABOVE FIG. 8-7: Conceptualisation of the key methodological aspects of determining a place-based business land need prediction.

8.11 industrial land prediction

Two approaches were used to identify potential demand for industrial land. (both approaches convert future employment figures for different industrial sectors into demand for industrial land).

The 'first', *'Property Economics'* approach, assumes major 'structural adjustments' (using the NZIER employment forecasts, at the 1 digit ANZSIC level, for the UDS Region to the year 2021, it then assumes the projected 2021 employment structure for the Region carries through to the year 2041).

This results in a peak demand for more than **580ha** by 2021 (allowing for 12% 'market lubricating' vacancies) .

This approach projects *'peak industrial land demand'* to be reached by 2011, (then a decline in the total amount of industrial land needed).

After 2021, the overall need (total demand) for industrial land is projected to actually decline. (Falling by more than 72ha from 'peak' 2011 land demand, largely due to a major reduction in total demand for land from the transport and storage sector).

The demand projected by this *'Property Economics'* approach was adopted as the *'minimum' likely demand* for additional industrial land the UDS Region will need to supply before the *year 2026*:

121ha gross land area for 'Manufacturing' (85ha 'net site area')

93ha gross land area for 'Wholesaling' (69 ha 'net site area')

19ha gross land area for 'Transport & Storage' (13ha 'net site area')

7ha gross land area for 'Construction' (5ha 'net site area')

4ha gross land area for 'Utilities & Other' (3ha 'net site area')

The 'Second', *'Prosperous Places'* approach, assumes the Greater Christchurch Region's future 'employment structure' will be the same as it was in 2005.

This approach considers the Region's future 'employment growth' is most likely to mirror the present 2005 circumstances, which already incorporates significant 'structural changes' especially in trade exposed industries. (Rather than seeking to include further major 'structural changes' such as those used in the *NZIER/Property Economics* model).

It is accepted that this approach is likely to 'over estimate' demand for future industrial land, as the Greater Christchurch Regional economy transitions towards smaller scale, higher value adding 'new economy' industries.

It is acknowledged that the structure of the Regional economy will definitely change towards higher value, 'new economy' activities. But no attempt is made to quantify this change.

The demand projected by this *'Prosperous Places'* 'existing employment structure' approach of **945ha** (based on a total target UDS population of 500,000 by 2041, or 63,700 households) was adopted as the *'maximum' likely demand* for additional industrial land the UDS Region will need to supply by the *year 2041*:

400ha for 'Transport, Warehousing and Distribution' (280 ha 'net site area')

200ha for 'Large Unsightly' activities (140ha 'net site area')

140ha for 'Construction and Related Trades' (98ha 'net site area')

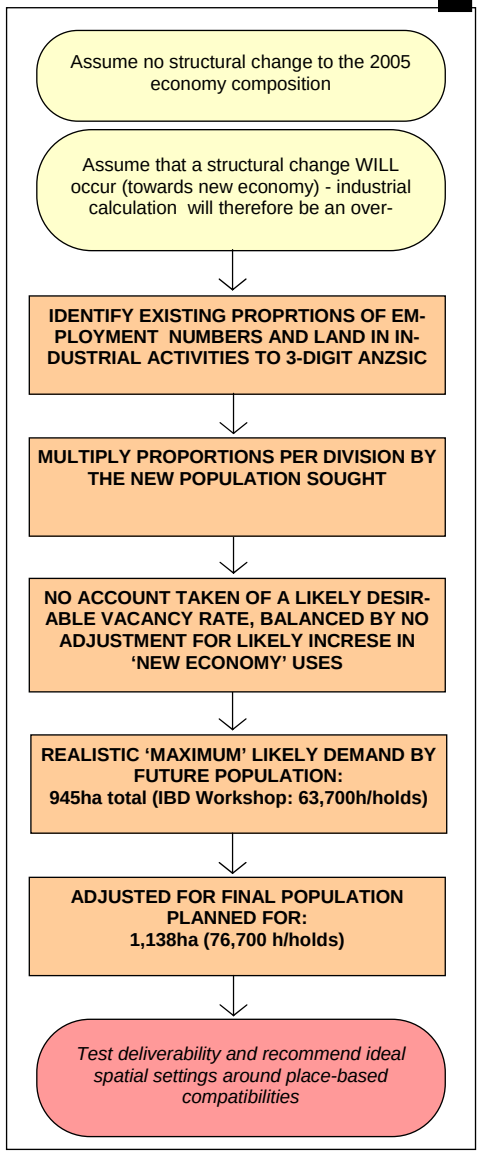
130ha for 'Clean Production' (91ha 'net site area')

75ha for 'General Industries' (52.5ha 'net site area')

These figures could be considered by some, as overly 'optimistic' in projecting future land 'take-up' from some industries, in particular:

→ The 400ha for 'transport, warehousing and distribution'. This sector can be expected to continue to expand to meet the increased demand for the supply of New Zealand and imported goods, products and equipment.

Independent research commissioned by the New Zealand *Road Transport Forum* (2006), projects a doubling of the freight task by 2020. With the Canterbury Region having the fourth greatest growth in heavy freight traffic in the country. The road freight task will still nearly double, even if rail achieves its maximum potential market share.



ABOVE FIG. 8-8: Conceptualisation of the key methodological aspects of determining a place-based busi-

The Canterbury Region is therefore projected to experience at least a 85% growth in heavy vehicle, road transport vehicle kilometres travelled by 2020.

Much of this growth will concentrate in the Greater Christchurch Region due to concentration of demand, freight forward from the north, and the proximity to the port and airport.

The '*Property Economics'* Report already cites a serious shortage of large sites and land for port based transport and distribution activities.

→ The 140ha needed for the 'construction industry' (despite this sector having been the largest single source of 'industrial employment' growth in the UDS Region since 1997).

Although, increased demand from this sector can be expected, at particular locations closet to the largest, fasted growing, development fronts (such as the demand created by businesses supporting and supplying the Pegasus development).

→ The 130ha for 'clean production' (because it includes 39ha for future growth in the clothing and textile industry, which is unlikely to eventuate because of increased competition from exports from China, other third world countries and Pacific Island nations).

However, the Greater Christchurch Region has a proven existing 'competitive advantage' in technology based 'clean production' such as electronic, communications and scientific equipment manufacturing.

Also, the rapidly growing food; health and beauty products sectors have been growing strongly in similar economies elsewhere in Australia and New Zealand, and in other western countries.

It should also be recognised that no allowance has been made in these figures for the 12-15% vacancy realistically allocated in the '*Property Economics'* approach as being necessary as 'market lubricating' vacant land.

Not making such allowance can be considered to compensate for up to a 15% 'over estimation' in demand future industrial land.

Therefore, these figures could be accepted as the '*maximum' demand* to be planned for future industrial land up to the year 2041 (when the Regional population is expected to have increased by 63,700 households to 500,000 people). This number can be adjusted to **1,138ha** for the final population target used in the IBD process of 76,700 households.

However, it is also important to recognise that the Region must never 'run out' of sufficient, appropriately located, strategically located, industrial land at any time in the future.

Therefore, it is vitally important to plan now for the future supply of industrial land at 'strategic locations' beyond the present planning horizon. (Transport, distribution and export competitive industries have relatively few choices of efficient locations to locate; whereas residential activities have far more choices and far more freedom to locate elsewhere in the Greater Christchurch Region).

Maximum Likely Demand for Industrial Activities adjusted for Medium-High population projection:

Activity Type	**Land need (63,700 h/holds)**	**Land need (76,700 h/holds)**
'Transport Warehousing and Distribution'	400ha gross	482ha gross
'Large Unsightly'	200ha gross	241ha gross
'Construction and Related'	140ha gross	169ha gross
'Clean Production'	130ha gross	166ha gross
'General Industry'	75ha gross	90ha gross
TOTAL	**945ha**	**1138ha**

ABOVE FIG. 8-9: Conceptualisation of the key methodological aspects of determining a place-based business land need prediction.

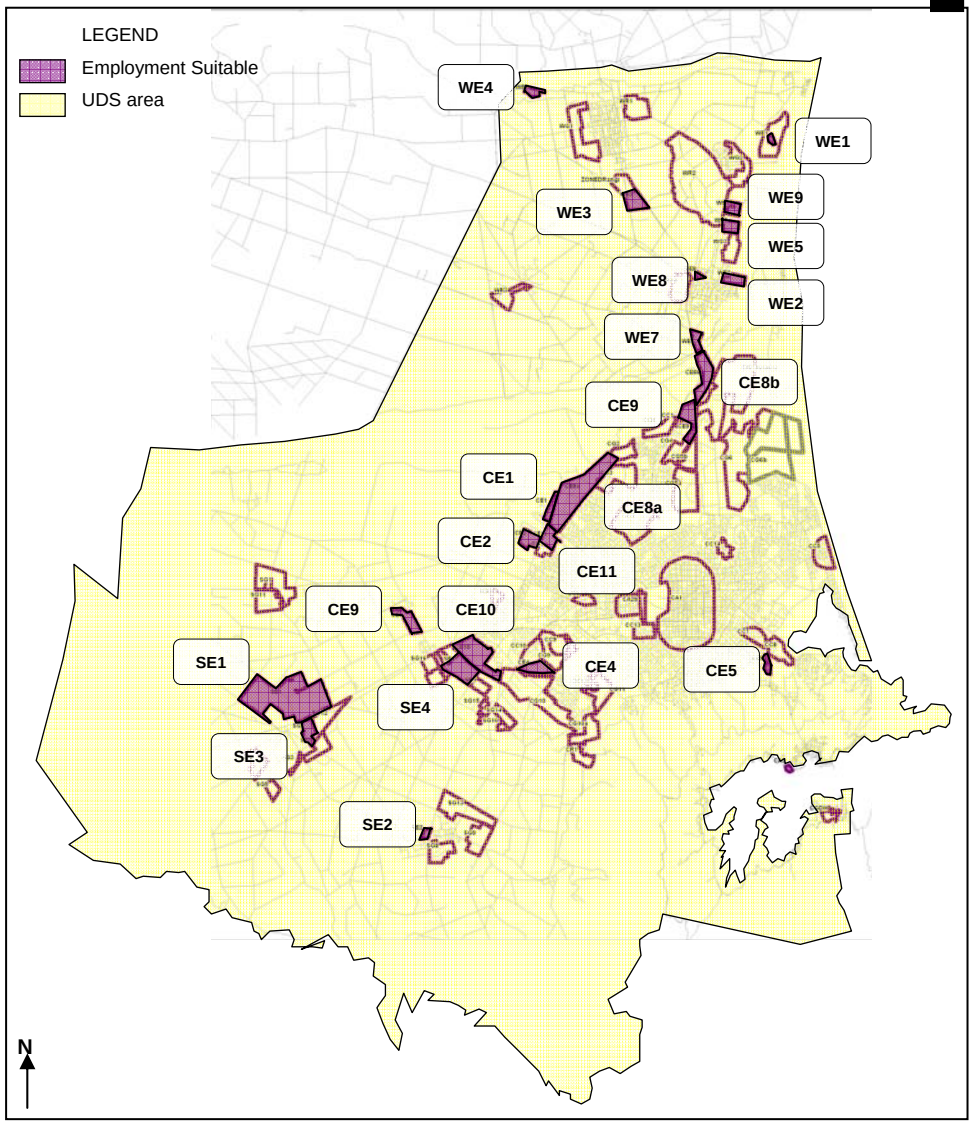
Taking into account the 300ha (approx gross) of existing vacant industrial land in Christchurch City and excluding any vacant industrial land in the Rural Districts, the adjusted industrial land maximum of 1,138ha (gross) means that a maximum of 838ha (gross) of new industrial land may be required by the UDS.

As a part of the wider growth planning process a number of potential employment areas or growth 'pockets' were identified across the UDS area but with a particular spatial focus around the Christchurch International Airport, and in the Selwyn and Waimakariri Districts.

These theoretical areas were then tested in terms of their suitability (flooding, aquifer, accessibility, urban form robustness etc.) for use, with a number discarded. These areas provide a total of 1938ha (Area of available land in the WE9 and SE4 pockets unavailable at time of print) available for use (gross).

It is likely that not all land will be used or at best used inefficiently. It is likely that brownfield land may be also used for industrial land and that some activity may even occur in some of the town centres (if at a small enough scale). However this means that the IBD process has identified over twice the maximum realistic likely demand for new industrial land. This gives considerable flexibility to the UDS partners to maintain market supply of good sites and also a good stock of land after 2041. It also means that entire pockets can be kept in holding zones until they are needed (or when servicing has been provided etc.)

EMPLOYMENT POCKET LAND AVAILABILITY:	
POCKET	LAND AREA GROSS (HA):
WE1	12
WE2	53
WE3	81
WE4	30
WE5	48
WE7	40
WE8	8
WE9	NO DATA!
CE1	40
CE2	73
CE4	89
CE5	22
CE8a	463
CE8b	133
CE9	103
CE10	235
CE11	70
SE1	336
SE2	16
SE3	86
SE4	NO DATA!
TOTAL	**1,938ha**



ABOVE FIG. 8-10: Identified 'growth pockets' suitable for larger-scale industrial activities (not to scale).

ACTIVITY COMPATIBILITY WITH POCKETS

The suitable pockets were audited in terms of their characteristics and relationship with the wider UDS area. Particular relationships were considered important, including:

- → Servicing limitations or sensitivities;
- → Proximity and access to strategic movement networks including railways;
- → Access to the airport, and port;
- → Trends or built character established by adjacent land uses that could be adversely affected by new industrial land (including the maintenance of important agricultural productive land).
- → Maintaining visual quality along key frontages and urban form gateways (including the use of appropriate activities that can contribute to this)

While a series of compatible activities were identified, they are not intended to suggest a final 'locked in' future for each pocket. They only indicate where the location of different types of business activity made sense from the strategic level informed by local knowledge. More detailed examination of the pockets through a dedicated industrial development strategy (for example) could refine these compatibilities, add to them or changing them.

SOUTHWESTERN SECTOR:

POCKET SE1:

- → Dairying and Irrigation services
- → Vital area for large storage and industries

POCKET SE2:

- → High tech / mixed business area

POCKET SE3:

- → Small business park

POCKET SE4:

- → Medium / Large business

POCKET CE4:

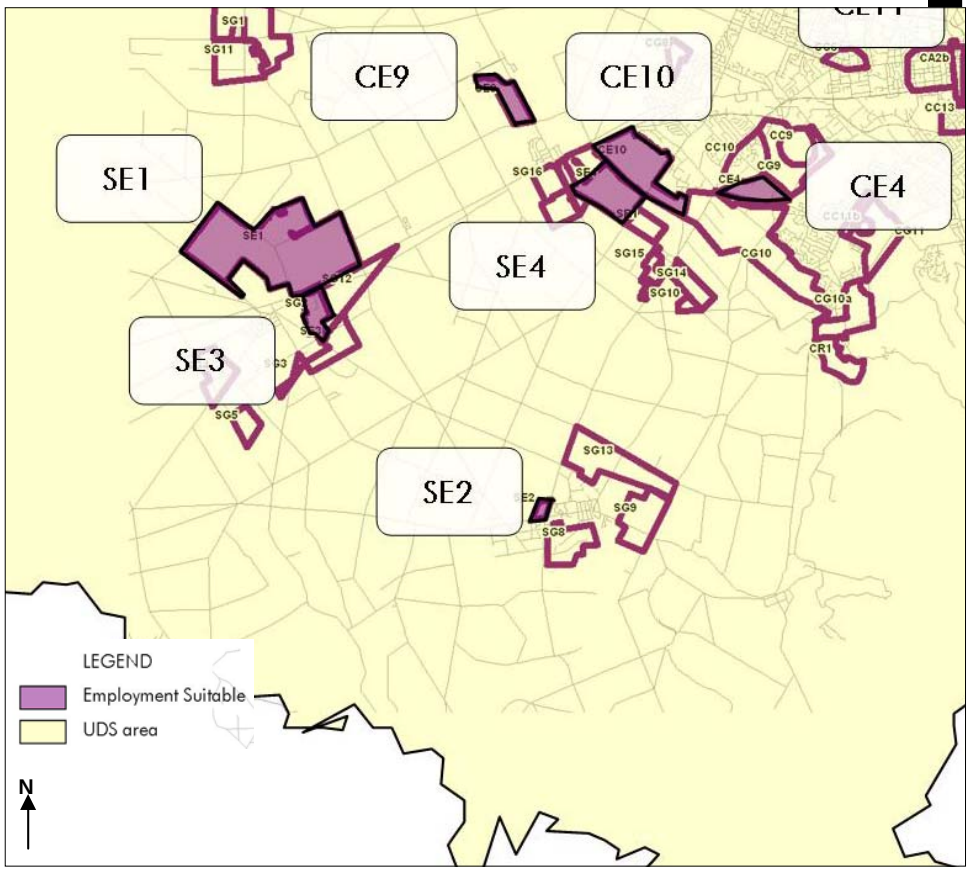
- → Niche professional offices and creative industries
- → High tech large scale

POCKET CE9:

- → Mixed industrial & business area

POCKET CE10:

- → Medium / Large business
- → Smaller, good quality mixed industrial business area fronting the Southern Bypass
- → High tech large scale



ABOVE FIG. 8-11: Identified 'growth pockets' suitable for larger-scale industrial activities (not to scale).

CENTRAL SECTOR:

POCKET CE1:

→ Airport services

→ Airport related storage & businesses

→ Mixed industry business area

POCKET CE2:

→ Gateway (good quality uses needed)

→ Airport related storage & businesses

POCKET CE5:

→ Small scale creative uses

→ Mixed uses & light industries

POCKET CE8a:

→ Good quality mixed industrial business area

POCKET CE8b:

→ Clean production

→ Mixed industrial business area

POCKET CE9:

→ Clean production

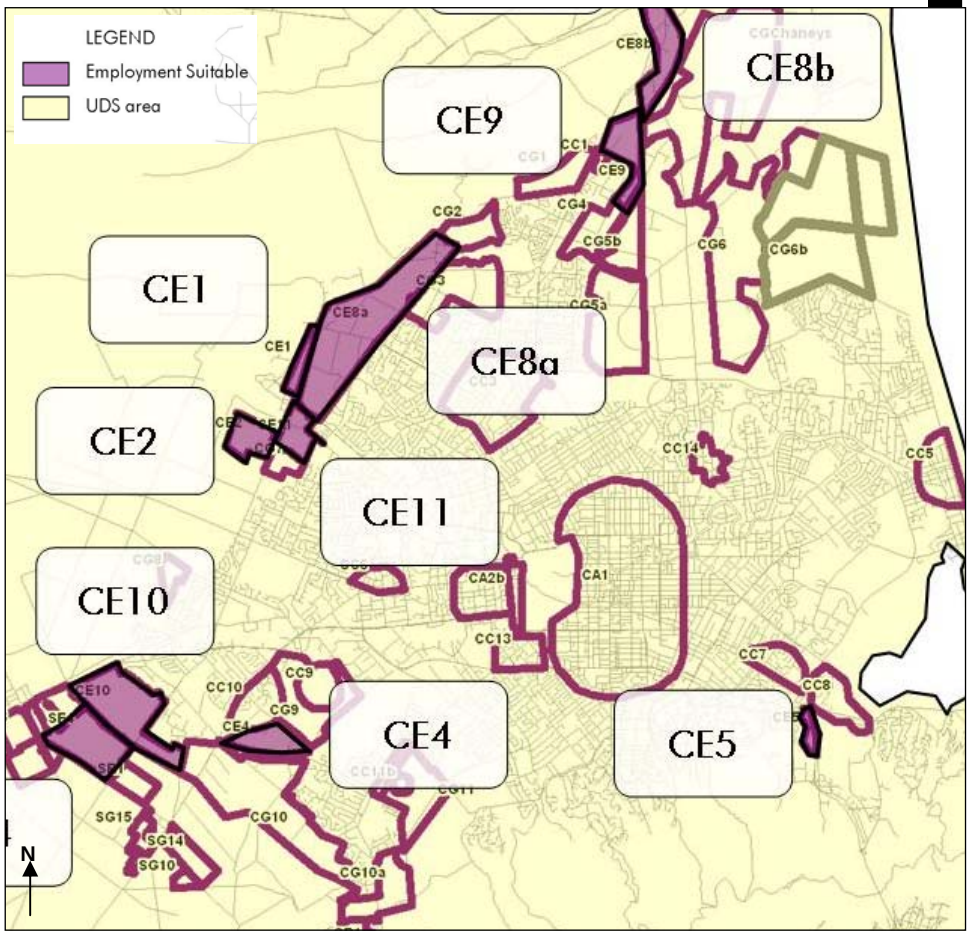
→ Light industry

POCKET CE11:

→ Airport relates storage & businesses

→ Mixed industrial business area

→ Not retail



ABOVE FIG. 8-12: Identified 'growth pockets' suitable for larger-scale industrial activities (not to scale).

NORTHERN SECTOR:

POCKET WE1:

→ Prestige offices, small showroom and light industry

POCKET WE2:

→ Clean production

→ Studio

POCKET WE3:

→ Large scale industry

→ Distribution services / trades

→ Auto services

POCKET WE4:

→ Airfield services

POCKET WE5:

→ Flexible light industry

→ Small office parks

POCKET WE7

→ Clean production

→ Studio / trades

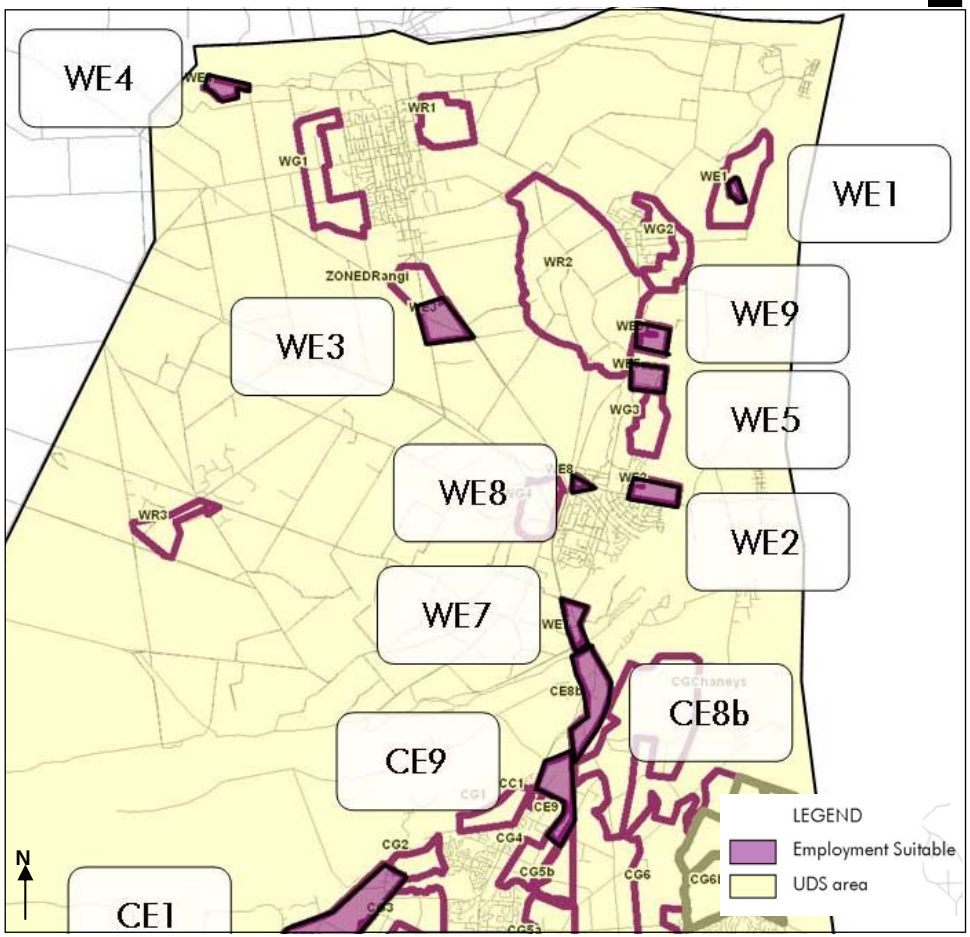
→ Office showroom

POCKET WE8

→ Flexible use light industry

POCKET WE9

→ Small office park



ABOVE FIG. 8-13 Identified 'growth pockets' suitable for larger-scale industrial activities (not to scale).

8.12 business services and commercial office space land prediction

Potential 'commercial office space' demand was projected. Based on the UDS Region's existing 2005 'employment structure' - taking existing UDS TLAs jobs per 1,000 population, for 32 different 'new economy' office based business activities at the 3 digit ANZSIC level.

This increase in employment based on the Region's 'existing employment structure' was projected for an additional 63,700 h/holds (to reach the planned 500,000 Regional population).

This future office employment was then translated into demand for 'gross' office floor space projected up to the year 2041 (when the regional population is projected to have increased by 63,700 h/holds).

This analysis indicates additional future demand for at least 292,800sqm (gfa) of office space (mostly from small businesses, requiring good quality, 'affordable office' space).

This can be considered a realistic *'minimum demand'* because most modern western economies are structurally adjusting with most employment growth being created in small, 'office based' business and community services.

The breakdown by TLA was:
- → Christchurch City: 241,800sqm
- → Selwyn District: 22,700sqm
- → Waimakariri District: 28,300sqm

The Future Demand For 'Retail Frontage' Office Space:

The amount of new office space required by activities requiring locations in 'active retail street frontages' was similarly projected.

Indicating future demand for at least 17,850sqm (gfa) of 'retail frontage office space' (equivalent to 6% of the Region's future office space demand).

This 'retail frontage office space' is best provided for in the central city and in retail frontages of regional town centres and local 'activity centres' distributed throughout the Region.

The Future Demand For 'Upper End', Large, 'Prestige' Space:

Existing shortages are claimed for 'prestige high rise office space' in Central City *('Christchurch City Commercial Strategy: Discussion Document' Property Economics'* 2006).

Future demand for this type of office space is likely to be relatively limited (only 18% of market, amounting to at least 52,000+sqm to 2041, perhaps the equivalent of between three to six new central city office buildings).

This large, prestige office space demand is best met within 800m (10 minutes) 'convenient walk' of the 'retail heart' of the Christchurch City Centre (that is, no further south than Leitchfield, and no further west than Rolleston St and Antigua St)

At least 12 re-developable sites were identified in this area, capable of meeting this need during the IBD workshop.

