Lincoln Structure Plan

SELWYN DISTRICT COUNCIL

MAY 2008

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LINCOLN STRUCTURE PLAN

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Final Document

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1.0 INTRODUCTION

1.1 PURPOSE OF THE STRUCTURE PLAN

The purpose of the Lincoln Structure Plan (LSP) is to outline an urban design vision for the future development of Lincoln Township and to provide a strategic framework to guide the development process. The LSP has been prepared in order to facilitate an integrated approach to achieving the sustainable management of the natural and physical resources of the Lincoln Study Area. This includes:

- Development of an urban design strategy for the area;
- Identification of key natural resources and community assets within and related to the area;
- Establishing an integrated land use pattern that responds to the characteristics of the area;
- Identification of infrastructure requirements to facilitate urban development.

The LSP creates a framework to guide development and will be used as a basis for:

- Future changes to the District Plan;
- Developing an infrastructure programme;
- Determining the Long Term Council Community Plan.

The structure plan is not intended to act as a blueprint. The ultimate form of development will not look exactly like the structure plan but will be guided by the concepts and approach of the structure plan.

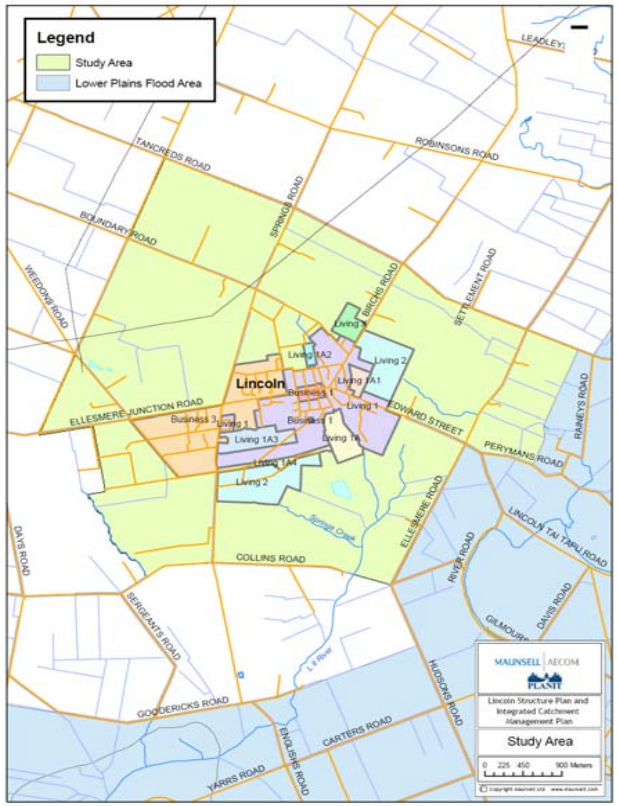
The structure plan promotes ideas regarding urban design concepts and considerations around urban form, identifies roading, cycling and pedestrian networks, considers constraints around water and wastewater servicing, identifies open spaces and recreational areas, incorporates the findings of the Integrated Stormwater Management Plan (ISMP), considers the way in which commercial activities should be developed, and considers alternative locations for new community facilities.

The LSP staging patterns form part of the implementation methods.

This document broadly outlines the process followed in preparing the LSP; identifies key constraints and opportunities; recommends an overall growth strategy; and the implementation package associated with key network and activity areas. The structure plan process is shown in **Appendix 1**.

1.2 DESCRIPTION OF THE STUDY AREA

The Study Area was based on the potential for providing growth options around the existing Lincoln urban area and takes into account the Lower Plains Flood Area associated with the Halswell River to the east, as shown on the map below. This map also shows current township zonings as defined in the Proposed District Plan. The urban area is characterised by a predominately low residential density, a small commercial centre, a range of community facilities (e.g. golf course, churches, cemeteries, schools, hospital) and education and research activities associated with Lincoln University and the Crown Research Institutes. The remainder of the study area, as shown in light green, is zoned rural. The rural area contains a mix of activities, including those associated with intensive and extensive farming, research and education, community facilities, landfills and the sewerage plant.



ABOVE: Lincoln Study Area

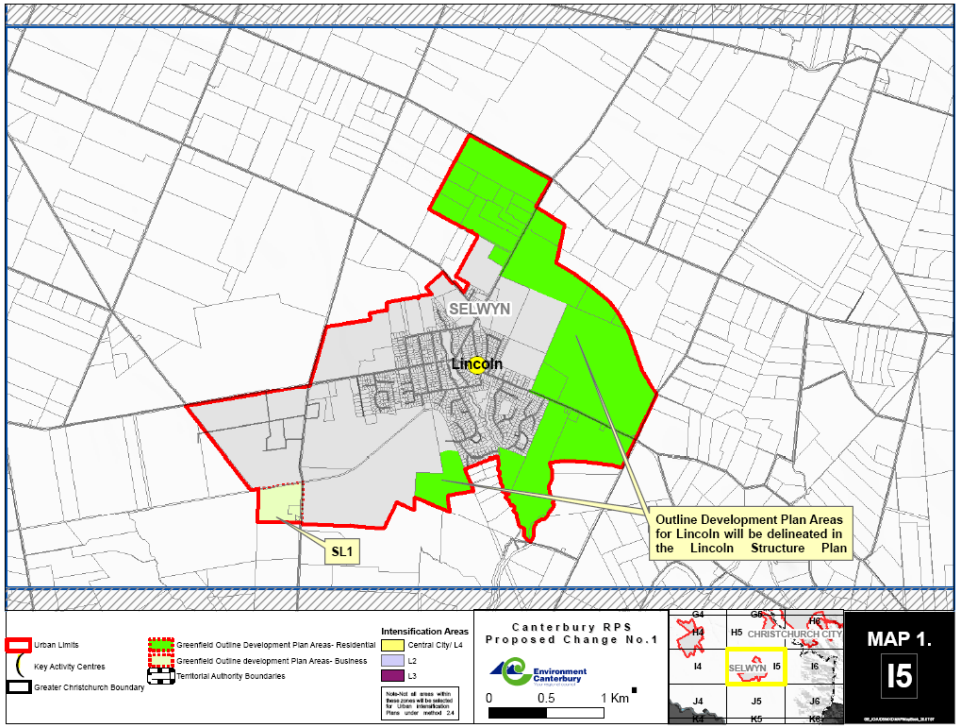
1.3 URBAN DEVELOPMENT STRATEGY & PROPOSED CHANGE 1 TO THE CANTERBURY REGIONAL