The Future Demand For 'Affordable', 'Quality, Small Office' Space:

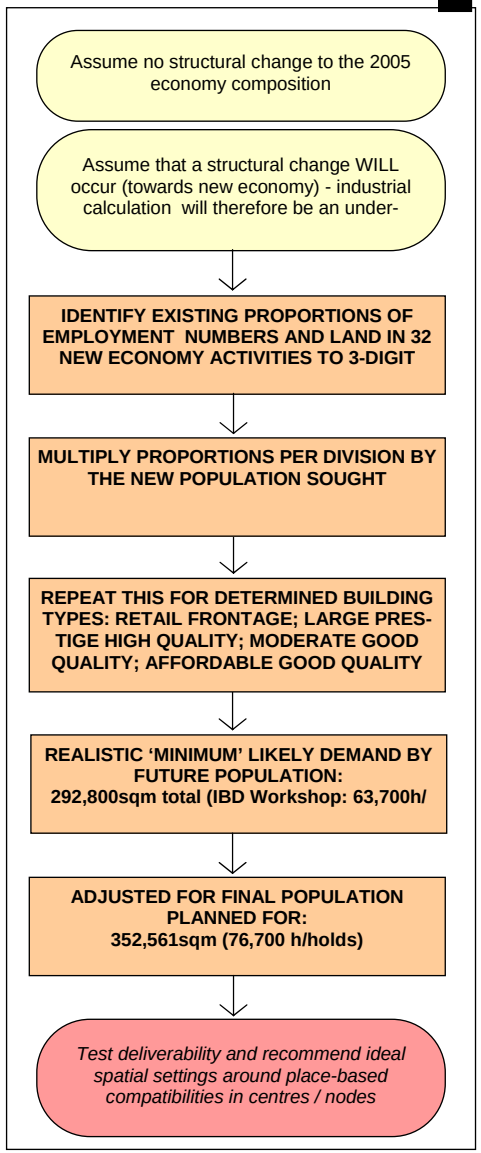
By far the greatest demand will be for quality, small office space.

This can be expected to account for 72% of future office market, requiring the provision of at least 211,000+sqm of 'affordable' quality small office space' before 2041)

Unfortunately, these individual office tenants and offices buildings are likely to be too small to create own unique, quality, 'business environment' (unlike their larger central city counterparts).

Therefore, their will be the important need to;
- → Create *'superior business settings'* (through local 'place making'),
- → Supplying buildings with *'credible business address'* (to help promote the business and signify the businesses as worthy of doing business),
- → In areas made *'particularly attractive'* to employees, business founders (to attract those able to work where ever they wish),
- → With nearby opportunities to *'host customers and clients'*, and
- → In buildings with *'high exposure'* (so clients can easily identify, identify with and find the business),
- → Create a strong *'street presence'* (that will help to promote and market these businesses and attract clients).

These *'superior business settings'* can be created at existing 'town centres' amongst existing 'strip local centres'.



ABOVE FIG. 8-14: Conceptualisation of the key methodological aspects of determining a place-based busi-

Most importantly they can be provided at centres along the north eastern *'enterprise corridor'*, at new 'activity centres' and 'small business office parks' attached to new 'activity centres' and integrated in 'higher quality' industrial and business areas.

It should be noted that small 'affordable' rental office space should also be provided within 'half a kilometre' of all major residential areas to enable the local 'graduation' and 'grow-out' to nearby business premises of office based 'home based businesses'.

There could be a possible 'market failure' to supply this type of quality, small office space because each is small, tenancy (making it difficult to get some big developers interested because there is no one, big, named, pre-committed tenant).

Consequently there may be some need 'demand aggregation' initiatives (similar to that needed to stimulate broadband provision).

However, this demand will provide many profitable opportunities for small investors to supply this demand. However, this will most likely if *'superior business settings'* can be created in places with *'urban village'* settings)

Locations in The Region Best Able To Meet This Demand

The TLA representatives at the workshop agreed what percentage of total projected increase in jobs in the UDS each TLA could reasonably be expected to capture (for each of the 32 'new economy' office categories).

This increase in employment was then translated into demand for floor space (of each quality and type) each TLA should seek to supply. This was then distributed across the suitable nodes within each area, although should not be considered to represent a 'concrete' allocation - each TLA is able to further manipulate the distribution of space within its own towns on the basis of its own strategic priorities and plans for each town. Factors that influenced the distribution included:

- → Equity between centres;
- → The logical hierarchy between centres in the wider urban form and movement network;
- → Perceived capacity within centres;
- → Desired potential for change in centres.

As with industrial land, a variance exists between the population target used to prepare calculated need, and the final new household target chosen (63,700 vs. 76,700). Accordingly the statistics have been adjusted to take into account this 13,000 household (and demand) differential.

PROJECTED MINIMUM DEMAND FOR OFFICE SPACE:		
TLA	IBD CALC (63,700 h/holds)	ADJUSTED CALC (76,700 h/holds)
Christchurch	241,800sqm	291,151sqm
Selwyn	22,700sqm	27,333sqm
Waimakariri	28,300sqm	34,076.sqm
TOTAL	**292,800sqm**	**352,561sqm**

ABOVE FIG. 8-15: Industrial areas un the UDS

PROJECTED MINIMUM DEMAND FOR DIFFERENT QUALITY OFFICE SPACE:					
TLA QUIRING AGE' (SQM)	NEW ECONOMY OFFICE SPACE (SQM)				OFFICES RE- 'RETAIL FRONT-
		PRESTIGE QUALITY	MODERATE HIGH QUALITY	AFFORDABLE MEDIUM QUALITY	TOTAL MEDIUM
CHRISTCHURCH	42,400	24,500	174,900	241,800	13,600
(ADJUSTED)	*51,054*	*29,500*	*210,597*	*291,151*	*16,376*
SELWYN	4,200	2,800	15,700	22,700	1,350
(ADJUSTED)	*5,057*	*2,801*	*18,904*	*27,333*	*1,626*
WAIMAKARIRI	5,300	2,000	21,000	28,300	1,900
(ADJUSTED)	*6,382*	*2,408*	*25,286*	*34,076*	*2,288*
TOTAL	**51,900**	**29,300**	**211,600**	**292,800**	**17,850**
(ADJUSTED)	***62,493***	***35,280***	***254,788***	***352,561***	***21,494***

ABOVE FIG. 8-16: Industrial areas un the UDS

PROJECTED MINIMUM DEMAND FOR DIFFERENT QUALITY OFFICE SPACE WITHIN SELWYN & WAIMAKARIRI DISTRICTS AS ALLOCATED AT THE IBD WORKSHOPS:

SELWYN QUIRING AGE' (SQM)	NEW ECONOMY OFFICE SPACE (SQM)					OFFICES RE-'RETAIL FRONT-
		PRESTIGE QUALITY	MODERATE HIGH QUALITY	AFFORDABLE MEDIUM QUALITY	TOTAL MEDIUM	
ROLLESTON	1,000	1,800	10,000	12,800	13,600	
(ADJUSTED)	*1,204*	*2,167*	*12,041*	*15,412*	*16,376*	
LINCOLN	2,200	1,000	5,700	8,900	1,350	
(ADJUSTED)	*2,649*	*1,204*	*6,863*	*10,716*	*1,626*	
PREBBLETON	1,000	0	0	1,000	1,900	
(ADJUSTED)	*1,204*	*0*	*0*	*1,204*	*2,288*	
TOTAL	**4,200**	**2,800**	**15,700**	**22,600**	**17,850**	
(ADJUSTED)	***5,057***	***3,371***	***18,904***	***27,213***	***21,494***	

WAIMAKARIRI						
PEGASUS		800	500	5,400	6,700	500
(ADJUSTED)	*963*	*602*	*6,502*	*8,067*	*602*	
KAIAPOI	1,800	500	7,500	9,800	500	
(ADJUSTED)	*2,167*	*602*	*9,031*	*11,800*	*602*	
RANGIORA	2,600	1,000	8,600	12,200	900	
(ADJUSTED)	*3,131*	*1,204*	*10,355*	*14,690*	*1,084*	
TOTAL	**5,200**	**2,000**	**21,500**	**28,700**	**1,900**	
(ADJUSTED)	***6,261***	***2,408***	***25,888***	***34,558***	***2,288***	

ABOVE FIG. 8-17: Industrial areas un the UDS

PROJECTED MINIMUM DEMAND FOR DIFFERENT QUALITY OFFICE SPACE WITHIN CHRISTCHURCH CITY AS ALLOCATED AT THE IBD WORKSHOPS:

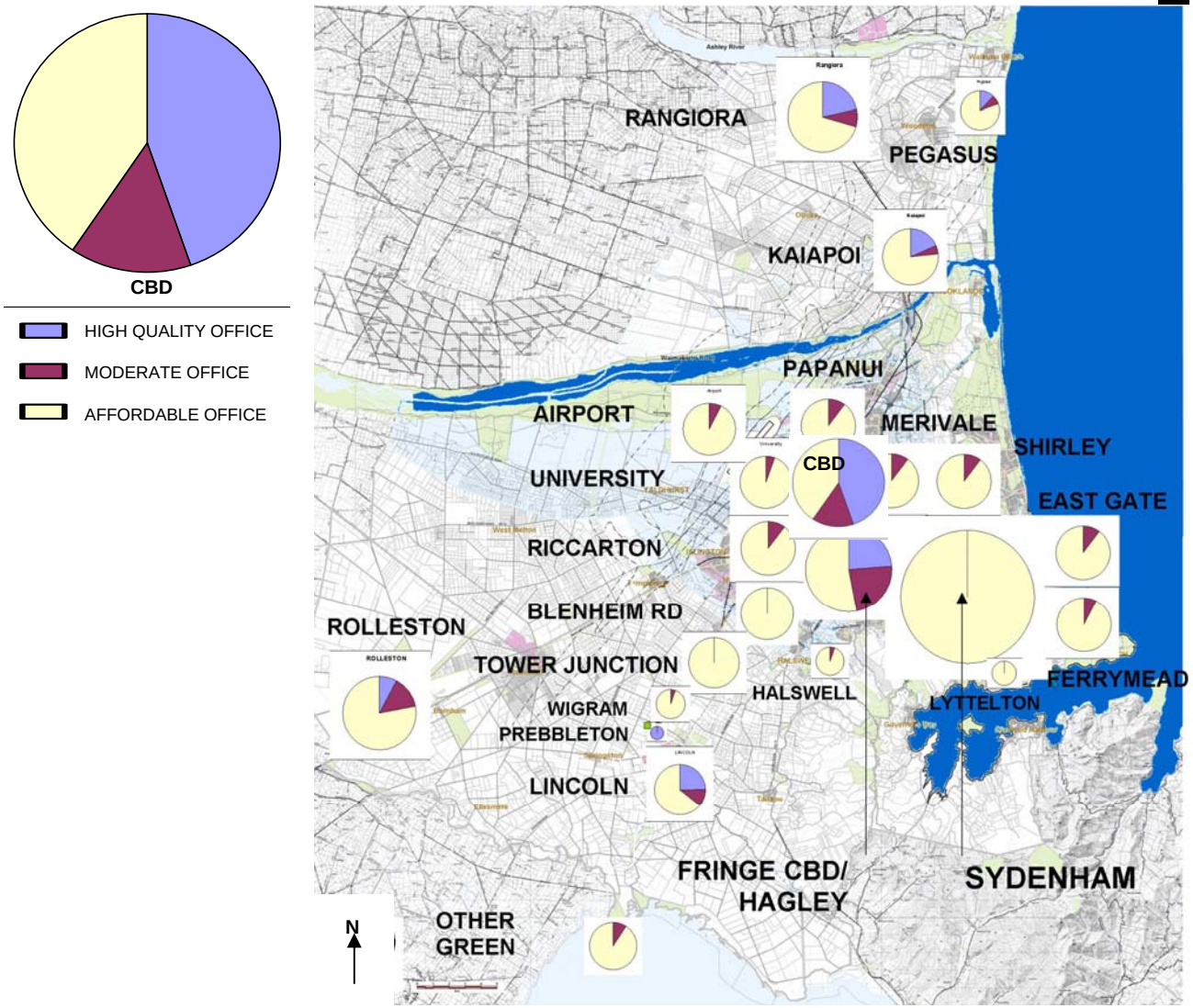
TLA QUIRING AGE' (SQM)	NEW ECONOMY OFFICE SPACE (SQM)					OFFICES RE-'RETAIL FRONT-
		PRESTIGE QUALITY	MODERATE HIGH QUALITY	AFFORDABLE MEDIUM QUALITY	TOTAL MEDIUM	
CBD	38,400	12,400	34,800	85,600	4,600	
(ADJUSTED)		*46,237*	*29,500*	*41,903*	*103,071*	*5,539*
FERRYMEAD	0	700	8,700	9,400	1,000	
(ADJUSTED)		*0*	*2,801*	*10,476*	*11,319*	*1,204*
PAPANUI	0	1,000	8,700	9,700	1,000	
(ADJUSTED)		*0*	*2,408*	*10,476*	*11,680*	*1,204*
RICCARTON	0	1,000	8,700	9,700	1,000	
(ADJUSTED)		*0*	*35,280*	*10,476*	*11,680*	*1,204*
SHIRLEY	0	1,000	8,700	9,700	1,000	
(ADJUSTED)		*0*	*1,204*	*10,476*	*11,680*	*1,204*
EASTGATE		0	1,000	8,700	9,700	0
(ADJUSTED)		*0*	*1,204*	*10,476*	*11,680*	*0*
MERIVALE	0	1,000	8,700	9,700	1,000	
(ADJUSTED)		*0*	*1,204*	*10,476*	*11,680*	*1,204*
UNIVERSITY		0	500	8,700	9,200	0
(ADJUSTED)		*0*	*602*	*10,476*	*11,077*	*0*
AIRPORT	0	700	8,700	9,400	0	
(ADJUSTED)		*0*	*843*	*10,476*	*11,319*	*0*
LYTTLETON		0	0	3,500	3,500	0
(ADJUSTED)		*0*	*0*	*4,214*	*4,214*	*0*
HALSWELL		0	200	3,500	3,700	1,000
(ADJUSTED)		*0*	*241*	*4,214*	*4,455*	*1,204*
WIGRAM	0	300	3,500	3,800	1,000	
(ADJUSTED)		*0*	*361*	*4,214*	*4,576*	*1,204*
OTHER GREENFIELD	0	700	7,000	7,700	0	
(ADJUSTED)		*0*	*843*	*8,429*	*9,272*	*0*
SYDENHAM		0	0	26,000	26,000	1,000
(ADJUSTED		*0*	*0*	*31,307*	*31,307*	*1,204*
BLENHEIM RD	0	0	9,000	9,000	0	
(ADJUSTED)		*0*	*0*	*10,837*	*10,837*	*0*
TOWER JUNCTION	0	0	9,000	9,000	0	
(ADJUSTED)		*0*	*0*	*10,837*	*10,837*	*0*
FRINGE CBD	4,000	4,000	9,000	17,000	1,000	
(ADJUSTED)		*4,816*	*4,816*	*10,837*	*20,470*	*1,204*
TOTAL	**42,400**	**24,500**	**174,900**	**241,800**	**13,600**	
(ADJUSTED)		***51,054***	***29,500***	***210,597***	***291,151***	***16,376***

ABOVE FIG. 8-18: Industrial areas un the UDS

The proportions of office space type (excluding the proportions of each that will benefit from having direct retail frontage) have been mapped to illustrate the relative distributions of high quality prestige office space; moderate level good quality office, and affordable good quality office.

Overall the main centres have been determined as appropriate for the full range of office space types based on their importance and role in the overall urban form. Lower order centres within Christchurch City have been proposed to be dominated by largely affordable, more local employment level office space.

Retail frontage office space should be provided as mostly moderate level, good quality space. Most prestige space will occupy feature premises, and affordable office space by virtue of its nature does not usually support the costs involved in maintaining high profile space (usually thriving in back streets, visible from and connected to the 'main street').



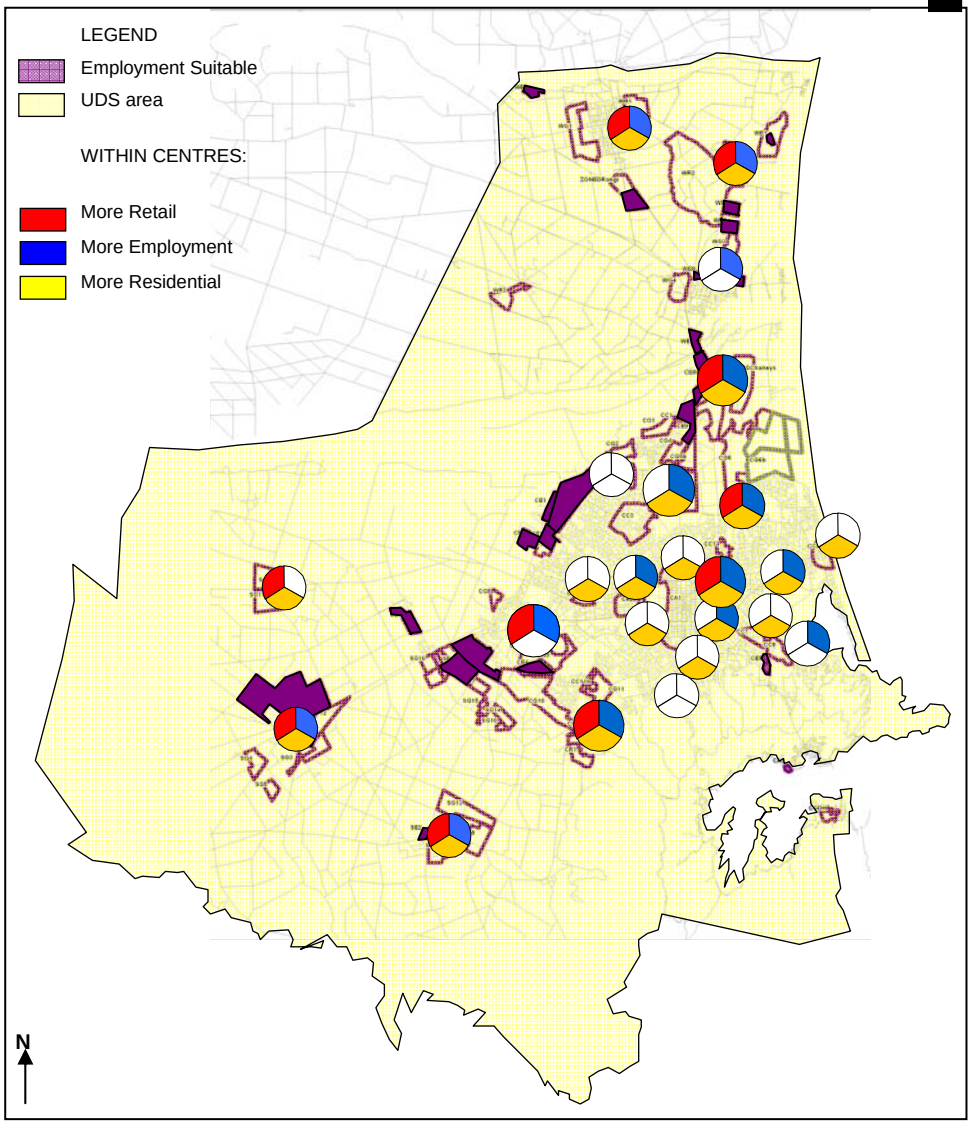
ABOVE FIG. 8-19: Industrial areas un the UDS

8.13 employment network

The overall employment network is a composite of new industrial and commercial (office) land, focussed around a logical expression of how these opportunities could be delivered in a way that would logically contribute to the overall urban form logic.

Industrial land will begin to transition out of Christchurch City central in response to rising costs and the proximity of residential and more sensitive uses that take better advantage of those land values. It will be located strategically well to the transport network offering maximum convenience in connecting to the port, rail lines, the airport, and the state highways into the remainder of the South Island. This will help provide ease of access for goods and employees.

Office space will cluster around centres and new greenfield nodes to help contribute to compact, high amenity, mixed, '24/7' environments. This will be a critical component of achieving social goals within centres and helping to deliver the goal of more walkable outcomes.



ABOVE FIG. 8-20: The preferred employment network. Not to scale.

8.14 strategic initiatives

The following is a summary of some 'Strategic Initiatives' the UDS Partners may wish to consider to 'secure' and 'future proof' economic development, employment and business opportunities for the Greater Christchurch UDS Region:

Necessary 'Place Based' Strategic Initiatives:

→ There is a need to provide up to 200ha in total for large '*unsightly activities'.*

At least 50 ha should be immediately made available to meet existing and immediate future demand, and to relieve pressure from such uses on industrial land better used for higher value, higher employment uses (such as *I-zone* land, in the Selwyn TLA).

There is likely to be a 'market failure' in providing this land, because the private sector is unlikely to supply sufficient cheap land for these low intensity land uses.

Therefore, it may need government or Council or Regional initiatives to supply and manage this land so only these types of activities locate on this scarce land and to 'land bank' sufficient additional land (e.g. the former hospital land at Templeton).

If ECAN acquires this land it could move these types of activities off its own Chaney's and its Johns Road Airport properties and properly manage the new site and the land uses on it. This should also win some public and private sector 'acclaim' for doing this properly).

Belfast could meet some of this need for moderate sized '*unsightly activities'* (also for *'general industries'* and '*engineering firms'* that should not locate at Hornby any more.

→ There is a need to prevent any more large *'general industries'* and large '*engineering firms'* locating in Hornby (i.e. business that bang and thump at night and weekends) because of 'reverse sensitivity' issues given part of the land within 1 km is now proposed to be developed for residential purposes.

(It is not realistic to believe that landscape buffering, or buffering land uses will fully mitigate the effect and stop complaints. These types of businesses need to be able to work 24 hours a day, 7 days a week to be competitive, complete time sensitive contracts, and to be cost-effective to compete against imports or to compete on export markets).

→ There is a need to guide *'general industries'* and *'large engineering'* firms to locations where it is preferable for them to locate.

it is important to have readily available, zoned, subdivided and serviced land for them to move onto now, or as soon as possible, not in 5 years time. (Otherwise they will just go where-ever they can get land most cheaply, including Hornby / Islington where there will be residential development and 'reverse sensitivity' problems).

The Selwyn *I-zone* land, Belfast and new industrial land in Waimakariri could be promoted for some of these uses.

→ It is important need to preserve small, old, cheap buildings south of rail in Central City as an affordable *'business incubation district'*.

It will be essential to prevent residential developments in this are (except for residential conversion, and residential lofts in existing buildings). Otherwise residential will 'bid out' all other use.

It would be highly desirable to prevent amalgamation of existing land that would create new sites above 1,500sqm.

→ There is a need to provide affordable *small flexible storage / transport / business / light industry / service trades space* as close as possible to Central City (e.g. at Addington and Hornby).

This will be needed to accommodate *storage / transport / business / light industry / service trades* 'displaced' by residential, office and mixed-uses from the existing City Centre 'frame areas' (e.g. by the Leitchfeld South redevelopments, and by small offices and business services moving into the Central City 'frame area', *'business incubation districts'*).

Conventional, 'risk adverse' developers may not build these unless someone finds pre-committed tenants. There is a possible role for Councils in 'demand amalgamation' and / or taking a long term 'head lease' in such a building and subleasing.

However, the opportunity could be promoted for small independent developers and investors to develop this type of cheap, affordable, but good quality, flexible business premises.

It would be highly desirable to support 'demonstration projects' in high profile / highly visible locations. (Perhaps Council could buy a suitable site and call for expressions of interest to widely publicise the type of development we want the private sector to develop in clusters).

There is a possible role for ECAN in developing its Chaneys land, in part, for this type of cheap, affordable, but good quality, flexible business premises (see the indicative 'site plan' prepared during the workshop).

It would be desirable for ECAN to talk to Calder Stewarts (who hold the 'perpetual lease' on ECAN's north of the Airport/Johns Rd land - above the unconstrained aquifer) with the view to relocating the existing, large '*unsightly* activities' off this highly visible land and developing it for '*flexible small storage / transport / business / light industry / service trades space' and / or small flexible studio / showroom space.*

Small flexible storage / transport / business / light industry / service trades buildings can provide good 'acoustic buffer building' between new residential areas and existing / extended employment / industrial /

storage / logistics areas proposed for Hornby.

However, this only works, if there is continuous 'tilt slab' construction with no openings towards residential direction.

This raises the question of who will 'place manage' this outcome in order to get an acceptable form of continuous buildings, that have good design (It is most unlikely that 'ad hoc' development will deliver this type of continuos acoustic buffer.

→ There is an immediate need to preserve key *strategically located sites* for '*large-scale logistics'* (road transport, warehousing freight forwarding operations, each occupy over 2ha).

This is necessary to meet *existing* shortage of land for logics operations needing to access the port. There is no place closer to the Lyttleton Port than Islington capable to meet this need.

It will also be necessary to meet the 80% increase in 'freight transport task' in Region in next 15 years and continued growth in freight forwarding beyond 2021.

Islington provides the most strategically located land, best located on Christchurch's existing and future road transport infrastructure, that is best able to meet this need.

300ha has been identified best suited for this role (the new area, adjacent but to the east of the 'Southern Motorway extension'). This land should be immediately identified and protected for this purpose.

It will be exceptionally well connected because of the proposed future 'Southern Motorway' extension.

It will be exceptionally well connected to the airport and for freight forwarding connections with the north (via the proposed 'western corridor', Pound Rd by-pass).

200ha has also been identified that needs to be 'land banked' and protected for the future extension of this Regionally and Nationally significant '*Transport, Freight Forwarding, Logistics Cluster'* (This is the land immediately west of the 'Southern Motorway extension')*.*

The key question is how best to protect this 'strategically located land' at Islington only for this *large-scale, road transport 'logistics cluster'* (Conventional industrial developers would want to carve up and sell to other use, to the first users willing to pay, or any business willing to commit to design and build projects for other activities).

Who will develop it for this purpose? (Is this an ECAN responsibility, or a Council property acquisition to meet this 'market failure'?).

How do we 'land bank' the extension to the west of the Southern Motorway extension? (Would it be possible to protect by a 'Future Special Uses (Large-scale Logistics)' zone?). This may not be sufficient). (Is this an ECAN responsibility, or a Council property acquisition to meet this 'market failure'?).

→ Selwyn will need to work very hard to get 'high value-adding' manufacturing, and high employment businesses into its *I-zone.* Partly because there are other opportunities closer to Christchurch, and partly because of the adverse impact of other uses, already located there (e.g. stockfeed, concrete plant, coal sorting and wood block sales, vehicle wreckers etc).

Therefore, this area is most likely to attract *large, low employment cheap land seeking uses* first. (These will be looking for sites before other higher value land uses).

It would help to take this pressure from *large, low employment cheap land seeking uses*, off the *Izone* by providing other locations for these uses (e.g. at Belfast, and the Templeton former hospital land.

→ There is an urgent need to provide places to grow 'new economy' business and industries by 2026.

Locations have been identified for this on ECAN's Chaney's land.

Also, at Rolleston and Lincoln, as part of the development of the Town Centres, with additional land identified for clean industry identified at Two Chain Rd in Selwyn (between Walker Rd, where the prison is located, and Aylesbury Rd, Burnham, where the army base is).

Land has also been identified for this purpose at Kaiapoi, and around the disused gravel pits, known locally as 'far north Kaiapoi'.

Opportunities have also been identified for 'high profile' sites at Hornby and along the 'Southern Motorway extension'.

→ Opportunities have been identified for the location of '*small flexible storage / transport / business / light industry / service trades'* in the 'frame areas' around each of the major Town Centres in Waimakariri and Selwyn.

Also, at Hornby and Ferrymead and along the frontage to the 'Southern Motorway' and its extension.

→ Waimakariri could profitably invest in *'superior business settings'* to attract small new economy 'business services' to preferred, potential 'high amenity settings.

One opportunity identified during the workshop is the 'Far North', Kapuatai 'gravel pits site'. This could be suitable for a 'small office' 'business park' (integrated with recreational attractions based around the landscaped gravel pits).

→ Waimakariri could also profitably invest in creating a very high quality Regional *Family Recreation Attraction.*

This would be a *'magnet attraction'* to attract Regional residents, tourists and day visitors to this part of the Region, and to create new business opportunities.

One possible location would be the highly visible land around the ponds being provided for environmental purposes on the banks of the Waimakariri River (immediately downstream from the existing motorway bridge).

Important Institutional Arrangements:

→ Successful 'outcomes delivery' may require a small, very high level *'Board of Senior Executives'* as *'Custodians of the Regional Vision'* (This could possibly comprising only the Mayors, and CEOs, of ECAN, the Transit Authority and the three TLAs, with an independent Chair).

This *'Board of Senior Executive'* would give high level strategy guidance, agree joint initiatives (including shared infrastructure, shared funding of Regional initiatives, provision and shared use of community facilities across TLAs).

It would also be in the position to 'un-jam' the inevitable 'log jams' in significant projects.

It could become the 'public face', and the high level 'champion' and 'proponent' for the Strategy.

It would 'champion' key strategic initiatives, with government Departments and agencies, and with overseas investors.

But most of all, it would demonstrate the commitment of each TLA to realising the strategy at the highest level within each TLA.

→ *'Advisors' to The Custodians of The Vision* could be appointed to advise each TLA on individual projects and initiatives, reporting directly to the CEO and/or Mayor.

Advising each TLA on individual project proposal in each TLA (e.g. *'The Advisor' To The Custodian of The Vision* would have referred any project over, say, $500k in Christchurch, or over, say, the $100k in Selwyn or Waimakariri).

Each TLA's *'Advisor' To The Custodian of the Vision* should be an independent person/s, (*not* an advisory board).

They would give verbal, or short written advice, on individual projects about whether it can be adjusted if necessary to better contribute to the 'vision' (eg *"why not include a 'homework centre', 'community internet centre', 'time share recording studio' and 'small business advisory service' in the proposed library building. It should be integrate it into the 'main street', rather setting back, with the entrance off the car park. The proposed Council 'shopfront' office should be located in the local 'main street' rather than in the free space offered at the back of the local shopping centre …"*).

The person/s should be on a retainer to give this advice on individual projects with a turn around time of less than 10 working days (each 'advisor' would have a designate 'alternate, to cover for illness, holidays, and other emergent situations).

These *'Advisors' To the custodian of the vision'* should be clearly seen as being truly independent. They should *not* be Council officers or a government unit or agency head. They should not be the 'economic development officer'. They should not be part of any property or infrastructure development arm of council or any government department or agency. (Although past members of TLA staff could be acceptable, if clearly independent of the influences of elected representatives and the influence of the mayor, and heads of Council Departments, units or agencies).

They should have a strong grounding in the 'urban design' and 'place based' economic and community development principals that underpin the UDS Strategy and understand the best ways to successfully realise the UDS Strategy through 'place based' initiatives.

Strategic Property Initiatives

→ It will be important and most effective to develop *'demonstration projects'* at key, highly visible, strategic locations.

To demonstrate the type of small, high quality, high amenity, 'place based' projects needed to be successful in the 'new economy'.

To demonstrate what is wanted, and to enthuse the local community, local developers and investors, and also to 'prove' local markets exist for the product.

→ *Land* will need to be provided for these' demonstration projects', at the selected strategic locations.

This land could already be in Council, ECAN or other public ownership. (For instance redevelopment of the ECAN Chaney's land as a 'master planned', integrated high quality, flexible small business area, ranging from high quality mixed uses to small flexible business and commercial premises, see the proposal for Chaney's development prepared during the UDS workshop).

Public land (including that newly purchased for the purpose) would be the 'front end' public contribution to entice private sector investment and development of these 'demonstration projects'. (They should be projected managed and built by the private sector, not by the TLAs unless they have an effective and efficient, semi autonomous development arm, with experienced private sector development project staff, like, for example *Waitakere Properties*)

→ A substantial *'Rolling Fund'* of at least $20m will be needed to:

Fund the initial purchase of strategically located sites for multiple ‘demonstration projects’.
Fund the purchase of properties to make local pedestrian, road or visual connects to the ‘demonstration project’ sites.

Fund any below ground infrastructure and remedial site works
Fund the promotion and marketing ‘design briefs’, and ‘design competitions’ for this land and the ‘demonstration projects’
Fund the initial public realm ‘place making’ and landscape initiatives to create the ‘superior community and business settings’ to support and underpin the commercial success of these demonstration projects’.

These funds should be ‘set aside’ in a ‘trust fund’ *dedicated specifically for this purpose.* (Specifically set up so that funding for individual projects does not have to be sought on a ‘project by project’ basis from general Council, Department, agency, unit or other program budgets).

This *‘Project Facilitation Fund’* would receive the profits from the joint venture ‘demonstration projects’ and from any ‘special purpose’ levy set to recoup the costs of the civic and public realm works and landscape, street improvements.

In this way this *‘Project Facilitation Fund’* could become a perpetual *‘rolling fund’* that would grow over time. Thereby being available to fund increasing numbers of ‘demonstration projects’ and associated ‘place based’ civic improvements over a reasonably short time.

residential growth 9

9.0 RESIDENTIAL GROWTH

9.1 residential approach

The UDS is dependent on the successful transition from greenfield-dominated residential growth to a pattern led by intensification.

The most obvious distinction will be the move from single detached dwellings to multi-unit dwellings. This presents a range of market, funding, and implementation challenges that will be different to the mainstream experience of most participants in the housing markets (including the Councils and many professional consultant experts).

Accordingly for this change to occur the UDS will need to actively engage and work with the communities, specialists, and other actors within the sub-region that will be responsible for actually delivering the majority of its residential approach.

9.2 residential aims

A key land use aim for UDS is to maximise accessible housing choice and opportunity.

Similarly relevant aims are:

- → to ensure that opportunities for intensification in town centres / nodes help to energise them rather than reduce their diversity through reverse sensitivities;
- → to ensure that opportunities for intensification do not disengage disadvantaged socio-economic and cultural groups from their communities;
- → to ensure that new greenfield residential growth is able to achieve a much higher level of local self-sufficiency than in conventional approaches (a primary need is to re-establish the structure of the 'suburb' around mixed densities that can help make more amenities viable);
- → The CBD becomes an important living environment, home to several thousand residents (including mixed ethnicities, family groups, and household types).

9.3 residential issues

The following issues are recognised as being relevant for residential growth:

- → Obtaining community and market buy-in into higher density housing types as a viable living choice and attractive alternative to the detached suburban house;
- → Obtaining genuine town-centre community buy-in into accepting their environments as settings to accommodate a large portion of the sub-region's future growth;
- → Factoring the transition from greenfield to intensification dominated growth into the strategy including lead in and preparation time;
- → Providing for growth in the rural districts - where opportunities for intensification are much lower and where greenfield is largely inevitable - that supports and contributes to the enrichment of existing centres.

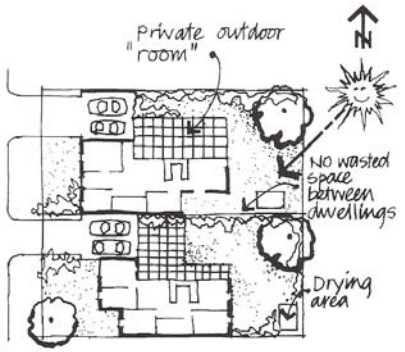
9.4 High Quality Living Environments

To achieve high quality living environments dwellings must offer the following:

- → Privacy;
- → Solar access;
- → Safety;
- → Indoor / outdoor flows;
- → Quality visual character.

These qualities are most effectively achieved when a clear definition between public and private space is established. This is usually best achieved with conventional perimeter development where dwellings, and buildings housing other uses, front the street. Private open space is then located to the side or rear.

It is also crucial that to maximise residential amenity, residential development is provided for in the best locations having regard to outlook, visual amenity and views, and environmental sensitivity.



ABOVE FIG. 9-1: Private open spaces should obtain maximum sunlight and be directly accessible from living areas

9.5 residential neighbourhoods

Residential uses in the UDS should:

OFFER A WIDE CHOICE OF HOUSING OPTIONS

→ A range of housing choices should be made available, these should cater for families, couples, empty nesters and single households.

Techniques exist that can ensure market targets are met through careful design of layout, form, and orientation. A key challenge can be in how to place the highest and lowest valued unit / section in a development as close to each other as possible without undermining either.

PROVIDE A RANGE OF DENSITIES

→ A variety of housing densities should be provided for. These should include large and small lots with detached houses as well as medium density developments consisting of semi-detached and terraced houses, as well as apartments where appropriate. The use of 'intensity' as a means of managing housing provision at the detailed site development or subdivision stage rather than 'density' (more appropriate at the strategic level) may be a more appropriate measure in the UDS;

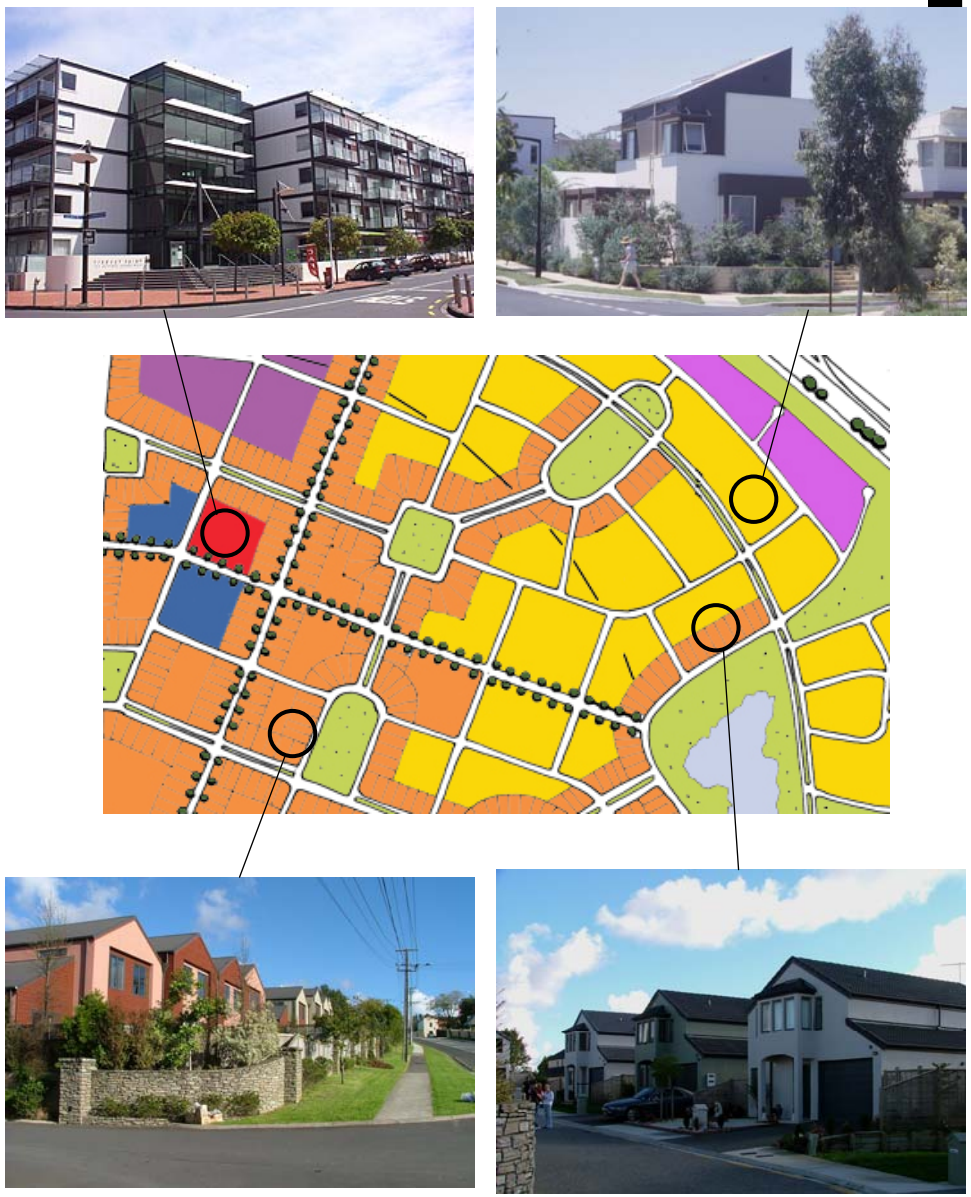
→ Development intensity should increase in direct relation to the proximity of services / amenities to each unit / site;

→ As a guide, to help make local economies and public transport more viable and to efficiently use the land resource, the following minimum, average, gross densities are recommended:

→ Greenfield growth: 15du/ha (Christchurch); 12du/ha (Rural Districts);

→ Town centre intensification: 30du/ha;

→ CBD (and the very inner core of large town centres): 50du/ha.



ABOVE FIG. 9-2: Good design can often accommodate a range of living densities and house types.

9.6 small holdings

Rural-residential is a firmly established lifestyle choice within the UDS areas, notably in the rural districts. The typical standard is 4ha blocks.

Traditionally rural-residential development had little impact on the overall urban form given that it was only realistic to a very small part of the community:

- → Those that had higher than medium incomes; as well as
- → Those that were able to manage travel times above the community's normative threshold for commuting time.

A range of factors over time have opened up this lifestyle type to a much larger proportion of the population to the point where it is now within the means of many mainstream, average income earners to obtain. These have included:

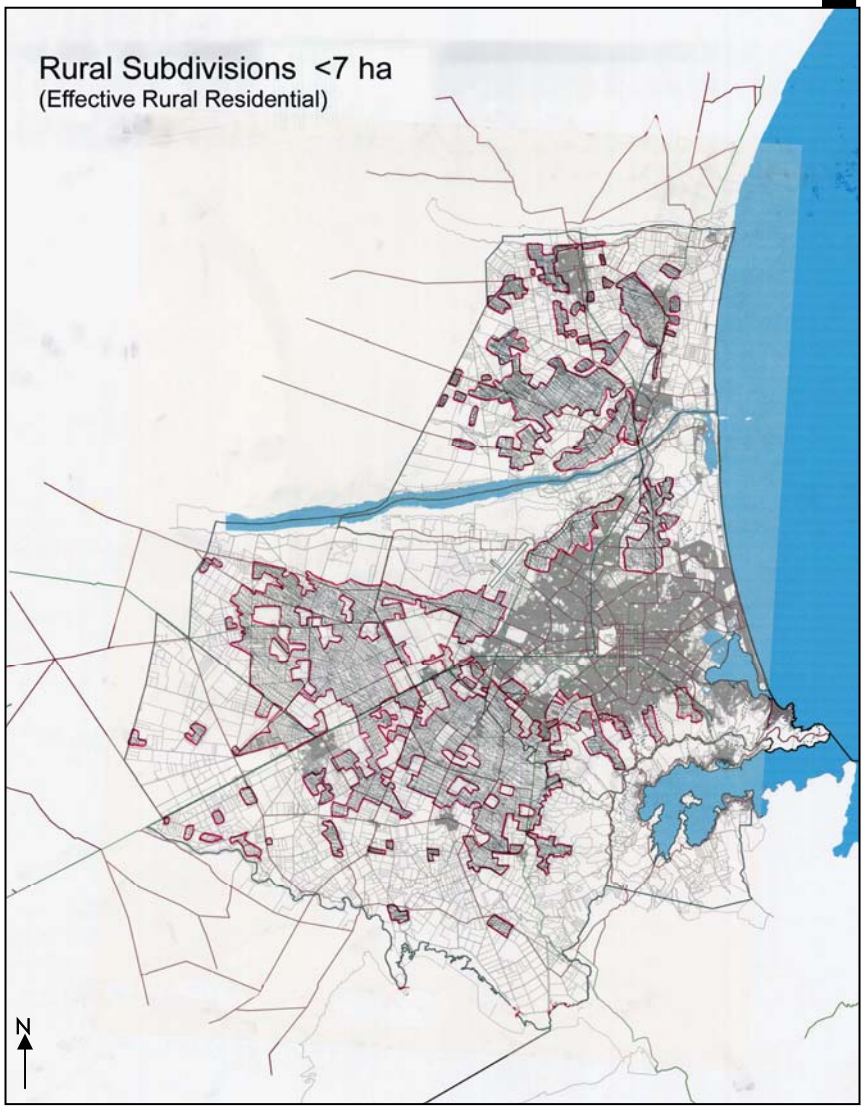
- → Strategic transportation system improvements in conjunction with cheaper costs for quality, comfortable automobiles that have made much quicker, easier trips possible;
- → Increasing standards of living and a larger 'middle class' emerging;
- → The successful commoditisation of housing into a consumer product, where owning a custom-designed brand new item has a higher social desirability attached to it than reusing or re-occupying an older version;
- → Lifestyles that place increasing importance on 'quality' personal time.

Overall in terms of the urban form and its performance rural residential is considered cost-neutral or adverse, depending on the scale provided. It is important that all lifestyle types are accommodated within the UDS simply as a function of seeking variety and choice in the urban form.

Physically, the benefits of rural residential are solely confined to the individual; communities gain no discernable benefit from them except for the economic contribution of those few allotments that prove to be in consistent economic production. While peripheral industry may suggest a proximity at least to employment opportunities, the demographics of industrial employees are not consistent with the market for rural residential occupiers (excluding management staff etc.). The costs of maintaining on-going servicing to these units by local authorities is rarely cost-recoverable from the actual rates paid by those using the services (notably roads). In addition, they can make it difficult for residents - especially children - to participate in the community without considerable reliance on vehicular transport and pre-meditated, deliberate organisation.

While there will always be some desirability for rural residential housing, it is recommended that the UDS confirm a nominal role for it.

This is to say that while it should be made available in suitable quantities, it should not be considered to be a core part of delivering required growth targets. Instead, the full growth target should be provided for within urban greenfield and intensification strategies. This will at least ensure that those who choose to buy into rural residential are solely those who deliberately wish to do so and opt out of the UDS approach of sustainability.



ABOVE FIG. 9-3: Examination of existing rural residential capacity within the UDS area (not to scale)

9.7 current growth outcomes in detail

market demand largely determining rate of greenfield/infill growth

Currently greenfield growth dominates new housing provision. The reasons for this are however less clear. There is a seemingly established pattern of consumer preference for home ownership around clearly delineated private property (separated horizontally and vertically). This leads to the conclusion that detached suburban housing (even on very small lots) will remain popular. This suggests that initial medium density and intensification efforts could focus on variations of this type including very compact detached units or well-designed terraced forms (such as innovative garage placement to exaggerate separation between units).

However other legitimate reasons could include the lack of effective information or 'marketing' for intensification in comparison to greenfield development. In particular the fair representation of benefits and costs (capital, maintenance, other amenities and conveniences etc.) between housing types in public forums is typically not strong.

Experience elsewhere also suggests that for many people conditioned to lifestyles where driving to every destination is just a normal way of life, some of the key advantages of intensification are simply not appreciated or understood in processes of determining comparative best advantage in their living choice.

density increasing across all zones

Local evidence suggests that across all residential zones within Christchurch City, densities are incrementally increasing over time. This may be in part due to a steady increase in land value as a response to population increase (and greater competition for the land resource).

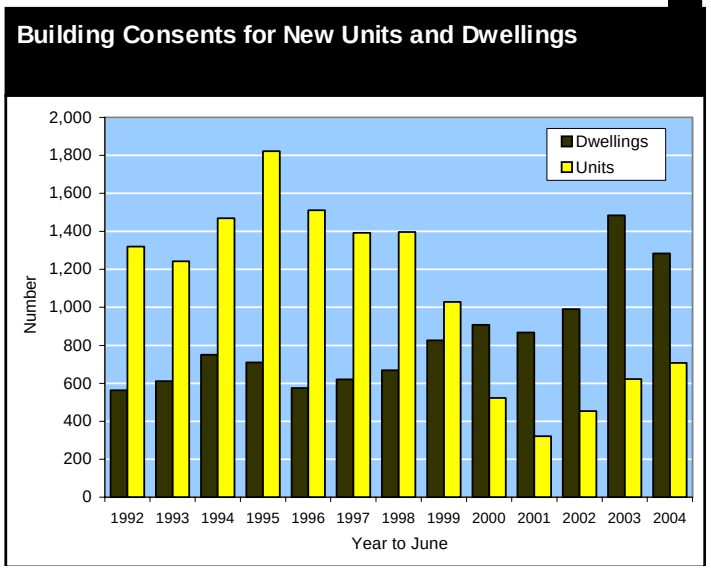
However the densities observed are still well short of the levels considered necessary of the community-endorsed "Option A" is to be implemented through the UDS.

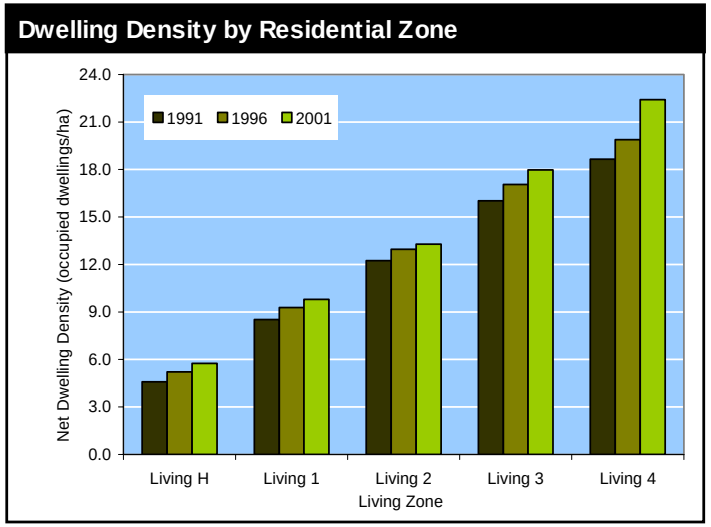
greenfield dwellings far exceed infill/high density

36% of new housing in UDS is currently being delivered in the Selwyn and Waimakariri Districts (at one point this was 14%). Of these however a large proportion of residents only have an interest in using employment and education facilities within Christchurch City. Some daily needs may be met locally (such as food shopping where this is not made an adjunct trip on a separate visit to the City), giving benefit to the local economy in addition to the rating income for the Councils.

45% of new housing is currently in Greenfield on City edge incrementally pushing towards the Selwyn and Waimakariri Districts (at one point this was 18%). These are overwhelmingly detached dwellings on lots between 450 - 800sqm, laid out in patterns of homogeneity and the conventional road layouts offering minimal connectivity.

19% of current new houses are high density or infill (from a previous high of 67%).





ABOVE FIG. 9-4: Illustrations of housing trends within Christchurch City (Source: CCC)

9.8 inner city intensification: existing zones

There are three main zones currently used to help deliver intensification within the inner city:

Living 3 Zone (1)

→ Plot ratio: 0.8

→ Height : 11m

→ 2-3 storeys

Outcomes in this zone have commonly realised:

- townhouse rows;

- rows running perpendicular to the street (end-on);

- service room windows facing the street (toilets, bathrooms, spare bedrooms);

- uniform design based on site limitations rather than environmental or urban design response

Living 4 Zone (2)

→ Plot ratio: 0.9 – 1.4

→ Height: 6m – 30m

→ 2-10 storeys

Outcomes in this zone have commonly realised:

- townhouses;

- apartment towers;

- at grade parking wherever possible;

- Buildings often present a face to the street but set well back;

- established on larger existing sites or amalgamated residential lots.

Central City Zone (3)

→ Plot ratio: 2 – 6.5

→ Height: 15 – 80m

→ 5 to 26 storeys

→ Potential for mixed use

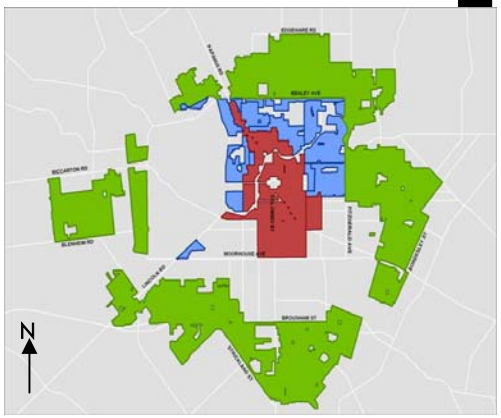
Outcomes in this zone have commonly realised:

- several disincentives slowing market uptake including car parking and earthquake strengthening requirements;

- more high-end oriented outcomes;

- current funding mechanisms can favour the hotel / visitor accommodation model where investors buy a unit with an option to occupy or lease back to an operator.

Based on analysis of where residential growth is and is not occurring compared to the District Plan provisions relating to those areas suggests that regulatory incentive (or disincentive) is not a significant determinant of market preference. This may justify either stronger regulation or a complimentary / alternative approach to align community aspirations with built outcomes.



ABOVE FIG. 9-5: Residential zoning and the Christchurch CBD. Source: CCC, not to scale..

GREEN: Living 3 zone

BLUE: Living 4 zone

RED: Central City zone

9.9 greenfield growth

Traditionally greenfield residential growth has been low density – 10du/ha (1000sqm / site gross or around 600-700sqm / site net).

More recently mixed densities have been put forward by the private sector. These have been able to deliver marketable densities of up to 14 - 15du/ha (gross). Higher densities have encouragingly been delivered with a better standard of implementation including more functional outline plans and provisions. More mixed uses have also been put forward.

As at June 2004 there was a six year supply of zoned greenfield land remaining within Christchurch City. In addition, a 100ha (approximate) block of non-residential zoned land at Yaldhurst was approved by the Environment Court in 2006, with a further 100ha (approximate) of non-residential zoned land currently before the Court (at Belfast). Other 'out of zone' areas are also before the Court.

The Council has identified land it considers may be suitable for continued greenfield growth and in concurrently undertaking a number of Area Plans to help assess growth potential.

There is an urgent need to confirm/refute signalled potential growth areas and provide a clear market direction over at least the next decade of growth. This will allow necessary investment procurement to occur as well as allowing institutional and organisational planning to be stimulated.

A staged land release to achieve priorities is the general approach to balance the cheap supply of affordable land with the desirability of a coherent, efficient urban form.

ABOVE FIG. 9-6: Greenfield growth can have flexible density requirements based on proximity to amenities.

ABOVE FIG. 9-7: Christchurch has an ample supply of flat horticultural land on the fringe that could support growth. Image source: CCC.

9.10 area plans

largest area plans

→ Belfast – Potential for up to 2,900 households along with up to 85ha of industrial land has been identified;

→ South West Christchurch – Potential for up to 12,700+ new households along with 200-300ha of new industrial land has been identified.

other area plans

→ Cranford Basin, Mairehau, Burwood - 1518ha potentially available;

→ Upper Styx – 200ha potentially available;

→ Memorial/ Russley – 124 ha potentially available;

→ Heathcote Valley - 20ha potentially available.

various environmental constraints

→ Port Hills;

→ Flood management areas;

→ Airport noise contour;

→ Unconfined aquifer (GRZ 2);

→ Servicing;

→ Connection to transportation system.

ABOVE FIG. 9-8: Possible growth areas in Christchurch City. Source: CCC not to scale.

9.11 greenfield growth pockets

The IBD process identified a more defined number of areas where greenfield residential growth could be possible.

These will be explored in greater detail in the next section with other residential growth pockets, to lead into the development of growth options. However in summary, these greenfield pockets were tested and refined throughout the workshops, with a number being discarded.

They were based on residential areas that were assumed to deliver either:

- → New greenfield areas in Waimakariri and Selwyn districts at a gross average density of 12du/ha;
- → New greenfield areas in Christchurch City at a gross average density of 15du/ha.

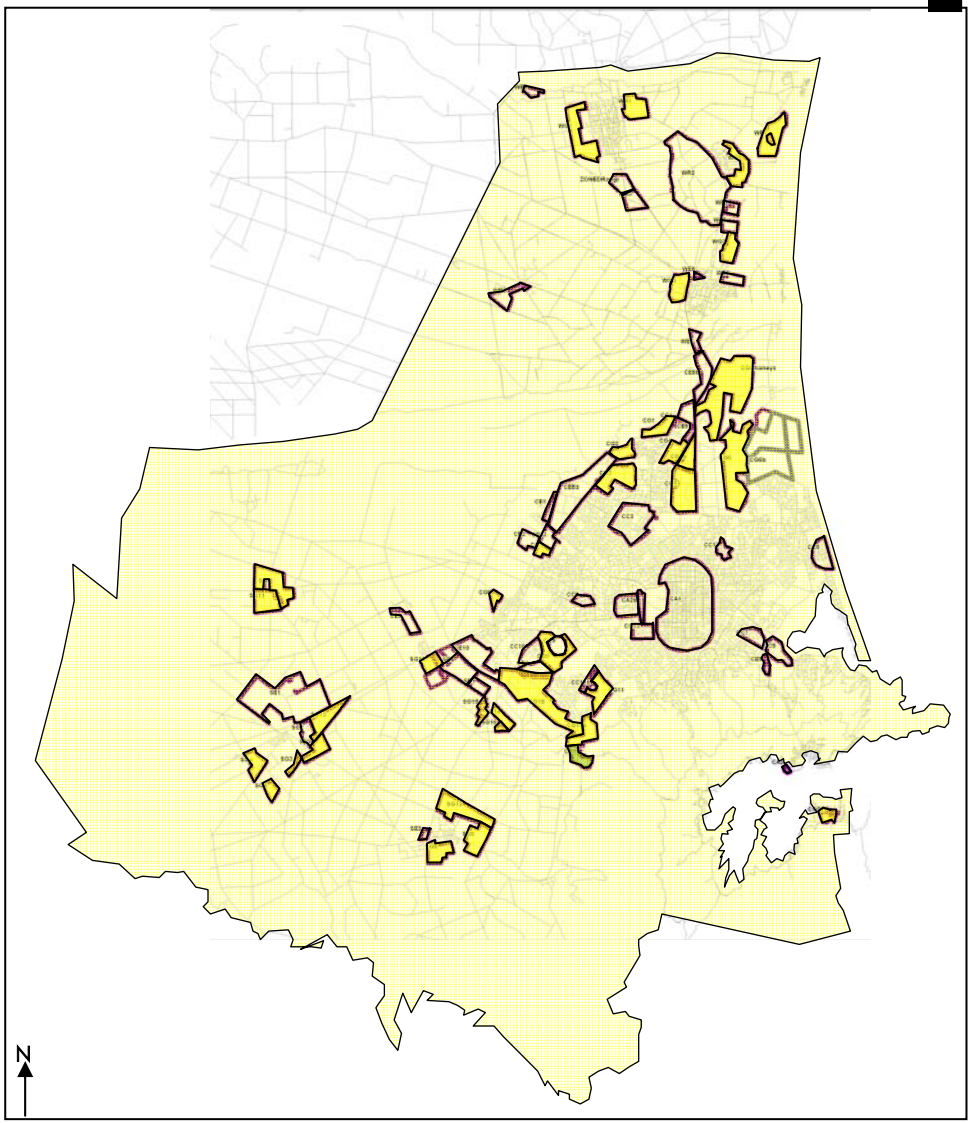
These pockets were audited so that an adjusted land area (the land realistically considered developable) was used to help multiply by the desired density target to calculate yield (rather than just the crude total area of land itself). This was still used as the gross area and was intended to give a more realistic possible yield. Finally, the pockets were marked if any dwellings currently existed within them. To avoid 'double dipping' the yield possible within the pockets, the quantum of existing units within each was subtracted from the theoretical optimum.

The total 'developable' area within the greenfield pockets was estimated at 5,856ha (978ha in Waimakariri; 1,331ha in Selwyn; and 3,547ha in Christchurch).

The pockets suggested a new greenfield household yield of up to 75,742 dwellings (10,867 in Waimakariri; 12,212 in Selwyn; and 52,663 in Christchurch) could exist, providing for significant growth beyond 2041 in combination with intensification. While this yield could almost entirely meet the total new household demand to 2041 with minimal intensification required, this outcome would be a highly inefficient one, requiring much greater ongoing investment in infrastructure and in managing environmental externalities.

The UDS partners will still need to follow due political process with their respective communities. This will move beyond the simple identification of possible areas towards clear decisions on what areas will be opened up for growth. An example is the Chaneys area in Christchurch. This could accommodate growth however it may be more desirable to keep this pocket for a 'later date' after 2041, or to never develop it at all if other means can be provided to manage growth.

For the purposes of the IBD workshop, pockets were favoured in terms of their urban design logic and what was - on the basis of the Council specialist information available at the workshops - most suitable and likely community-supported for growth.



ABOVE FIG. 9-9: Identified greenfield compatible growth pockets from the IBD workshops, 2006. Not to scale.

9.12 design testing—christchurch city & CBD

In terms of intensification, the IBD process undertook a similar approach to that of the greenfield calculations:

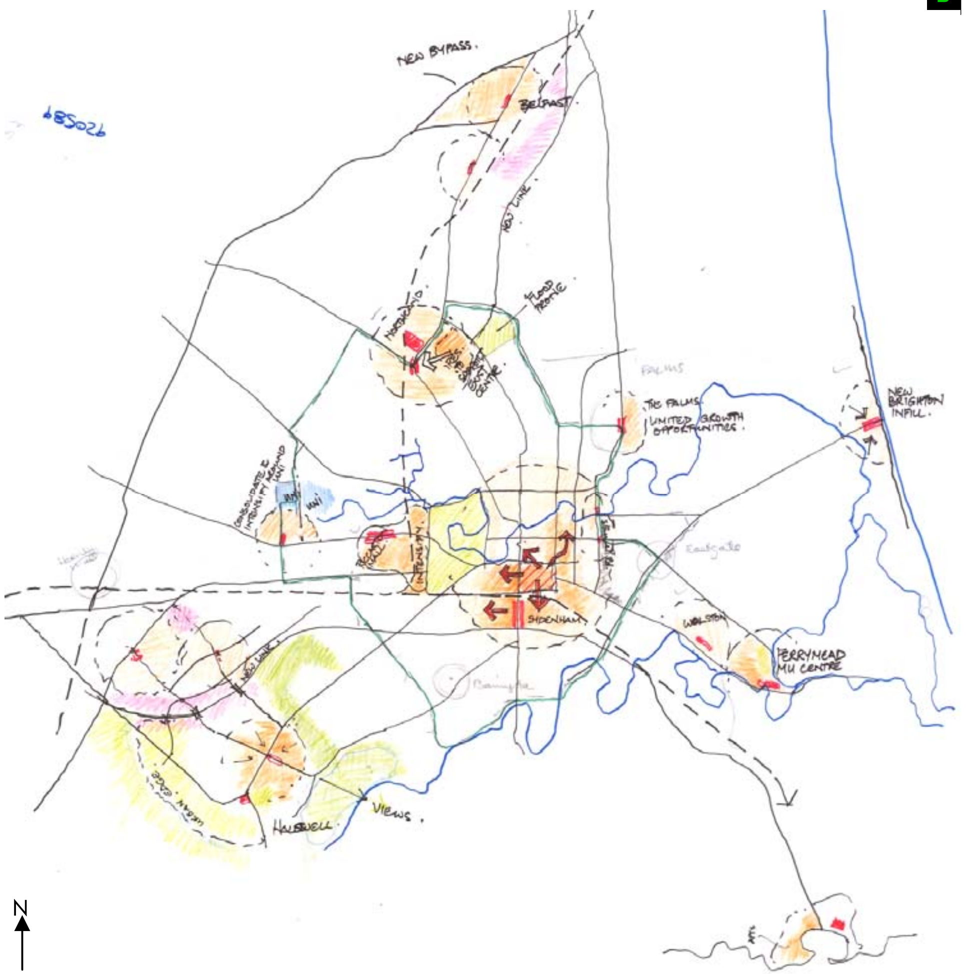
- → Identify potentially suitable settings for intensification (the CBD and other town centres / nodes);
- → Identify and take into account any existing housing within these areas;
- → Audit local areas to identify where opportunities may lie for development. In some centres this amounted to a large part of the total area; in others there were only some relatively small pockets;
- → Determine preferred densities and realistic available land supplies (town centre intensification was estimated at 30du'ha (average, gross density);
- → Take into account any large older industries that may relocate out of centres, providing specific large-scale redevelopment opportunities;
- → TOP DOWN studies: Taking the theoretical optimum yield and determining how each place would need to change to accommodate this (i.e. establish what proportion of a town centre would need to be redeveloped to achieve the target);
- → BOTTOM UP studies: Taking a place-based approach of detailed design testing where within each place areas of logical opportunity (especially areas that were currently not ideal and where redevelopment could achieve an improvement of the local environment; such as through opening up a large reserve with a road and new houses that could front over it, giving accessibility and safety benefits to that park). This approach identified what level of redevelopment may actually be possible within each centre.

Each of the top-down and bottom-up tests were not represented to identify the final amount of intensification that each centre should accommodate. These tests only functioned as 'safety nets' to help ensure the assumptions of the wider UDS being made were realistic. Notwithstanding this, the tests were prepared using best-practice urban design principles, leading to forms and structures that would be suitable for a 'real world' outcome.

Accordingly the design tests illustrated on the following pages should not be considered as 'ideals' or even actual proposals for how different nodes should develop; their sole purpose is to help understand what different levels of growth could look like and even if it can happen in a beneficial way at all within different nodes.

For each focal point of intensification the local community will need to be involved in a more detailed exercise that agrees in a Centre Plan and 'contract' between the Council and communities how much intensification, where, and when (including what supporting services / amenities will be provided where and when) will ideally occur.

This exercise focussed more on Christchurch City than the Districts given the limited opportunity for intensification considered possible.



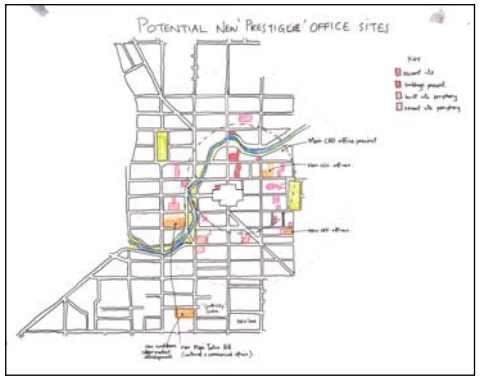
ABOVE FIG. 9-10: Strategic intensification design inquiry, 2006. Not to scale.

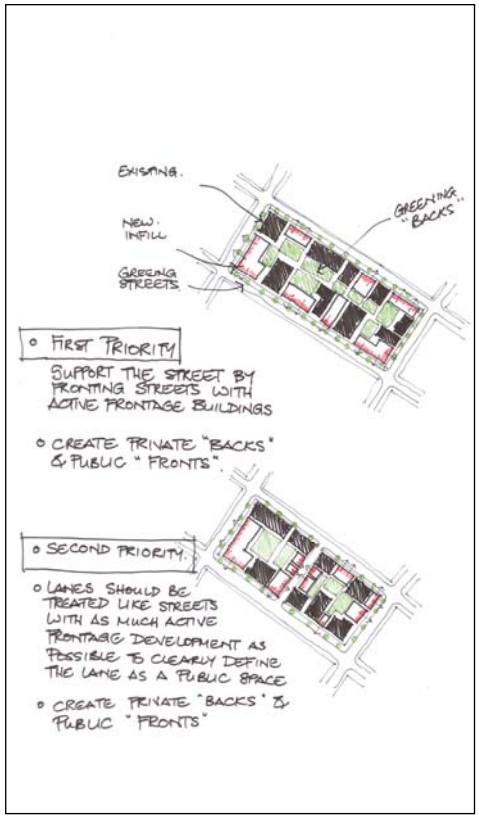
The CBD and its structure was also given particular attention. Opportunities for providing medium and high density residential in areas where this would support existing business and open space uses were put forward, with the medium density opportunities those most similar to current market outputs and possible to achieve in the period 2007-2015 without the need for considerable Council pre-emption. These tended to be on the fringe of the CBD and north of the commercial core.

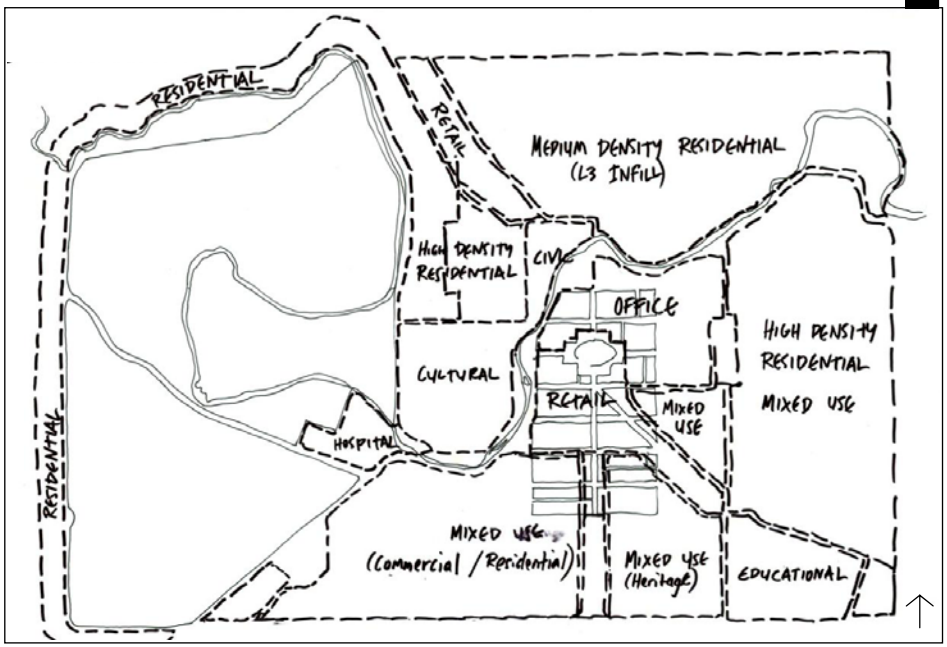
Areas of mixed and high density use were proposed mostly around the east and south of the CBD core. These areas and their desired outcomes would require greater market dialogue from the Councils before they would likely be of market interest.

The urban structure was also examined to ensure that adequate amenity would be provided for a future CBD population. It was identified that scope existed to improve this, with the addition of a key new reserve and redevelopment to link them together around the CBD.

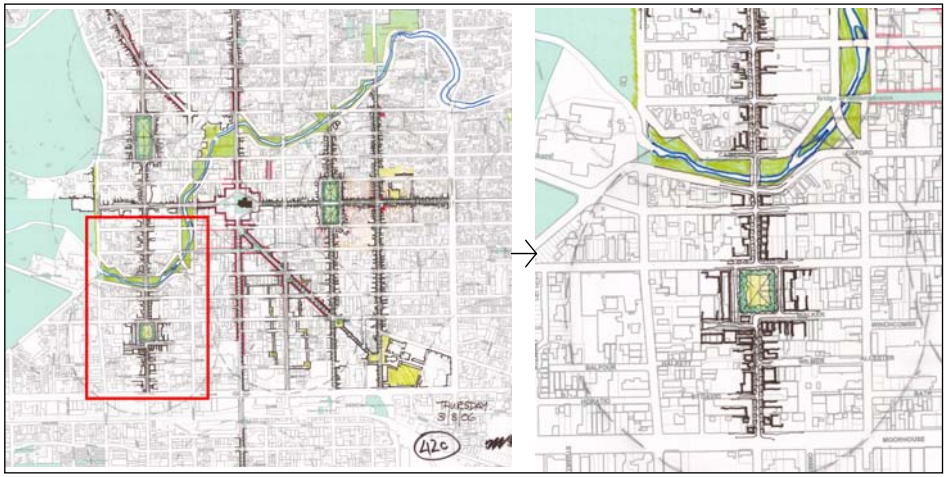
Unlike other centres where intensification is sought, the CBD is already rich with services and amenities (although more 'basic' needs could be much better provided for). A different approach will be needed by the Council to encourage growth in this area, based on proving a viable business case to developers, and on a viable setting to live, raise a family, rest, and relax in addition to the more conventional roles of working, shopping, and higher-order entertainment.







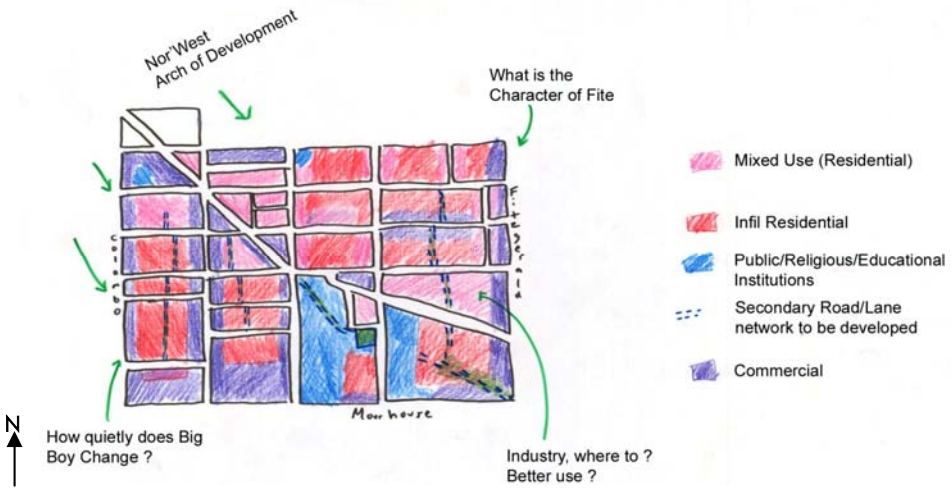
ABOVE FIG. 9-12: CBD design inquiry looking at possible ideal land use makeup, 2006. Not to scale.



ABOVE FIG. 9-13: CBD design inquiry, 2006 - a new public open space is recommended in the south-western quadrant (not to scale).

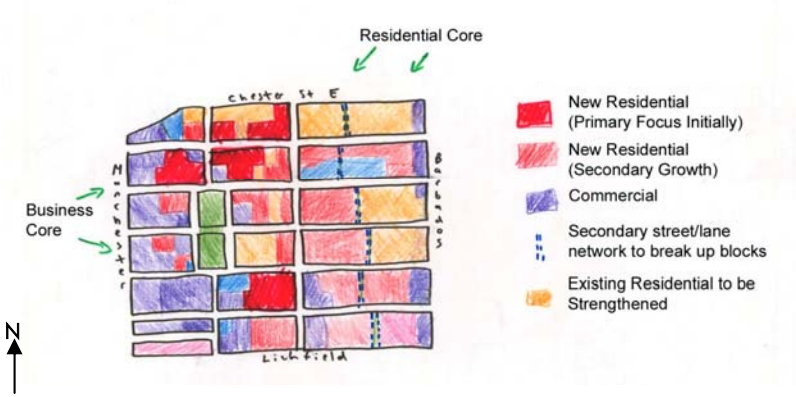
SPECIFIC DESIGN TESTS:

CENTRAL CITY SOUTH



ABOVE FIG. 9-14: Design inquiry of possible intensification issues / opportunities in central city south (not to scale).

LATIMER SQUARE

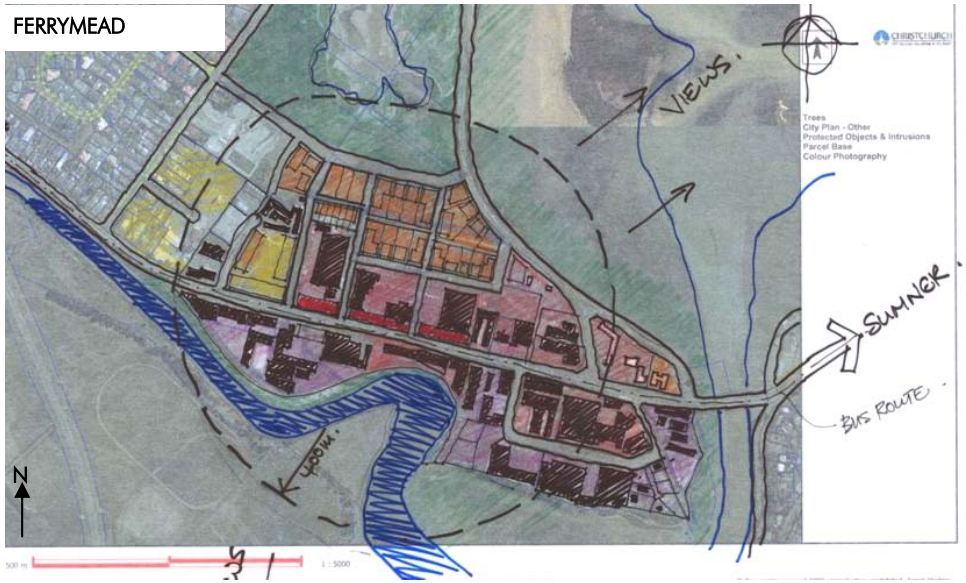


ABOVE FIG. 9-16: Design inquiry of possible intensification issues / opportunities around Latimer Square (not to scale)

WOOLSTON

ABOVE FIG. 9-15: Design inquiry of possible intensification issues / opportunities in Woolston (not to scale).

FERRYMEAD



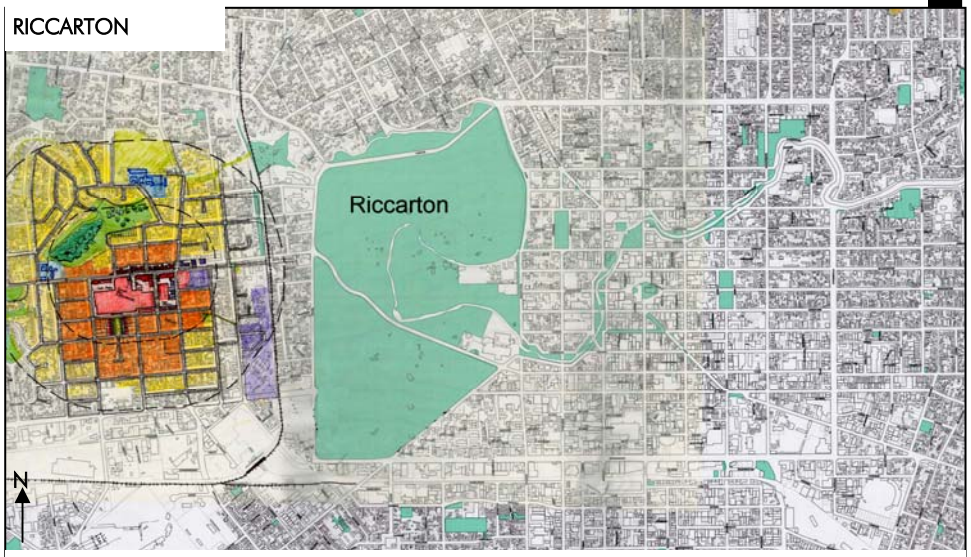
ABOVE FIG. 9-17: Design inquiry of possible intensification issues / opportunities in Ferrymead (not to scale).

SPECIFIC DESIGN TESTS:

SYDENHAM

ABOVE FIG. 9-18: Design inquiry of possible intensification issues / opportunities in Sydenham (not to scale).

RICCARTON



ABOVE FIG. 9-19: Design inquiry of possible intensification issues / opportunities in Riccarton (not to scale).

PAPANUI

ABOVE FIG. 9-20: Design inquiry of possible intensification issues / opportunities in Papanui (not to scale).

NEW BRIGHTON

ABOVE FIG. 9-21: Design inquiry of possible intensification issues / opportunities in New Brighton (not to scale).

The overall pattern of centres within Christchurch City was examined, to help strategically identify what centres beyond the CBD may have a relatively more important long term role for the UDS. These centres may be suitable locations for additional or larger-scale intensification than other centres.

Belfast, Papanui / Northlands, Hornby / Halswell, and Ferrymead offered particular strategic locations aside from the CBD and immediately inner suburbs (Riccarton etc.).

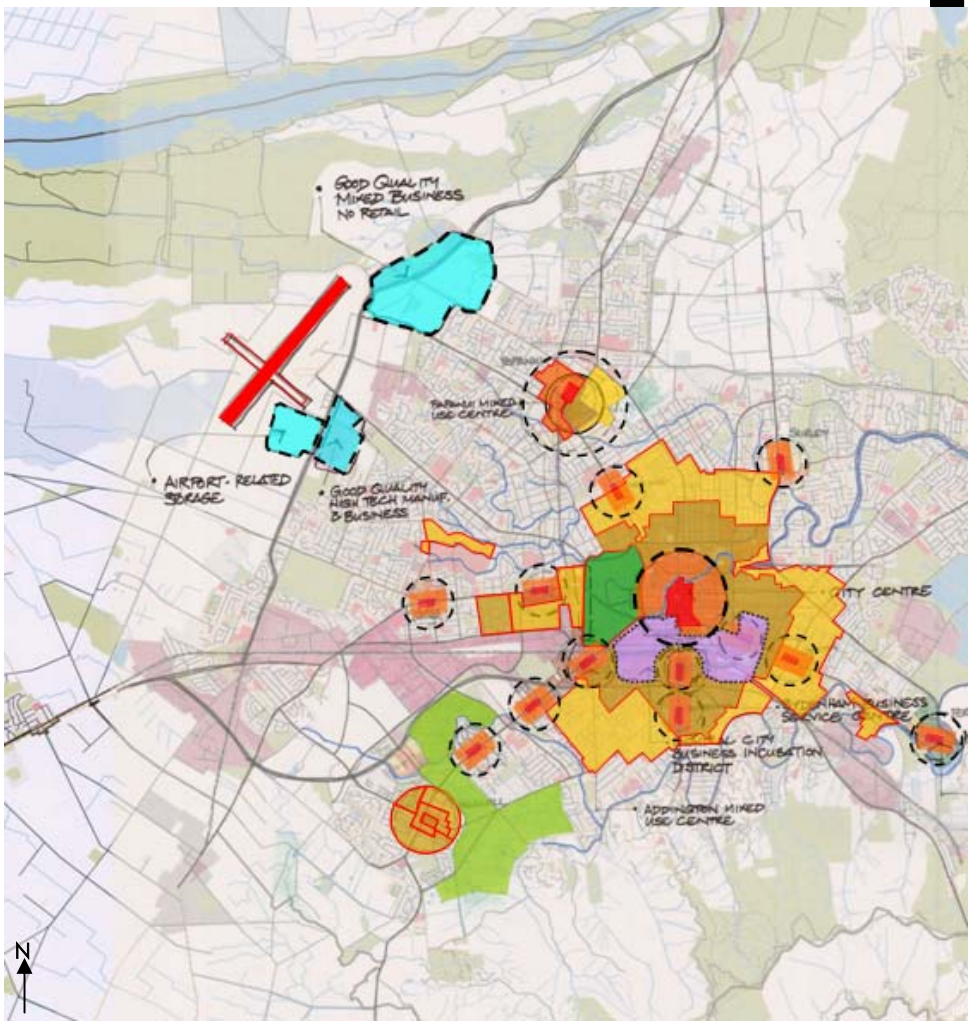
This strategic structure was intended to inform a long-term efficiency between housing location, movement networks and accessibility as well as employment / amenity areas.

These began to emerge in a pattern of significant growth 'corridors' - linear routes connecting to the CBD along which regular important nodes of intensity appear. These would logically be supported by good public transport routes (high frequency and high destination variety), and particular road treatments that would ensure a high standard of amenity for all users was maintained (high traffic volumes, public transport possibly with priority, ample street parking to facilitate business uses, and a high pedestrian, cycle user, and resident amenity.

The ability of the road network to connect these many nodes together will help to provide them with further energy to develop business and social growth in addition to just residential.

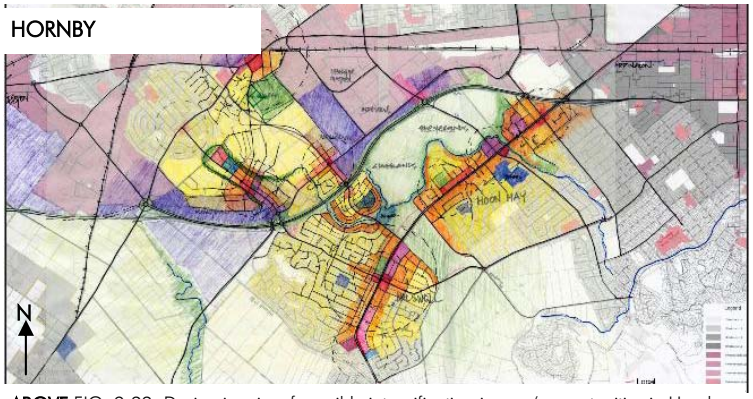
In addition to the particular intensity proposed within the town centres and CBD, a general increase of latent or background density within the inner Christchurch area was also supported. This would be achieved through incremental infill and redevelopment over time, giving in many cases a greater access to amenities, services (including public transport) than in greenfield subdivisions.

The inquiry by design approach allowed the consultant team and UDS Partners to better understand the implications of intensification on existing places. Decisions as to how the final UDS should be implemented are able to be made with a greater level of understanding as to how growth will compliment the character and form of existing centres. The conventional approach can involve simply dividing up a growth target and abstractly 'allocating' it to centres, with little understanding of what that growth would actually do to that centre, or even whether it could be accommodated at all.

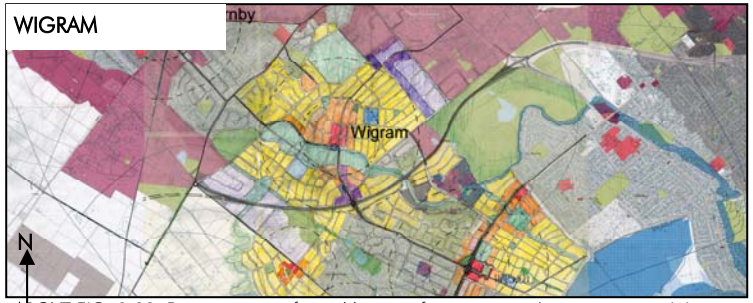


ABOVE FIG. 9-11: Intensification nodes linking into growth corridors, design inquiry 2006. Not to scale.

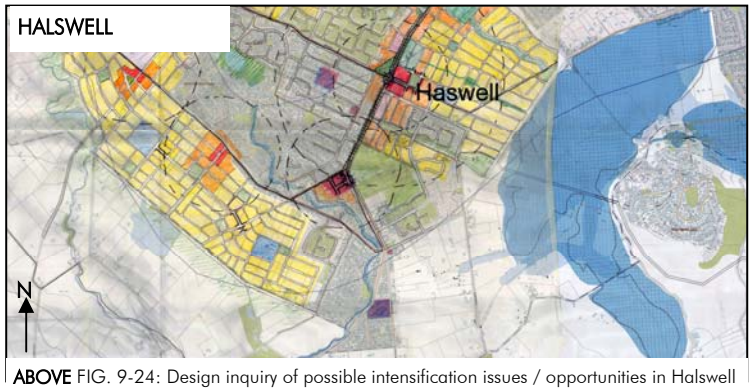
SPECIFIC DESIGN TESTS:



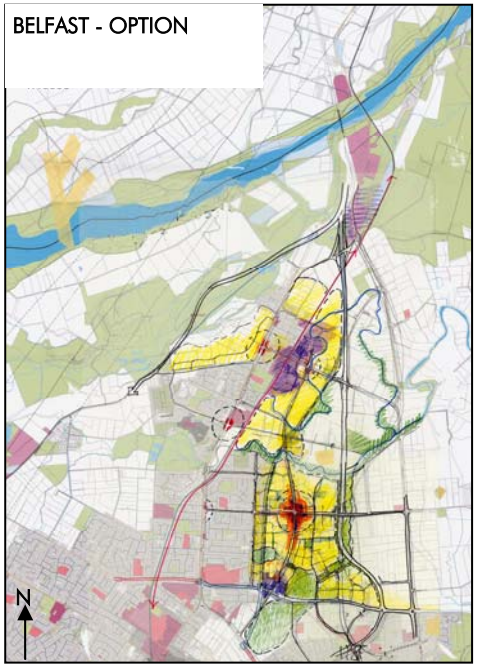
ABOVE FIG. 9-22: Design inquiry of possible intensification issues / opportunities in Hornby (not to scale).



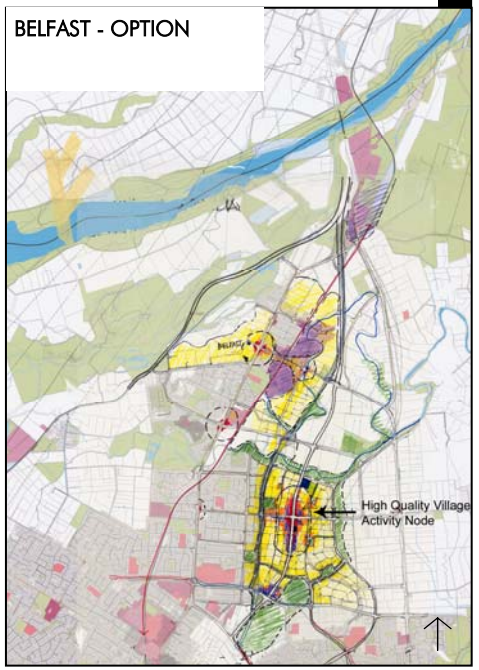
ABOVE FIG. 9-23: Design inquiry of possible intensification issues / opportunities in Wigram (not to scale).



ABOVE FIG. 9-24: Design inquiry of possible intensification issues / opportunities in Halswell (not to scale).



ABOVE FIG. 9-25: Design inquiry of possible intensification issues / opportunities in Belfast (not to scale).



ABOVE FIG. 9-26: Design inquiry of possible intensification issues / opportunities in Belfast (not to scale).

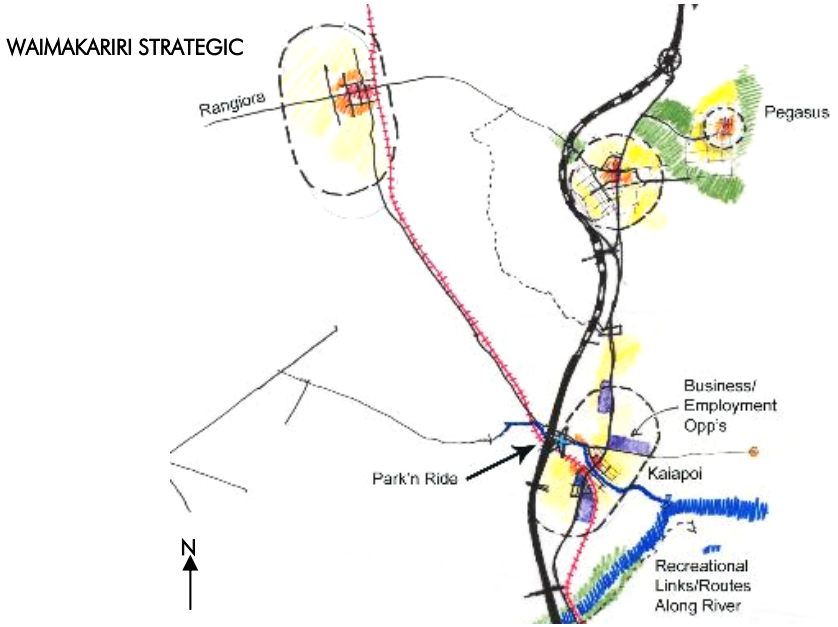
9.13 design testing— waimakariri district

Residential growth in the Waimakariri District will be overwhelmingly greenfield in nature. However, it will still be possible to associate much of this growth around the existing centres so as to give them as much connection to communities and areas off activity as is possible. This will also help make new greenfield developments accessible to public transport and other amenities available within the towns.

The main centres within the District were looked as a whole, although doubt as to the opportunities to grow around Kaiapoi due to unresolved airport noise contour issues prevented a conclusive preference being reached in this area.

Pegasus was included as a greenfield growth 'pocket' in the development of options, although whereas all other greenfield areas could be 'switched on or off', this pocket was treated as fixed i.e. it will definitely occur given its state of construction.

Specific testing around Rangiora was undertaken given that this is the most important centre within the District. Understanding how growth could relate to the existing main street and commercial area, railway line and station (for any future re-use of the line for passenger movements) and waterways.



ABOVE FIG. 9-27: Design inquiry of possible intensification issues / opportunities in Waimakariri District (not to scale).

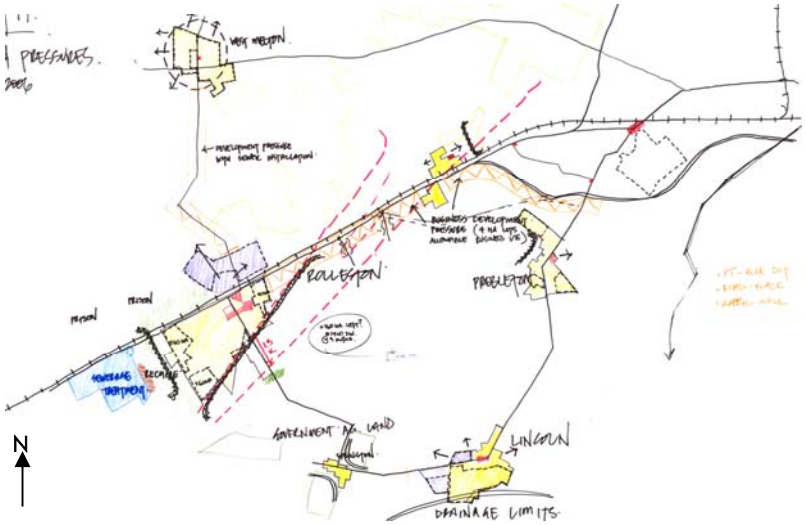
ABOVE FIG. 9-28: Design inquiry of possible intensification issues / opportunities in Rangiora (not to scale).

9.14 design testing— selwyn district

Residential growth in the Selwyn District will be overwhelmingly greenfield in nature. However, it will still be possible to associate much of this growth around the existing centres so as to give them as much connection to communities and areas off activity as is possible. This will also help make new greenfield developments accessible to public transport and other amenities available within the towns. Lincoln and Rolleston both offer good opportunities to achieve this.

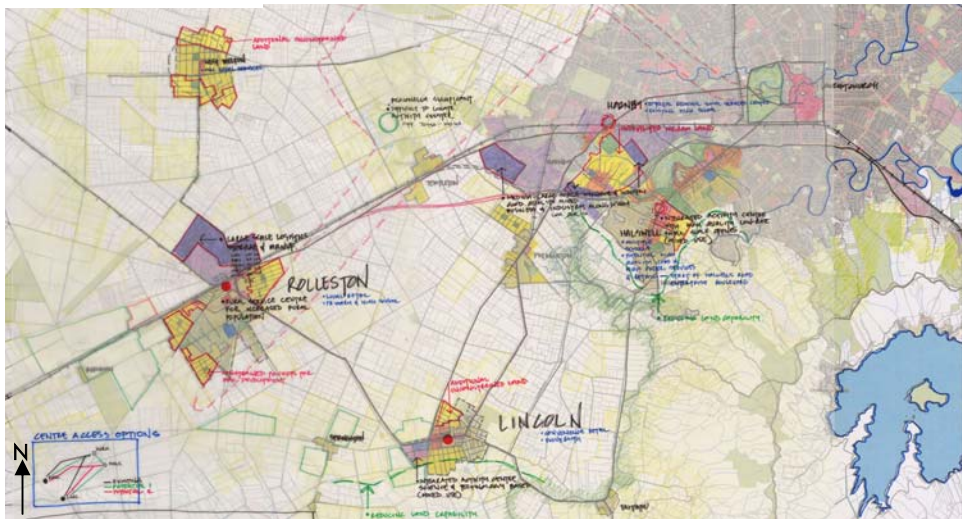
Key opportunities exist in the form of the university and possible enlargement of student participation in the town for Lincoln. With Rolleston, the I-Zone industrial area and main movement routes allow the potential to re-energise the town centre.

SELWYN STRATEGIC



ABOVE FIG. 9-29: Design inquiry of possible intensification issues / opportunities in Selwyn, not to scale.

SELWYN



ABOVE FIG. 9-30: Design inquiry of possible intensification issues / opportunities in Selwyn, not to scale.

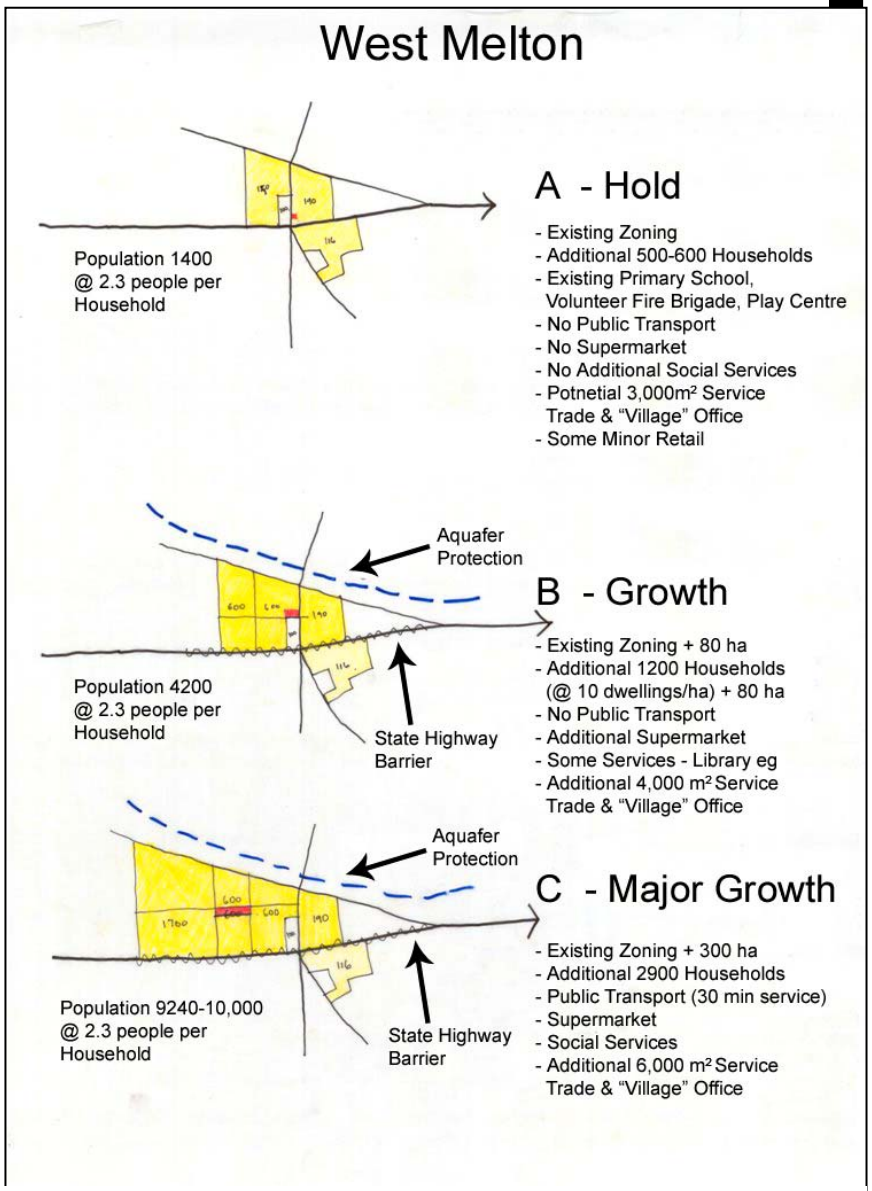
WEST MELTON

This settlement required careful consideration. It is currently difficult to describe it as a town or even a village; it is small and of little strategic relevance to either Selwyn District or the UDS area as a whole.

However, recent RMA processes have approved additional development of detached housing here, raising the prospect of an isolated, disconnected anomalous town of sufficient population to warrant further consideration.

After a series of tests it was concluded that focusing even more growth here may ultimately create a catchment that would support services delivering local daily needs (shops, social networks etc.). A public transport service at frequencies that would offer realistic convenience would also be possible. This outcome was eventually chosen as a preference and best possible outcome for the town.

Unlike other centres within the UDS, West Melton will essentially be a centre formed 'from scratch'. Care will need to be taken to establish a core commercial area based on a public-realm led main street condition. Typically these are difficult to establish without a long-term view, which the Council may need to proactively contribute (subsidising starter businesses for their first two years and so on).



ABOVE FIG. 9-31: Design inquiry of possible intensification issues / opportunities in West Melton, not to scale.

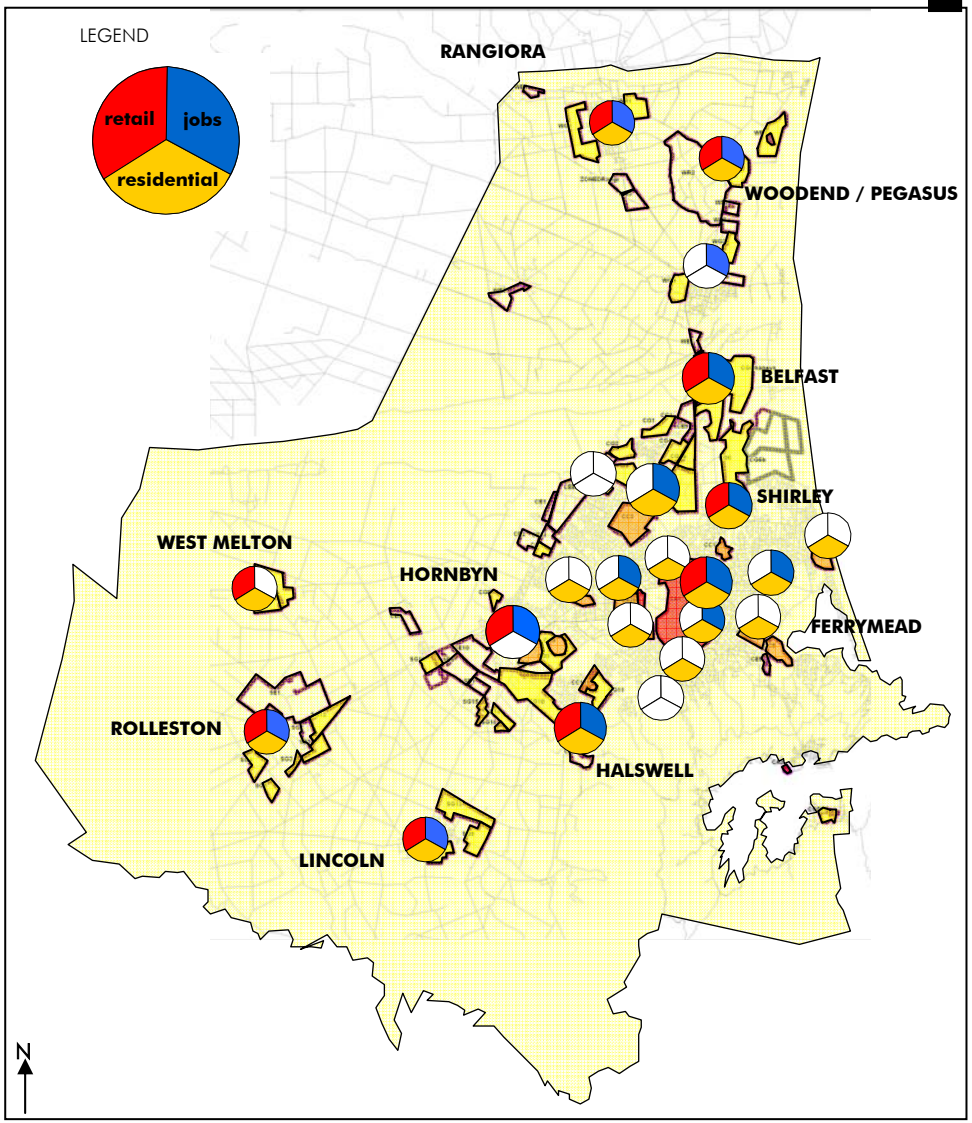
9.15 residential growth network

The preferred residential network is not a specific solution for the growth target.

Rather it is an amalgamation of potential suitable settings within which residential growth could occur. The overall capacity has been estimated in the IBD process at around 119,234 households, of which some 64% will be required to give effect to the medium-high population projection to 2041.

It is based on viable intensification within the CBD and town centres and greenfield growth that will support those centres and wider networks.

In terms of greenfield, notable potential exists in both southern and northern Christchurch City towards the boundaries of the two rural districts. Maintaining a distinct separation between towns in greenfield areas will be important, most significantly to maintain the distinct rural identities of Prebbleton (growth could be limited here to help maintain its distinct city-fringe small town character) and Kaiapoi.



ABOVE FIG. 9-32: Residential growth network, not to scale.

movement network 10

10.0 MOVEMENT NETWORKS

10.1 movement network approach

The future needs for transportation facilities in greater Christchurch are primarily dictated by the overall future urban form and the location of land use growth. The general principles of these have been established through the community's endorsement of "Option A" that will see growth management seeking to intensify around Christchurch City (including greenfield growth), and growth around the key centres within Selwyn and Waimakariri Districts.

10.2 movement network aims

- → provision must be made for vehicular, bus, cycle and pedestrian movement through the UDS area at different levels of space. This is best achieved through a connected network, primarily of local streets and a hierarchy of arterials that combine all of these modes of movement.
- → to provide effective strategies to reduce motor vehicle traffic and encourage the use of buses, cycles, together with walking.
- → to provide an efficient connected network that successfully integrates adjoining centres and also provides for easy local movement.
- → The road network facilitates economic and social exchange across all levels of space including balancing through function with the local condition.

Specific areas to be addressed are:

SAFETY

Good street design should be applied to ensure reduced traffic accidents occur for all road users - with vulnerable groups as a priority. This should preferably be done in conjunction with strategies that reduce traffic speeds thereby still allowing for good integration between pedestrians, cyclists, and cars (1).

The network should be designed to encourage local traffic (at the right speeds) throughout the area in order to provide surveillance of the street from motorists to assist with personal safety.

EFFICIENCY

The movement network should be connected to maximise the choice of routes and reduce travel distances.

WALKABILITY

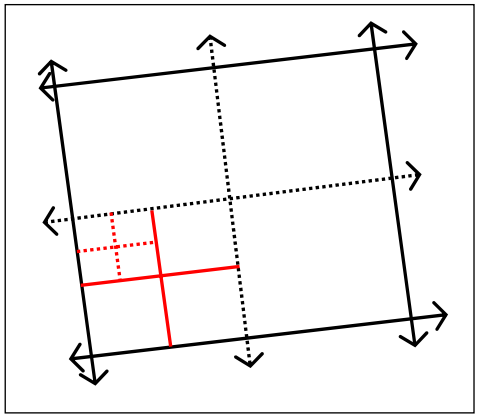
Urban blocks should be kept relatively small to facilitate and encourage walking. Suitable provision should be made to allow attractive and safe-feeling footpaths (2). Principles of universal access (including in particular the needs of the disabled) should underpin design.

LEGIBILITY

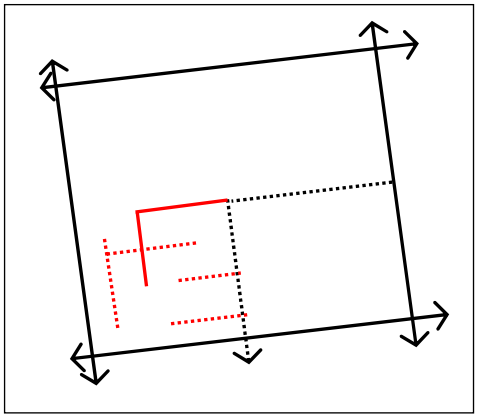
To ensure the layout is easily understood by users, routes should be relatively direct. Vistas and key junctions should be marked by landmark elements such as parks, key buildings or special landscape features (3). Wayfinding is a critical component of this issue, relating to both local (often more pedestrian based) 'features' and regional (often more vehicle or cycle based) route destinations.

CHOICE

A range of interconnected networks should be provided to maximise the viability and attractiveness of as many transport modes as possible in addition to private motor vehicles(4).



ABOVE FIG. 10-1: The typical grid system that intensifies over time (the traditional Christchurch model). This features a connected, coherent, legible network and more sites that 'front' the street.



ABOVE FIG. 10-2: The current dominant preference that seeks to actively retard movement on local networks and focus all through traffic onto key arterials. This often promotes more 'rear' sites accessed by ROW's or JOAL's.

10.3 liveable streets

Underpinning a sustainable urban form will be the quality and attractiveness of the primary public space - the street. These should be attractive and pedestrian friendly to ensure that the establishment of buildings with a positive street relationship can be successful:

SLOWER VEHICLE SPEEDS

Street layout and design should encourage lower vehicle speeds. This can be achieved in a number of ways such as:

- → Narrower local streets, 5.5m kerb to kerb (excluding parking bays) widths should be acceptable in lower order residential streets (but not bus routes). Lowest order residential lanes may be even less (1)
- → Tighter kerb radii, and general on street access to properties will also assist.

ON-STREET PARKING

On street parking often benefits non-commuter, of-peak use, supporting pedestrian amenity (as a buffer from traffic). It should be provided wherever practical and can have particular benefits for street-based retail (2).

LESS EXCLUSIVITY

Separating modes from each other, for example using wide berms separating vehicles, bicycles, public transport, pedestrian, and other networks (often driven by safety considerations) can reduce the desirability of shared or mixed-mode journeys. By integrating modes onto one clear area of public 'street' a more coherent network results. It also more efficiently uses the road reserve and concentrates activity into a single space (3), but is better suited to local level roads than main arterials.

OFF-STREET PARKING

The visual impact of off-street parking should be mitigated. This can be done in a number of ways:

- → Reducing the width of the driveway at the kerb position.
- → By setting the garaging or parking areas back from the face of the buildings (5 - poor, 6 - good).
- → The use of back lanes.

STREET CHARACTER

Streets should have a visual character of high quality. This can be achieved by:

- → The consistent use of street trees
- → Narrower carriageway widths
- → Attractive street lighting and other street furniture elements
- → The variation of materials such as the use of paving in parking bays (4).

10.4 movement issues

- → Maintaining an effective strategic network connecting the rural Districts to the City;
- → Understanding the potentials and limitations of the rail system and integrating into the urban form;
- → Responding to the economic drivers of highways, rail, airport, port, and CBD;
- → Managing inevitable congestion on the existing network as traffic increases with population;
- → Improving the role of passenger transport and non-vehicular modes for all movements within the sub-region.
- → Supporting non-radial passenger transport (PT) movement, seeking higher off peak PT capacities and frequencies.

10.5 the road reserve as public space

To achieve other aims for the UDS, including enhanced social and economic conditions, more sustainable travel patterns, and the efficient use of public investment, the role of the road reserve as public space is of particular importance.

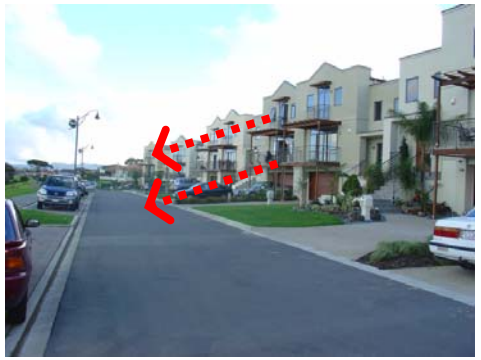
The single most influential factor in the success of strong local communities and healthy economies is the ability of people to conveniently use pedestrian and other travel modes. If the vitality of a local economy is based on the potential for social and economic exchange, then it becomes clear that environments that encourage non-vehicular use must have a dominant role. This is ultimately because of the limitations of vehicles as means of allowing any interaction other than at the origin or destination (i.e. when the occupant is not using the vehicle). Possible regulation restricting the use of mobile phones in vehicles would further reduce the ability of people in cars to readily engage with the outside world - significant when one considers many commuters are willing to spend upwards of 1.0 - 2.0 hours per day travelling by this mode.

However securing greater pedestrian and non-vehicular use is much more difficult than simply providing more footpaths, furniture, or crossing opportunities. For people to feel comfortable as pedestrians, a number of key qualities are essential:

- → Safety (particularly perceptual and especially for females, children and the disabled);
- → Interest (that stimulates and entices people further);
- → Protection from the elements (avoiding wind-tunnels or excessive heat / glare);
- → Convenience;
- → Logical, direct routes (not ones that frustrate proximity advantages by requiring a long, roundabout route);
- → Variety of viable routes (creating different experiences and to allow those feeling unsafe to avoid key areas).

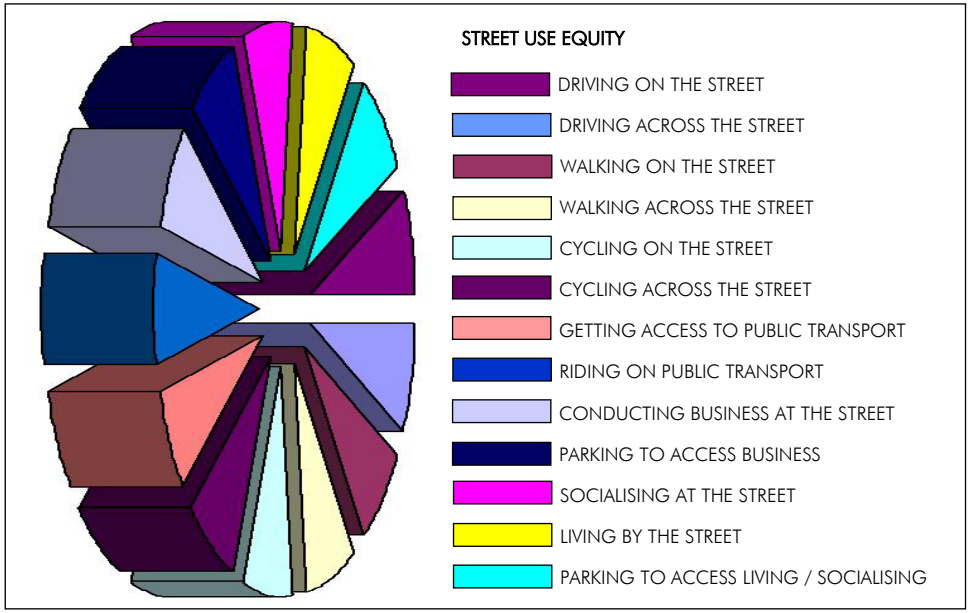
While these are simple principles, achieving them requires a number of deliberate and non-substitutable approaches to the built environment and (as the integrators of all activity) the road reserve:

- → Land uses must provide a coherent frontage condition. This is essential to providing 'eyes on the street' and help to deter crime, improving feelings of safety. This relates to the way in which buildings fundamentally gain access and are oriented to the street;
- → The road reserve must facilitate vehicular traffic at a speed appropriate to the environment. Road sterilising strategies to improve safety can have the effect of removing risk elements from drivers' attention, increasing complacency, and encouraging less conservative, less attentive driving habits. This relates to the need to acknowledge the automation of much driver behaviour and giving appropriate signals for them to react to;
- → The network must be as connected as possible, with mixed-mode environments. Separate pedestrian walkways often lose the advantages of night-time lighting, passing vehicles and well-oriented land uses that can contribute to safety. They can instead be essentially walled in by side or rear property boundary fencing. At the 'intersections' between recreational and ecological systems and the road network, specific treatments and emphasis are often appropriate.



ABOVE FIG. 10-3: Semi detached housing designed and orientated towards the street to ensure passive surveillance and improve street safety

ABOVE FIG. 10-4: Liveable streets combine movement modes and encourage vehicles to travel at a safe speed



ABOVE FIG. 10-5: Diagram of the key user pressure on the road reserve. Typically a dominant share is given to vehicular traffic, often at the expense of other interests.

10.6 traffic realities in greater christchurch

TRAVEL GROWTH IS RELATED TO HOUSING GROWTH

It is estimated that travel demand in vehicles (essentially the size of the on-road fleet) will rise by **+23%** to 2021, and by **+42%** to 2041.

This will add to congestion of routes, even with considerable investments to widen roads and otherwise accommodate it. Simply providing for this projected demand may have very negative implications for land use viability along most major routes. It may also result in the future on excessively wide carriageways relative to demand (i.e. vehicular demand may peak and decline before 2041 rather than continue to keep growing with the population).

It would also be difficult to achieve 'Option A' (intensification focus) if the environment is so dedicated to through traffic that local living conditions offer only low to moderate amenity.

CHANGING PRESSURES ON DEMAND

The ageing population within greater Christchurch will have an impact on the type of demands placed on the network. This may translate to a greater dependence on targeted public transport.

The unknowns surrounding future oil / fuel supplies will also play a part in future demand. Price may become such that the currently prohibitive amount needed to revitalise the rail network becomes feasible for the community.

LIVING LOCATIONS ARE STILL LARGELY INDEPENDENT OF JOB OR SCHOOL LOCATIONS

In other cities there can be notable trends where households make deliberate location decisions related to proximity to employment or education (for children).

This is not the case in the Christchurch sub-region, where many people are still able to make housing location decisions with only a limited influence made by employment or education issues.

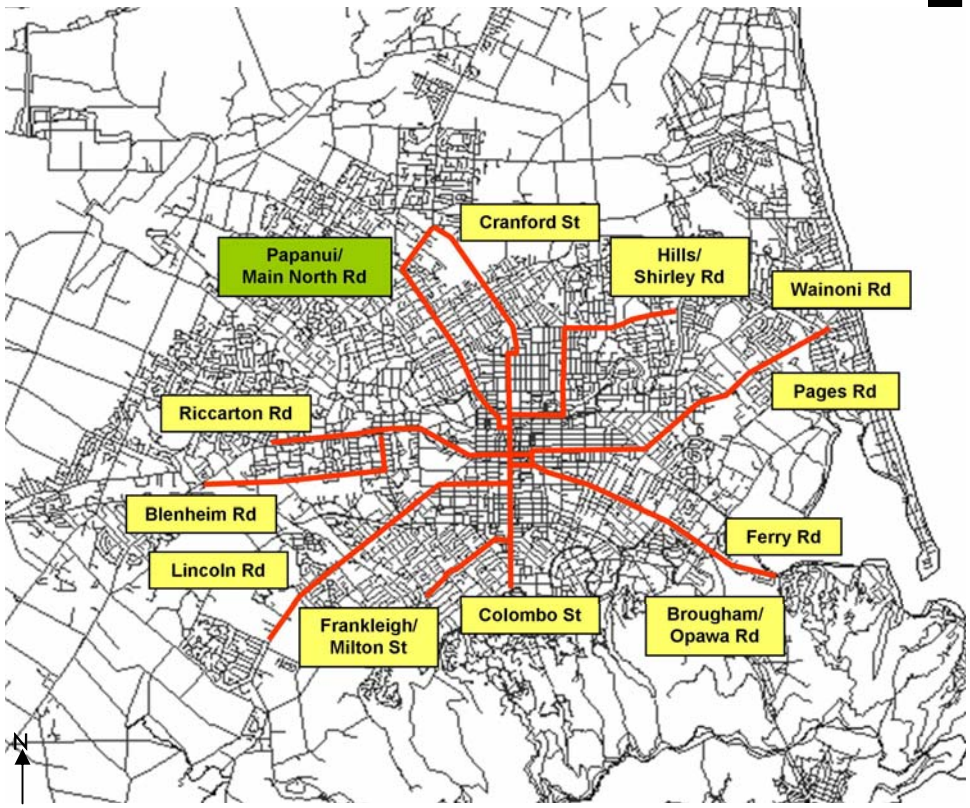
This trend may change in the future as the costs of vehicular transport increase (fuel, new road tolls etc.) and the convenience decreases (increasing congestion delays across the network). The implication of this may be that current patterns of convenience may not be sustainable.

THERE IS NO SILVER BULLET FOR INCREASING TRAVEL DEMAND & CONGESTION IN THE LONG TERM EXCEPT POSSIBLY ROAD PRICING

If the UDS is largely successful in its implementation there will still be notably more pressure on roadiing in the future than today. Partly this is due to the sheer population size that will be sharing the network. But another part of this will relate to recreational habits, which make up a considerable proportion of weekly travel by individuals, often by vehicle use. A scenario where the network comes to a stand-still immediately before and immediately after key holiday weekends may be unavoidable in the future.

ROAD SAFETY

Approximately $170 million is spent annually on road safety in the sub–region, a considerable sum paid largely by the public sector. This will likely increase as volumes and congestion rise (a key source will likely be related to increased driver agitation and impatience).



ABOVE FIG. 10-6: Existing PT corridors as 'spokes' into the overall hub of Christchurch City. The congestion pressure that will result from this pattern in the future will be significant (not to scale). This map indicates the corridors identified for PT priority investigations. Typically this involves the reallocation of road space, including transitionary measures such as car parking clear ways then further priority in the future. Solutions such as this may be the only viable alternative to large-scale road widening projects to accommodate commuter movement.

10.7 issues with the higher-order network

The way in which highways and arterials (and often also busy collectors) are designed will relate to adjacent land uses and communities. In Christchurch many have evolved from suburban collectors over time creating user conflicts not easily designed out.

Sustainable towns cannot be achieved without coherent integration between the land use and the movement system that maximise social and economic exchange at the local level. Prior to vehicle-dominated planning outcomes this was more of a 'natural' occurrence that evolved over several centuries of experience.

While the automobile has provided numerous benefits for social and economic opportunities, the focus on the most convenient farthest settings reachable has often led to neglect of the local condition, and a loss of community value in it given the ease with which people can substitute it by an easy drive to somewhere else. Many environments have suffered as a consequence of transportation initiatives that have only or inequitably focussed on larger, network-wide objectives.

Such 'vehicle movement dominated' policy and planning approaches have led to predictable market responses in Christchurch. These have seen a maximisation of economic (vehicle-based) exchange sought through the creation of large-format retailing and shopping malls located at key suburban junctions.

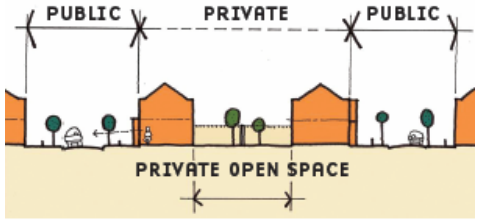
While maintenance and improvement of these large-scale networks will be critical for the UDS, objectives that seek to balance local needs will be necessary. In the short term this may often lead to larger capital costs for transportation projects. However in the long term, the benefits of prosperous local economies will be a significant asset to the sub-region.

A significant risk lies in volume management based solely on improving road capacity:

- → A 2 lane road reaches overcapacity;
- → Grass berms and on-street car parking can be reduced to make way for carriageway widening to 4 lanes;
- → Further reductions can then be needed to allow a central median to manage right-turns for property access, including permanent loss of parking spaces;
- → Right-turn property access can be lost if a bus-lane is needed to manage congestion;
- → Land use interfaces can be lost if further widening requires land from front yards.

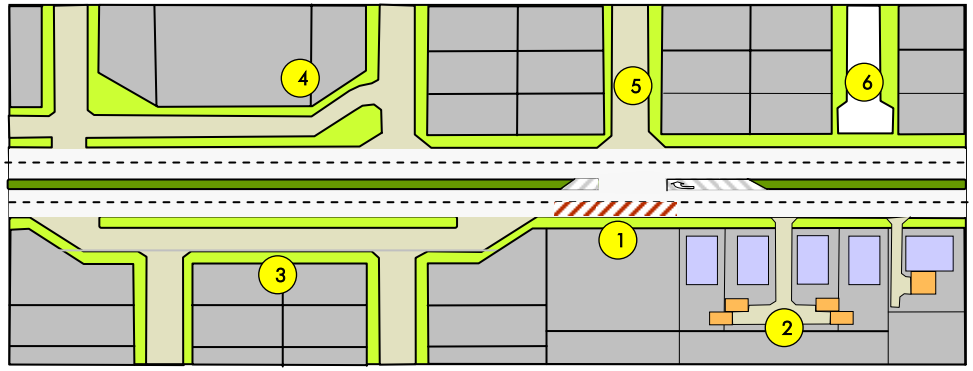
The result can be solid fencing edging permanently busy, hostile road environments. These offer very limited practical opportunities (or motivation) for people to use the environment:

- → Residents have little opportunity to cross or engage with neighbours;
- → Residents have little motivation to maintain high quality interfaces or any connection with the street (redevelopment can indeed turn houses away from the street);
- → Non-residents have little assurances of safety or interest, reducing pedestrian traffic;
- → Business opportunities are typically lost due to lack of access and viable passing customer base.



ABOVE FIG. 10-7: The basic front to back pattern of land use orientation that is necessary to enable vibrant, active streets.

ABOVE FIG. 10-8: An example of poor transport / land use integration. The solid fences encourage greater vehicular speed, reduce visibility of the street by land uses and vice versa (diminishing safety), and often also encouraging vandalism.



HIGHWAY / ARTERIAL LAND USE INTEGRATION TOOLBOX:

1. Normal property access with on street parking, alternatively with on-site parking
2. Garages arranged so that cars enter the road facing forward
3. Full boulevard or parallel slip lanes with direct access off the arterial
4. Parallel slip lanes with access off side street
5. Left in left out cross road with 'side on' lots
6. Cul de sac with pedestrian/cycle access, the weakest option

ABOVE FIG. 10-9: A range of design methods available to help integrate land use with major roads. Right turn movements remain a critical issue, especially where consolidation is also sought (potentially increasing demand for such movements). Intersection spacing becomes critical allowing different degrees of lateral integration. Typically spacings of no more than around 200m—300m are appropriate in town centre conditions; 300m-600m suit PT priority corridors; and around 600m-800m suit major freight routes (excluding 'mid block' pedestrian crossing opportunities).

10.8 issues with the lower-order network

The lower-order local network relates to basic residential streets and the network that supports the main arterials and commercial main streets. Most residential streets are in this category.

THE NEED TO MAXIMISE SOCIABLE CONDITIONS

In the local network the greatest emphasis should be on providing the highest amenity possible for residents, visitors, and customers (of the local economy). To facilitate this, non vehicular activity will need to 're-claim' the road reserve as a place for social life. This will be unachievable without interventions by the Councils that help to manage vehicle nuisance (principally speed, volume, and noise).

When this has been achieved, the potential for the street to enable social and economic exchange is made viable.

The single most effective strategy is in managing the overall network so that roads can function as designed - a compact, tight local road cannot deliver its potential if due to a network deficiency it becomes a de-facto arterial (i.e. a busy rat run).

CALMING STREETS

At the physical road design level a range of traffic calming techniques that exist. These aim to alter both the physical and psychological behaviour of all road users.

Some research suggests that sufficient calming can be achieved with no physical works at all, relying on purely psychological means. However this is limited in that it assumes drivers are all of a sound mind and will respond to a purely 'mental' barrier (not something a community may wish to gamble their safety on), and equally that residents are willing to be essentially constantly confrontational to force a driver reaction.

The use of physical means is therefore considered the most reliable means although community engagement to help induce activity within calmed road reserves would be a sensible investment.

FACILITATING PEDESTRIAN CONVENIENCE

To ensure that pedestrian movement is facilitated, local areas and in particular town centres should have walkability indicators included in any measure of their prosperity. This would include how easy and convenient it is for people to move around their environment, and due to its implications for potential safety and consumer movement patterns is something that local business and community associations may wish to assist with.

As an example in centres and intensive environments, roundabouts are generally an item that only benefit efficient vehicle movements; often pedestrians are unable to cross in the intervening time - as fast as 3 seconds - between cars. Traffic signals however can create a regular, reliable crossing opportunity.

As a general rule, crossing opportunities should exist no more than 400m apart. While a fine-grained block structure can provide this, large arterials and collector routes bisecting local environments often fail to facilitate lateral crossing movements.

LOCAL NETWORK CALMING TOOLBOX:

1. *'Tighten' intersection corners to ensure slower vehicle movements. These help to slow traffic from the start, and make safer crossing conditions for pedestrians.*

2. *Look to incorporate islands or raised berms. These contribute to landscaping as well as (if partially paved) behaving similar to a pedestrian refuge - where pedestrians can safely cross each lane individually rather than wait for a break in traffic from both directions.*

3. *Avoid long stretches of straight local residential roads by using the road reservation width to allow for regular bends or 'shifts' in the carriageway. This helps to keep drivers alert and focussed on the road immediately ahead, rather than in the distance.*

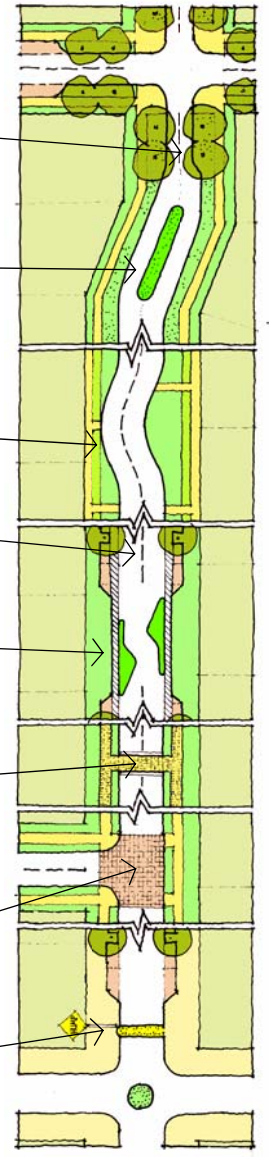
4 *Incorporate landscaping into parking bays to help make the carriageway seem psychologically narrower to drivers*

5. *Incorporate chicanes or 'chokers' at key points to slow movement. These work well in proximity to pedestrian crossings or outside schools etc. The use of mountable kerbs can also be used to maintain effective emergency service vehicle access.*

6. *Develop tables (essentially large, flat speed humps) with material differentiation to aid pedestrian crossing without always relying on formal crossing points. A risk with signalised crossings is that as soon as the signals change pedestrians can assume that it is safe, stepping out into oncoming hazard without taking due caution despite their legal right of way.*

7. *Raising intersections and using material differentiation can make these points more prominent while helping to slow vehicles and reminding drivers that they are in a hazard zone.*

8 *Speed bumps (up to 1.0m wide) or humps (essentially a long speed bump up to 4.0+m wide) can also effectively manage vehicle speeds. However due to the nuisance they can create for adjacent users (mainly noise) these should be considered as representing the least desirable form of intervention.*



ABOVE FIG. 10-10: Some of the design methods available to help calm local roads and increase their desirability to pedestrians and cyclists.

10.9 rail

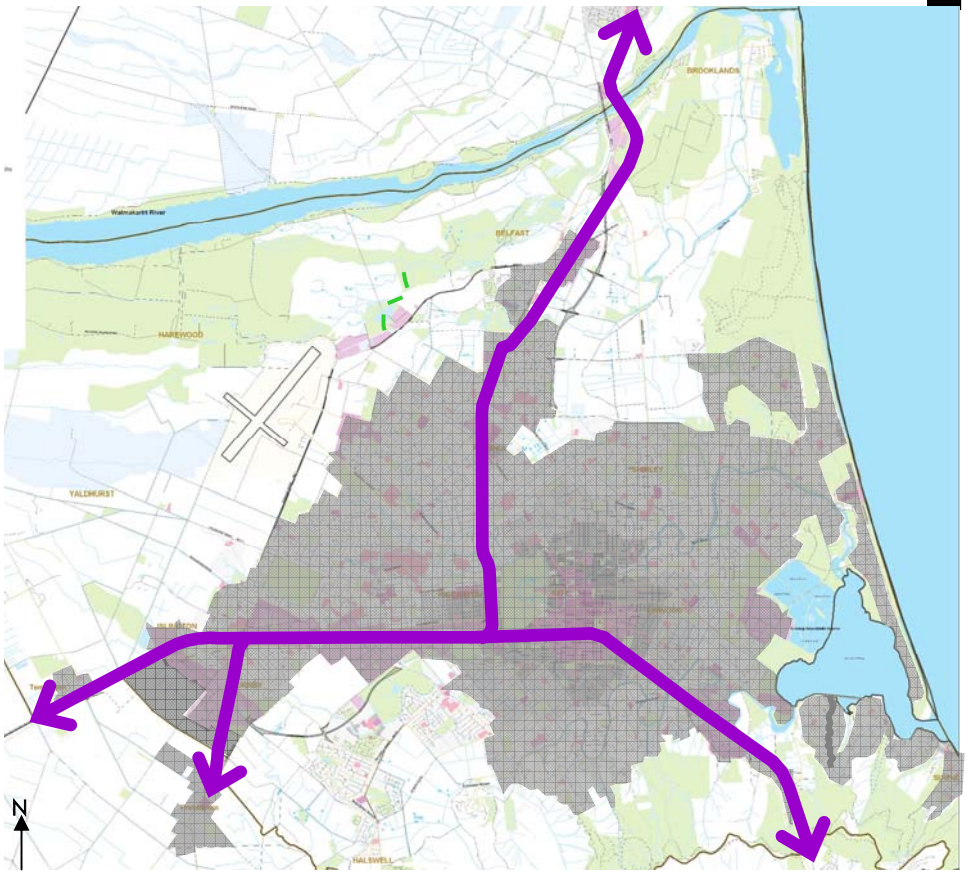
The existing railway lines, used now almost exclusively for freight, occupies a strategic area of land that directly connects Christchurch and the Districts to the remainder of the South Island. The relative youth of New Zealand settlements when the automobile became the dominant movement mode meant that society did not establish the denser, integrated relationship with railways that many other contemporary cities enjoy. This is particularly so in the case of penetration of railways and stations into urban and living focal points, or an underground loop to compliment surface roadways and freight links.

Several of the IBD workshop 'theme' areas expressed an interest for more use of rail services (especially for commuter use) as a part of the UDS solution, including passenger transport, residential growth, social networks, and employment networks.

The possibility of establishing commuter rail services was investigated but ultimately dismissed as a viable option in the foreseeable future primarily because of:

- → The lack of penetration of the existing railway lines into the Christchurch CBD and centres;
- → The prohibitive cost of providing the additional infrastructure:
  - → Adequately double-tracking existing lines,
  - → Providing new lines,
  - → Improving existing stations,
  - → Providing new stations,
  - → Integrating old and new stations with their surrounding urban form to make them more prominent, accessible, and safe;
- → The urban form lacks the density needed to make new services and stations viable within their own walkable catchments;
- → The option of providing feeder-bus services is not sufficiently attractive to commuters because of the deterrent effect of modal interchanging;
- → Park-n-ride facilities would only work in peripheral locations, otherwise total vehicle trip times (vehicle + train) would not be sufficiently superior to a longer vehicle trip straight to the end destination anyway.

Due to these reasons the rail lines should be retained primarily for freight haulage and tourist services. Additional potential has been identified for the rail corridors to be used for ecological and focussed pedestrian / cyclist networks. If this strategy is pursued care will need to be taken to ensure adequate accessibility and safety is provided for (particularly the way in which land use interfaces with the lines). To get an optimal land use interface a development scenario of up to 30 years may be needed for land use and street connectivity optimisation.



ABOVE FIG. 10-11: Existing railway lines within the UDS area (not to scale)

10.10 the strategic network

In trying to encourage more sustainable travel patterns in the future, it will still be necessary to upgrade existing road infrastructure. The congestion that would otherwise result would add to fuel consumption and pollution and adversely affect the economic performance of the sub-region. The proposed strategy is therefore to balance accommodating the needs of private vehicle travel and at the same time as providing for other modes as much as possible.

Changes to the strategic network have impacts on:

- → Supporting regional productivity;
- → Inter and intra District movement of goods and services;
- → Removal of traffic from through arterials allowing reallocation of space to 'place' and more sustainable modes;
- → Critical assistance to PT priority through relieving pressure on Main North and Main South Roads and around Riccarton.

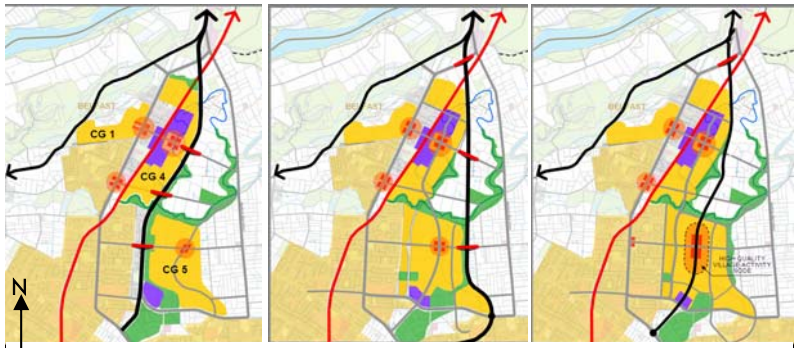
Accordingly the UDS confirmed the proposals for the widening and extension of the Christchurch Southern Motorway initially to Halswell Junction Road and ultimately to State Highway 1 south of Templeton. Similarly the remainder of the current roading programme was substantially supported with the main focus being on the western arterial link upgrading from the Main North Road to the Main South Road. As part of this corridor the current proposals for a western bypass of Belfast were taken into account.

The principle of a northern arterial route extending towards the centre of Christchurch and towards the eastern arterial link to the Port of Lyttelton was also supported although not necessarily to motorway standards. In addition investigation of design options was undertaken to determine whether an improved alignment could be provided further to the east of the existing designation to accommodate urban infill in the predominantly rural north-eastern sector of the city between the designation and Marshland Road. Alignment options were identified which should provide the transportation function required while allowing for more coherent / efficient urban development. Within these tests it is noted that network compatibility with all modes was accomplished. However it will be necessary to complete further evaluation of both the transportation level of service and the issues associated with the geotechnical conditions in the area of both the northern arterial and possible urban development, before the inevitable time requirements associated with confirming a new designation are contemplated.

In the rural districts the four-laning of the Main South Road to Rolleston was identified as a necessity to support the proposed growth at that centre. Other arterial road improvements in Selwyn District were suggested and as also indicated by the CRETS study, to support the growth proposed at Lincoln in particular.

In the Waimakariri District a bypass of Woodend is seen as an urgent project to progress in order to accommodate both strategic traffic growth and the traffic expected to be generated by the Pegasus new town. Depending on the form of the Woodend bypass, and growth at Rangiora, there will be a potential demand to four-land Lineside Road linking Rangiora to the northern motorway.

ABOVE FIG. 10-12: Design tests of a possible Woodend bypass configuration (not to scale)



ABOVE FIG. 10-13: Design tests of possible Northern Arterial alignment (not to scale)

ABOVE FIG. 10-14: Possible design and land use response of a Southern Arterial (not to scale)

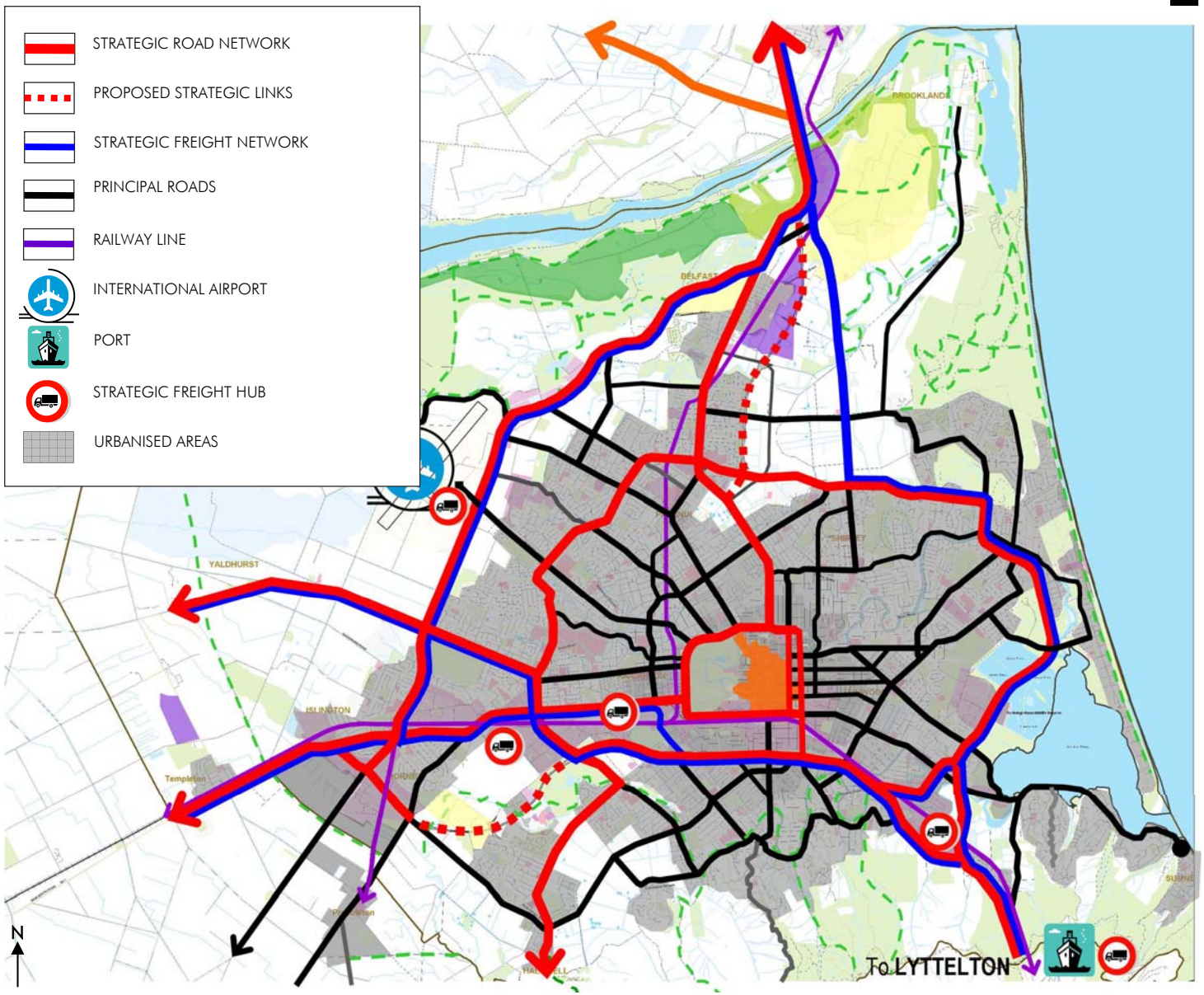
TRAVEL DEMAND MANAGEMENT AND THE STRATEGIC NETWORK

There was considerable discussion as to whether the additional lane supported on the northern motorway should be allocated exclusively to public transport and/or high-occupancy vehicles in order to constrain the use of private vehicles particularly in the peak commuter periods. A question of tolls for the motorway bridge was also raised, again as a means of discouraging use of private vehicles and to encourage the use of public transport and car pooling.

The more fundamental means of managing long distance travel demand was identified in the potential to promote more employment in the rural towns. As well as seeking to reduce travel by zoning land for business in each centre, the possibility of providing major employment zones at the confluence of transport corridors was considered, for example Belfast / Kaiapoi to the north and Hornby in the south.

At the other end of the scale local travel demand is expected to be influenced by the provision of pedestrian and cycle facilities that provide priority and enhance these modes so that people are less inclined to make short distance trips using motor vehicles. This not only reduces impacts on the environment but encourages regular physical exercise that enhances health.

Management of car parking will also be important especially within the Christchurch CBD and the town centres

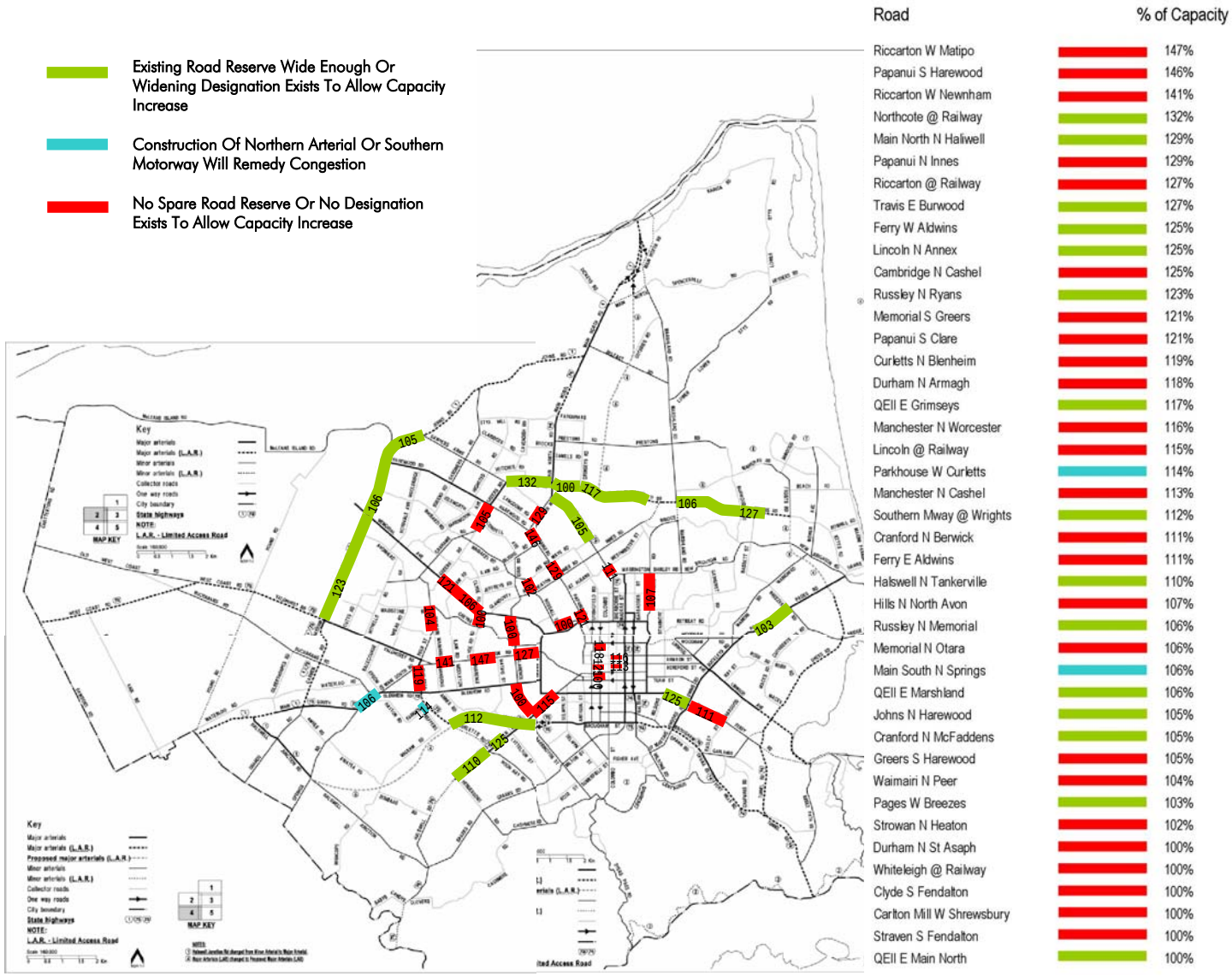


ABOVE FIG. 10-15: Preferred strategic network based around Christchurch City (not to scale).

10.11 existing traffic congestion

The network today is already over capacity in many places. Although congestion is yet to reach the scale it has in other NZ cities, it is rapidly increasing. The often still climate of Christchurch and common atmospheric inversions will also reinforce the pooling of vehicle emissions from congestion into smog. This will be unlikely to contribute to the international branding the sub-region will wish to make to tourists and foreign capital / employers.

There will be a point where the benefits of roading improvements are simply not comparable to their local costs. The sub-region should invest in the most robust movement network it can but should also not shy away from accepting the ultimate carrying capacity and instead of continually 'predicting and providing', focusing on strategies to supplement or replace lost economic productivity caused by congestion. Methods used overseas have included banning vehicle registration plates ending on odd and even numbers from using key roads on alternative days (excluding freight vehicles etc.). Road pricing has become a very popular method in recent times as local areas can generate income in the name of protecting road capacity.

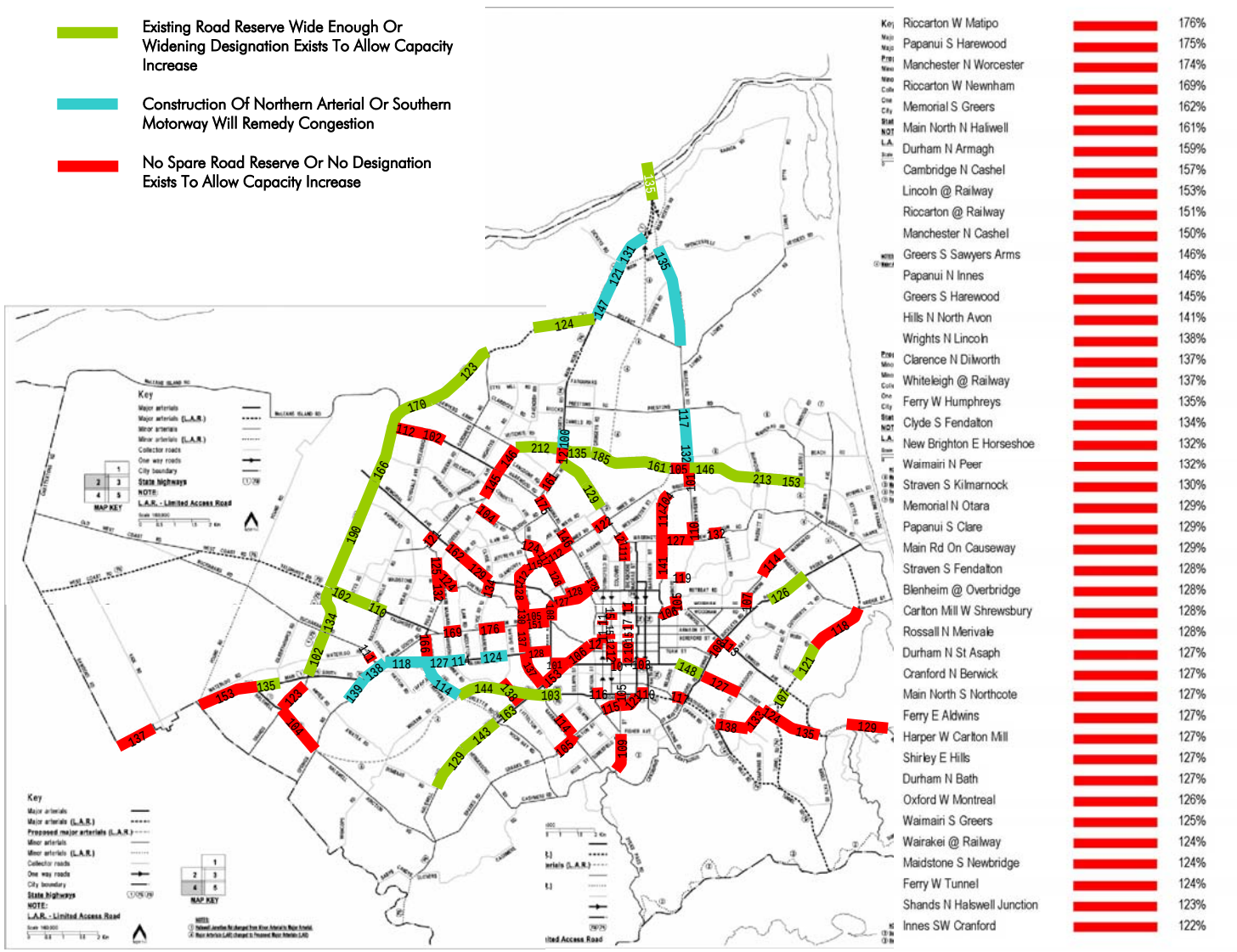


ABOVE FIG. 10-16: Existing traffic capacities in Christchurch City (not to scale). Source: CCC.

10.12 predicted traffic congestion

Future capacity problems will persist, and while some of these will be relievable, most will not, relying solely on innovative management and reconstituted land use / social behaviour patterns to remain adequately functional.

Predictably the greatest pressures will lie around the CBD and main strategic routes This is partially a function of the transport hierarchy and while some relief may be possible through improved connectivity in the local adjacent networks there seems little that can be done other than encouraging lifestyles that do not need continued reliance on peak hour vehicle use.



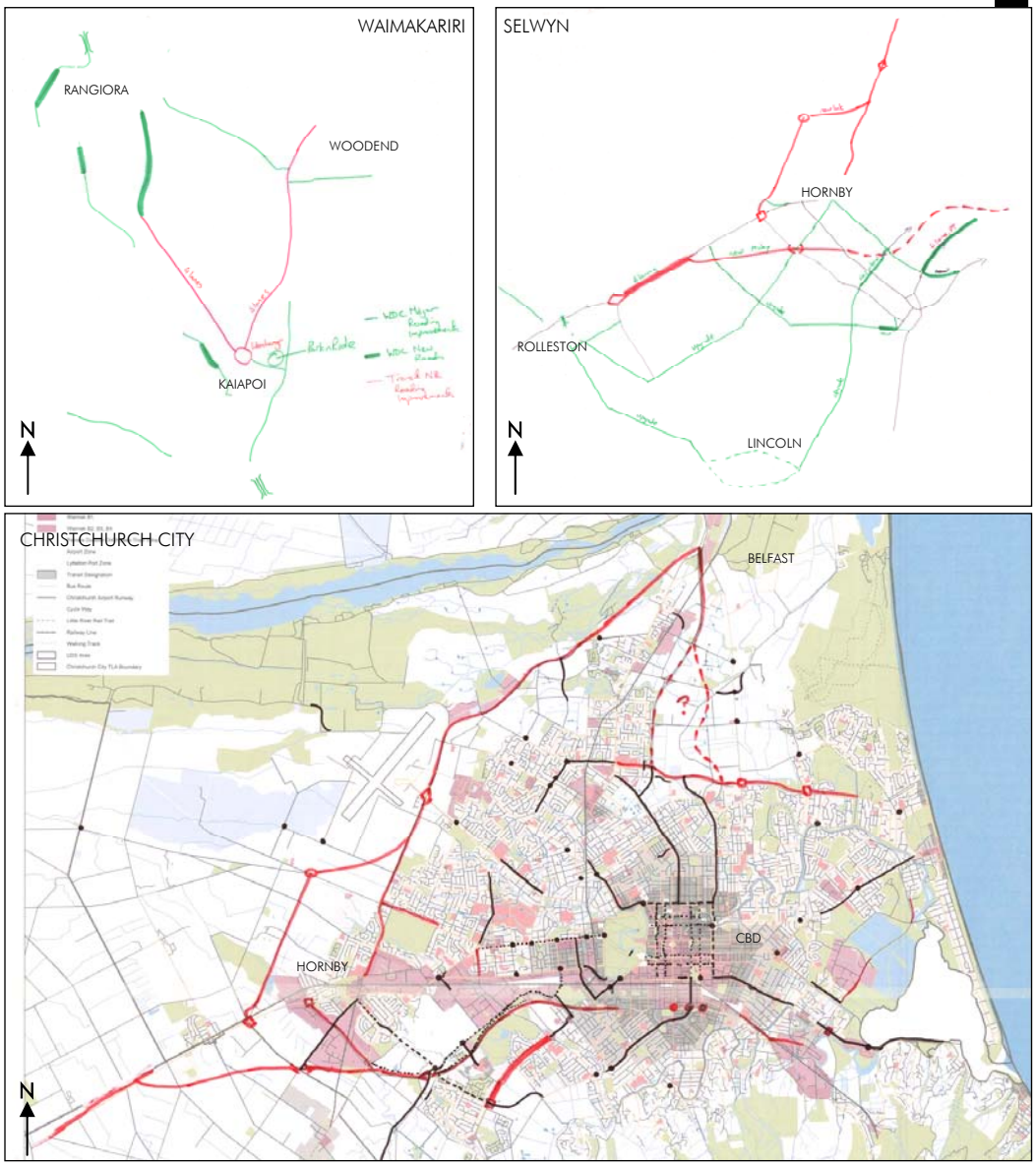
ABOVE FIG. 10-17: Projected traffic capacities in Christchurch City (not to scale). Source: CCC

10.13 planned road improvements

Improvements planned for the road network were examined and audited alongside the directions emerging from the IBD process.

In most cases planned improvements were confirmed as being desirable, with some reprioritisation occurring. Overall planning is well underway to ensure the strongest possible movement network exists - largely because the UDS direction will be focussed on existing centres and Christchurch City, around which the core movement network is already well established.

Improvements in detail road environment design and delivery, integration with land uses, and in improving the mode share were also investigated.



ABOVE FIG. 10-18: Testing the adequacy of planned roading improvements within the UDS area (not to scale)

10.14 passenger transport

THE NEED FOR BUS SERVICES

The future for public transport in the Greater Christchurch area lies with the provision of efficient and comfortable bus services. Significant strides have been made in recent years with the introduction of low floor buses, new and more flexible services, stored value ticketing, branding / marketing, express services, new technology to aid passenger information, more bus shelters and the central city Xchange. It is anticipated that the future will see more reviews of bus routes, higher frequency services, more technological advances in customer services, more express services for the rural centres and priority for buses through facilities such as bus lanes, high-occupancy vehicle (HOV) lanes and bus pre-emption at traffic signals.

HOV lanes typically allow a more efficient use of road space however also need well spaced intersections, rely on public perceptions (car pooling) and are not usually highly effective in dense environs.

Bus lanes give effective priority in urban areas and ensure buses can 'get through' with closely spaced intersections. They can also help to a limited degree left turn conflicts and intersection queues.

Both are related to a car parking management regime.

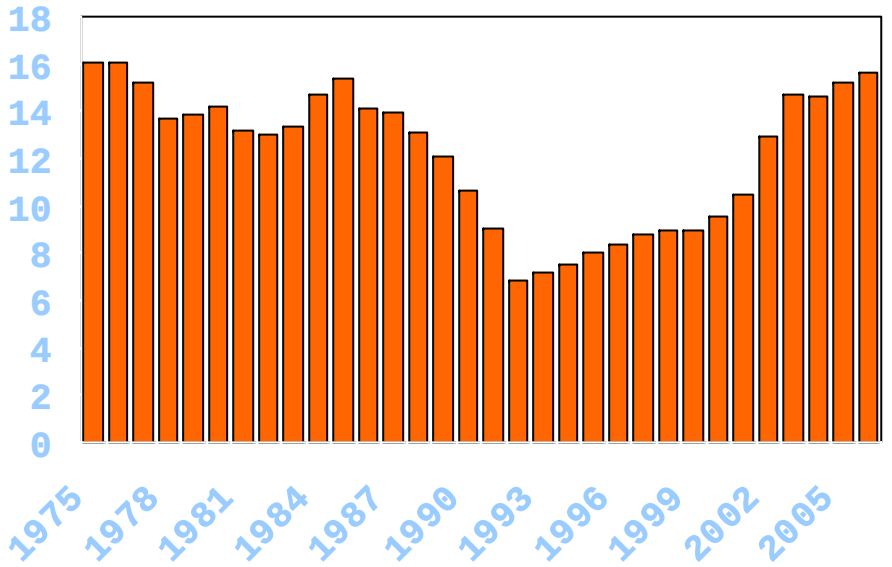
With the expected growth in private vehicle travel and increasing pressure on road space, it is also expected that major traffic generators such as large employment centres, schools, universities and hospitals will be required to produce travel plans that encourage more efficient use of private motor vehicles through car pooling and flexi-hours for example and promote other modes of travel. This is expected to increase the demand for bus travel which will in turn enable improved services to be provided. The system also needs to be child and disabled friendly.

CURRENT SITUATION

- → Existing strong public transport network;
- → Majority of PT trips to non CBD destinations for non work trips (92%) – need for high quality cross suburban travel;
- → Journey to work trips on PT currently accounts for only 4%;
- → Existing land use pattern supportive of mass transit principles;
- → Separation of system responsibilities;
- → Major recent system developments;
- → Rail corridors freight based / adjoining land use.

PREFERRED SITUATION

- → A multi-centre city (self containment, public transport reflective of travel needs, radial system, strong corridors);
- → Intensification of urban and suburban transit nodes with PT;
- → Medium / High density development on/near radial/orbital corridors;
- → High density at key interchange points at radial / orbital intersections;
- → Greater support for circumferential routes that offer quality off-peak services.



ABOVE FIG. 10-19: Public transport patronage within Christchurch. Source: ECan.

10.15 principles for public transport

LAND USE PLANNING PRINCIPLES TO SUPPORT AN EFFECTIVE PUBLIC TRANSPORT SYSTEM

→ Highest levels of land use density must be within the walking catchments (generally 400m) of bus stops on PT corridors and within development nodes.

→ Mixed land use along corridors and within nodes to support multiple trip purposes and maximize utilization of public transport services.

→ PT services must be proximate with (not necessarily in) the heart of activity centres. Where opportunities arise, integrate passenger facilities within the fabric of commercial development, not to the edge of it.

→ Provide a PT level of service ahead of the completion of development sufficient to provide modal choice and influence travel patterns in favour of PT use.

→ Provide highly permeable, walkable environments that provide convenient access onto adjacent public transport corridors. Within new developments provide good direct pedestrian links to access PT streets

→ Significant traffic generating development should implement measures to mitigate the impact of their activity on the transport network (requirement for travel plans). Planning documents (e.g. district plans) can help encourage these and other sustainable outcomes by requiring maximum parking provision instead of a minimum.

→ Land use density and the resulting intensity of travel demand is the key determinant of PT mode. Land use and transport planning must allow for a graduated evolution from bus based PT to higher order modes such as articulated bus and light rail to meet demand with capacity.

TRANSPORT PLANNING PRINCIPLES TO SUPPORT AN EFFECTIVE PUBLIC TRANSPORT SYSTEM

→ Protection and improvement of PT service speed and reliability where necessary and appropriate with priority facilities. This makes PT more convenient than the private car and is the most effective means to achieve greater PT uptake. This also allows a greater investment in service frequency, which is also a key driver for greater PT uptake.

→ Where possible, internalise trips within local areas or between close centres

→ Emphasis must be placed on linking together neighbouring activity centres with PT services via the most popular and direct routes (e.g. Rolleston / Lincoln / Prebbleton / Hornby). This is more efficient for PT as it reduces the need for longer trips where people are more inclined to use private vehicles.

→ To encourage and promote passenger interchange at key nodes, fully integrated high quality passenger facilities are required, supported by frequent, fast and reliable services that minimize the time spent changing services.

→ Alongside PT improvements, integrated demand management policies such as parking supply and pricing strategies, road pricing and targeted capacity upgrades will all support greater uptake of PT, achieving a more balanced mode split and a more sustainable and efficient transport system for all modes.

→ The success of park and ride schemes in reducing downstream congestion is dependant upon the location of the facility, the quality of the passenger facilities, the quality of the PT services and the presence and effect of supportive demand management policies.

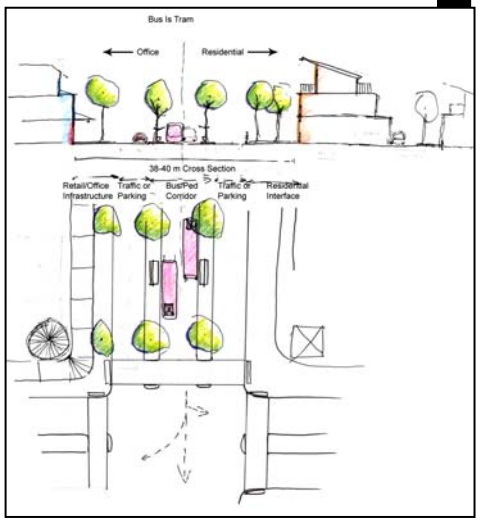
ASSUMPTIONS USED TO DEVELOP THE UDS 2041 PUBLIC TRANSPORT SYSTEM

→ A catchment of 10,000 people is needed to support a half-hourly bus route.

→ Minimum average residential density along route within 500m walking distance of route is 12-15 du/ha in rural areas and 30-50 du/ha within City.

→ Urban growth will happen in pockets to achieve the threshold of 10,000 people for a new PT route.

→ Mode share for PT for journey to work trips is currently almost 4% and 8% of all trips are to the CBD, emphasizing need to supply high quality cross suburban travel.



ABOVE FIG. 10-20: Design test of possible land use and public transport configurations. This example provides bus lanes in the centre of a road, allowing the edge to remain 'shop friendly' with less noise and fumes at the street edge, and allowing the retention of convenience customer parking. (not to scale).

10.16 passenger transport approach (summary)

General

- → Existing strong PT network – radial, focussed on City Centre
- → Majority of trips to non-CBD destinations for non work trips
- → Opportunity to build on strong network to improve PT access to non-CBD centres for work, shopping, education, etc and support social objectives – success of Orbiter and Metrostar show this can work
- → Future growth pattern becoming multi-centre city
- → Self-containment (jobs near population)
- → Serve travel needs of changing land use patterns
- → Radial system becomes hub and spoke
- → Strong corridors created, supported by transport nodes for access to cross-suburban
- → Mode – not mode driven. Land use pattern supportive of mass transit principles, allows Pt use to grow and support intensification of mode (i.e., light rail)
- → However, city has and is dispersing. Flexible modes will be best at serving this initially (i.e. bus for time being)
- → Does not rule out other modes in future and puts in place conditions for that to happen (i.e. Riccarton and Papanui Roads)

Waimakariri:

- → Routes linking Rangiora with Woodend and Kaiapoi
- → Kaiapoi becomes hub – direct services from Rangiora and Woodend, in peak with Park and Ride at Rangiora and Kaiapoi
- → Issue: locate Park and Ride to avoid traffic getting closer to bridge over Waimakariri River – protect capacity of bridge

Selwyn

- → Hub and spoke arrangement around Hornby, Rolleston and Lincoln
- → Hornby becomes a major transfer point offering connections to north, city, etc.
- → Park and rides Rolleston and Lincoln
- → Options for express routes from Lincoln to travel direct to city via motorway rather than Hornby in peaks
- → Halswell – new development route north of existing one
- → Wigram – new town centre assumed – services to Hornby, Wigram and Halswell to city.

Christchurch

- → Existing radial routes retained and supported by new routes and cross suburbans, including:
- → New route linking Halswell with Ferrymead via southern city deprivation zone and Woolston new economy area, providing suburbs south of the city centre with excellent links to non-CBD employment to east and west
- → New route linking Brighton and Belfast via new residential areas created around northern arterial alignment, east of Hills Road. Requires new road link from Parklands to west
- → New route linking Hornby and Belfast via new employment and residential areas east of the Airport. Requires new continuous road through this area, parallel with Johns Road route, between Memorial Avenue and Hussey Road.
- → New route from new Wigram town centre to city centre via Sydenham and Addington
- → Modification of the Orbiter route to bring it further north from Cashmere, to better serve new social/community node at Beckenham
- → Establishment of a number of strong, major PT hubs, allowing interchange for travel and a mix of destinations, including:
- → Hornby (off-street)
- → Riccarton (off-street)
- → Northlands (off-street)
- → Palms (off-street)
- → Ferrymead (off-street)
- → These would have high quality bus interchanges, integrated as far as possible with surrounding development.
- → A number of lower order public transport hubs at other town centres and hubs, including:
- → Brighton (on-street)
- → Eastgate (on-street)
- → Belfast (on-street)
- → Airport (on-street)
- → Wigram (on-street)
- → Merivale (on-street)
- → Cranford (on-street)
- → Sumner (on-street)
- → Mt Pleasant (on-street)
- → Princess Margaret (on-street)
- → Addington (on-street)
- → Sydenham (on-street)
- → Plus other un-named nodes in new town centres
- → Town centre PT nodes would have good quality bus passenger waiting facilities within the main town centre destinations
- → With increased bus flows and new routes, tow corridors begin to exhibit mass-transit supportive characteristics, including Riccarton Road and Papanui Road. Bus flows on these corridors by 2041, will justify substantial bus priority measures and supportive land uses mean that these corridors may be able to be converted to higher order transit modes (say bus rapid transit or light rail) in the future.
- → In new urban development areas, bus services would be introduced as early as possible to ensure residents had bus services when they are moving in
- → On other corridors, a mix of bus priority measures are required to ensure bus reliability and travel speed is not affected by traffic congestion. These would feature a mix of signal priority (be phased and signal pre-emptions, or queue by passes and short (non-continuous) bus lanes
- → In developing commercial and industrial areas, emphasis needs to be placed on developing transit-supportive workplace travel plans to maximise potential PT use.

10.17 passenger transport in detail: central

→ **retain existing radial routes & support with new / cross suburban routes**

New routes: linking Halswell and Ferrymead; Brighton and Belfast; Hornby and Belfast; new Wigram town centre and city centre

→ **modification of the orbiter route**

bring route further north to serve new node at Beckenham

→ **establish major PT hubs for travel interchange**

Offstreet PT hubs

Hornby / Riccarton / Northlands / Palms / Ferrymead

Integration with high quality bus interchanges

→ **define lower order PT hubs at other town centres**

On street PT hubs

Brighton / Eastgate / Belfast / Airport / Wigram / Merivale / Cranford / Sumner / Mt Pleasant / Princess Margaret / Addington / Sydenham+new town centres

→ **high quality bus passenger waiting facilities**

Within main town centre PT nodes

→ **two mass transit supportive routes**

Riccarton Road & Papanui Road

Substantial bus priority measures

Future conversion to higher order transit modes (light rail / bus rapid transit)

→ **introduction of bus services into new urban areas**

Early integration of bus services

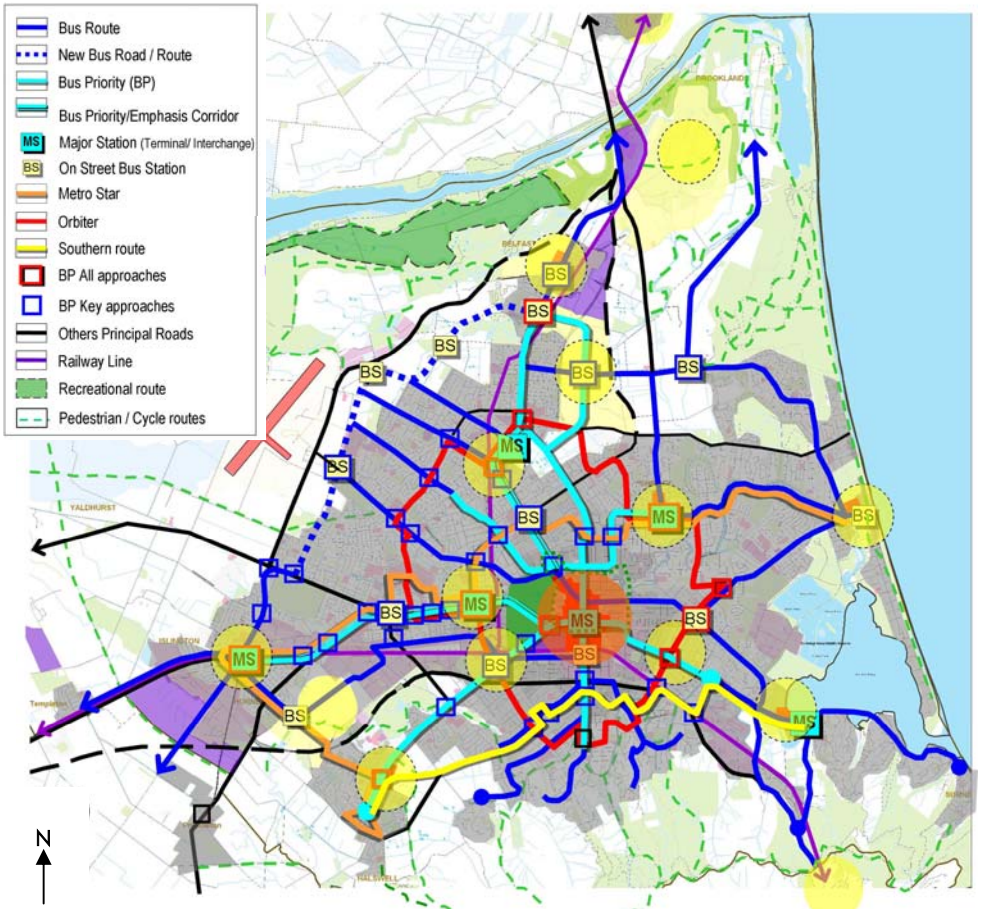
→ **mix of bus priority measures on other corridors**

Required to ensure bus reliability and travel speed

Mix of signal priority / queue by-passes and short bus lanes

→ **transit – supportive workplace travel plans**

Required to maximise PT use



ABOVE FIG. 10-21: Proposed PT network for the UDS central 'hub', not to scale.

10.18 passenger transport in detail: northern

→ **routes linking Rangiora with Woodend / Kaiapoi**

→ **Kaiapoi becomes a hub**

Direct services from Rangiora and Woodend.

Park and Ride at Rangiora and Kaiapoi.

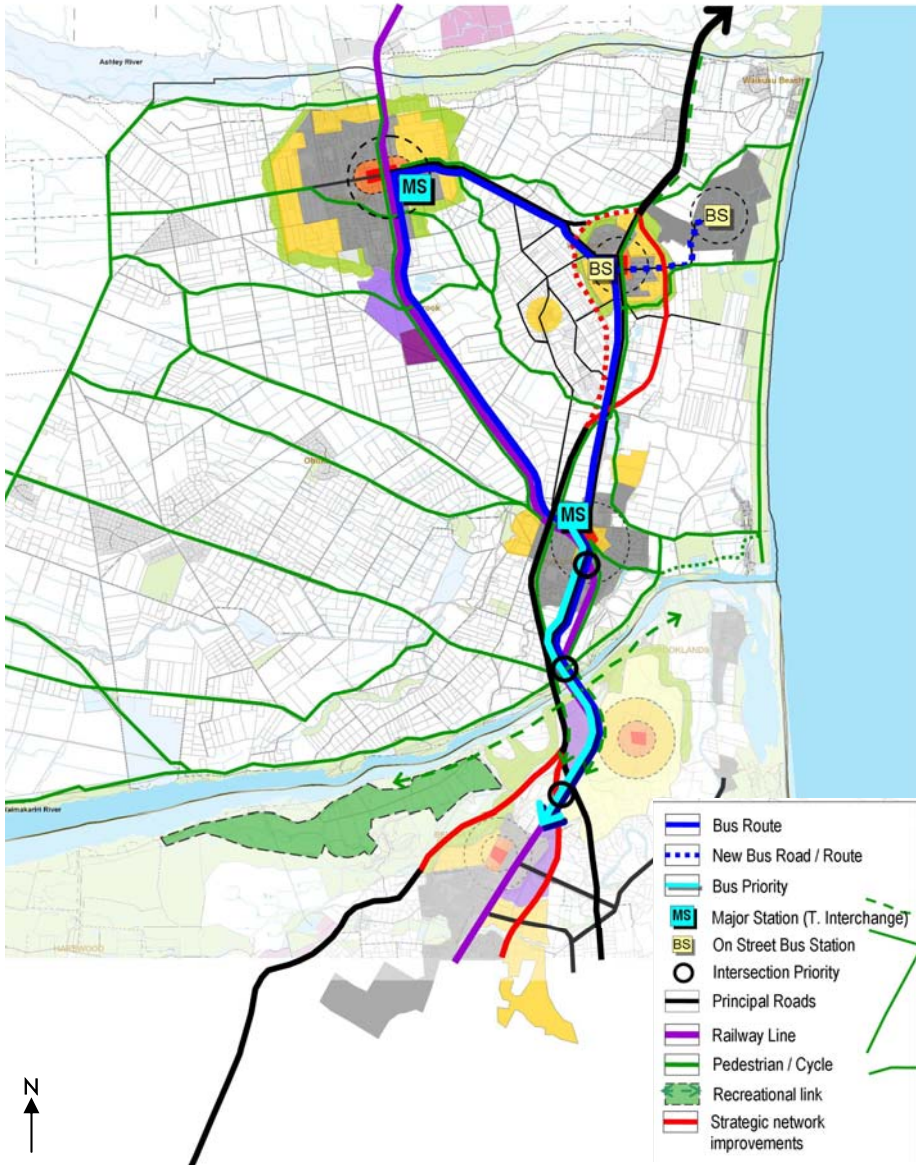
Higher frequency buses from Christchurch into Kaiapoi, from there other services (including internal loop) serve the other towns.

Strategic regional routes recommended (not at high frequency) that run from Rangiora to the Central City; then from Central City to Lincoln or Rolleston.

→ **Belfast becomes an interchange (direct to city vs. loop)**

→ **Issues**

Location of Park and Ride facility – protect capacity of bridge.



ABOVE FIG. 10-22: Proposed PT network for the UDS northern 'hub', not to scale.

10.19 passenger transport in detail: south-western

→ **hub and spoke arrangement around Hornby, Rolleston, Lincoln**

→ **major transfer point at Hornby**

→ **park and rides at Rolleston / Lincoln**

→ **express routes from Lincoln**

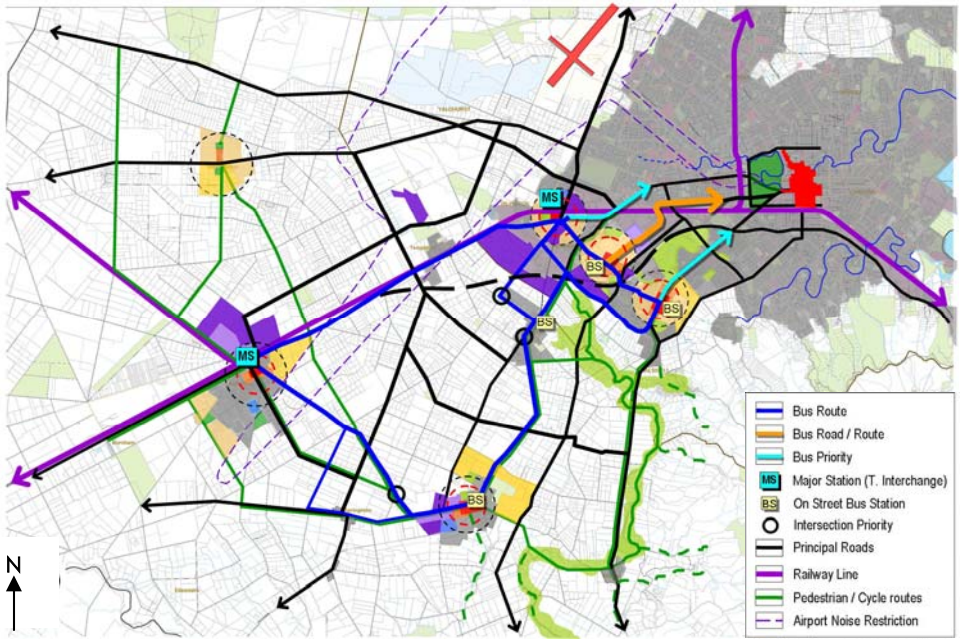
Travel direct to city via motorway opposed to Hornby in peaks.

→ **new development route at Halswell**

North of existing route.

→ **Wigram – new town centre services**

→ **West Melton - regular services into Hornby and Rolleston**



ABOVE FIG. 10-23: Proposed PT network for the UDS south-western 'hub', not to scale.

10.20 passenger transport in detail: bus services

The following table outlines improvements to the coverage and frequency of bus services in the UDS which could take place in addition to proposed new bus services in Selwyn, Central sector and the Orbiter routes. It is noted that each of the PTservices would be reviewed by area and the growth occurring within the area. For instance, if development was concentrated around Belfast, bus services to this area could be increased to meet that demand but alternatively if both Belfast and Wigram were both semi developed then additional services could not be provided to both until a sufficiently large enough population base existed to successfully support a new service.

	CURRENT ROUTES	CURRENT FREQUENCY	BUSES/HOUR	PROPOSED FREQUENCY	BUSES/HOUR	BUS INCREASE (# OF ADDIT. BUSES)
WAIMAKARIRI	Rangiora	30 minutes	2	15 minutes	4	▲▲
	Woodend Shuttle	60 minutes	1	30 minutes	2	▲
SELWYN	81 Lincoln	20 minutes	3	10 minutes	6	▲▲▲
	Lincoln - Rolleston Shuttle			30 minutes	2	▲▲
	Rolleston - City service (via Templeton?)			10 minutes	6	▲▲▲▲▲▲
	Lincoln to City via Halswell			10 minutes	6	▲▲▲▲▲▲
CENTRAL	3 Avonhead - Sumner	15 minutes	4	10 minutes	6	▲▲
	7 Halswell	15 minutes	4	10 minutes	6	▲▲
	66 Murray Aynsley	60 minutes	1	30 minutes	2	▲
	67 Dyers Pass	60 minutes	1	30 minutes	2	▲
	11 Styx Mill - Westmorland	30 minutes	2	20 minutes	3	▲
	12 Northwood	30 minutes	2	20 minutes	3	▲
	13 Redwood - Hoon Hay	30 minutes	2	20 minutes	3	▲
	14 Nunweek (or some Cranford St service)	30 minutes	2	10 minutes	6	▲▲▲▲
	15 Bishopdale - Bowenvale	30 minutes	2	15 minutes	4	▲▲
	16 Belfast (route may alter, still use Cranford St)	30 minutes	2	10 minutes	6	▲▲▲▲
	17 Bryndwr - Barrington	30 minutes	2	15 minutes	4	▲▲
	18 St Albans - Huntsbury	30 minutes	2	20 minutes	3	▲
	19 Burnside - Spreydon	30 minutes	2	20 minutes	3	▲
	21 Ilam - Mt Pleasant	30 minutes	2	20 minutes	3	▲
	24 Hyde Park - Bromley	30 minutes	2	20 minutes	3	▲
	28 Lyttelton	15 minutes	4	10 minutes	6	▲▲
	35 Heathcote	30 minutes	2	20 minutes	3	▲
	Ferry	60 minutes	1	30 minutes	2	▲
	Wigram to City			10 minutes	6	▲▲▲▲▲▲
EAST-WEST	5 Hornby - Southshore	15 minutes	4	10 minutes	6	▲▲
	60 Parklands	15 minutes	4	10 minutes	6	▲▲
	70 Queenspark	15 minutes	4	10 minutes	6	▲▲
	40 Wainoni	15 minutes	4	15 minutes	4	
	46 Shirley	20 minutes	3	15 minutes	4	▲
	49 North Shore	60 minutes	1	Unlikely to continue	-	
	83 Hei Hei - Burwood	30 minutes	2	15 minutes	4	▲▲
	84 Russley - Avondale	30 minutes	2	15 minutes	4	▲▲
	518 Hornby - Lincoln	60 minutes	1	30 minutes	2	▲
	520 Hornby - Burnham	60 minutes	1	Replaced	-	
	521 Hornby - Templeton	60 minutes	1	Use Rolleston route	-	
ORBITAL	Metrostar	15 minutes	4	5 minutes	12	▲▲▲▲▲▲▲▲
	Orbiter	10 minutes	6	5 minutes	12	▲▲▲▲▲▲
	Outer Orbiter (Hornby, Airport, Belfast, Queenspark, Brighton = approx 35km))			10 minutes	6	▲▲▲▲▲▲
	Complete Metrostar loop (see below)			5 minutes	12	▲▲▲▲▲▲▲▲▲▲▲▲

LEGEND

CURRENT ROUTE

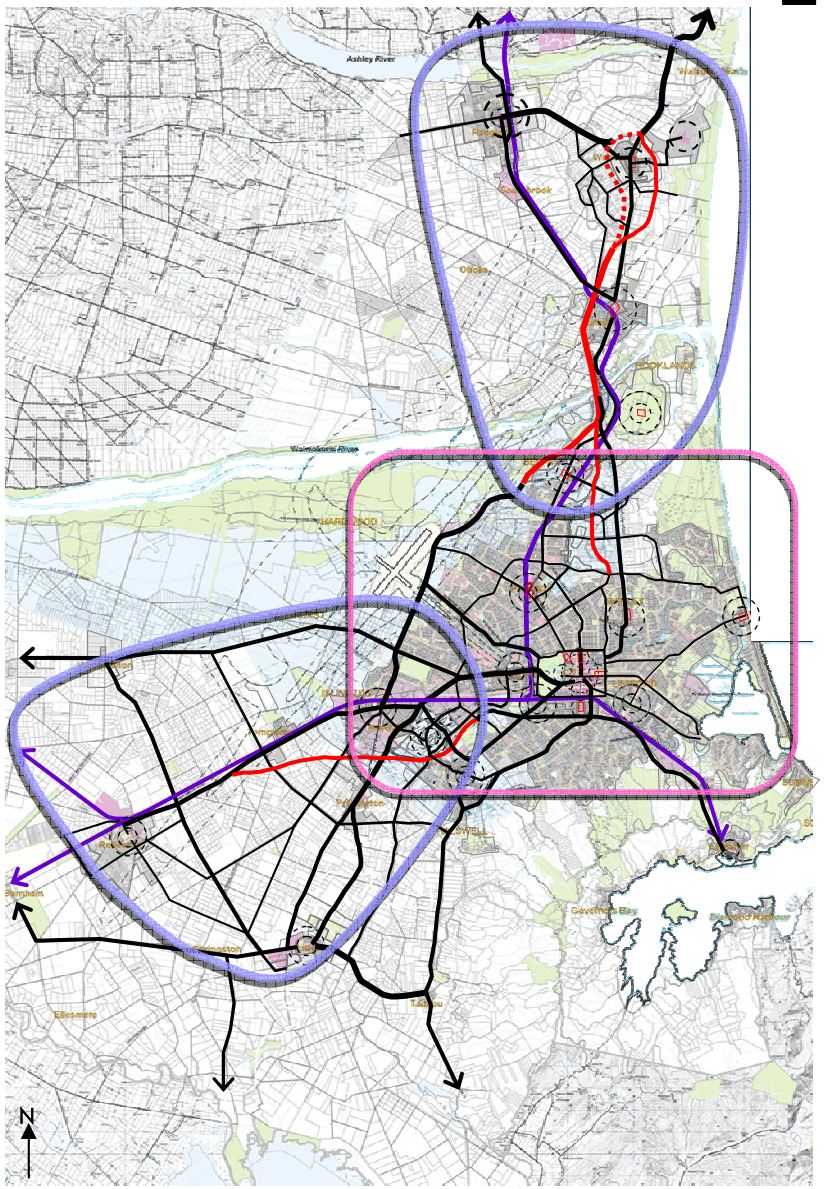
NEW ROUTE

10.21 Movement Network

The UDS movement network seeks to balance strategic, local, and public transport networks across all modes. Particular emphasis has been given to improving the viability of public transport in new and existing centres.

There is a transportation rationale for allowing growth in the rural centres rather than constraining all growth to intensification of the existing Christchurch urban area. Even with the improved public transport facilities that can be justified with intensification of the urban area, there is a related risk that traffic congestion will result because of the finite capacity of the existing roading network. Without the provision of urban motorways and without a major programme for more high capacity urban roads, the existing grid network will suffer from increased congestion. This can be aggravated if additional road space is made excessively available for public transport or for modes such as cycling and walking.

The UDS strategy had addressed this issue by promoting intensification at particular nodes which will reduce the need for commuter travel thorough smart growth principals which look to house people in proximity to the area where they work and/or spend much of their recreation time. The creation of these urban villages also, like the rural centres, allows for more efficient provision of bus services interlinking these nodes and the Christchurch CBD.



ABOVE FIG. 10-24: Proposed overall UDS movement network, not to scale.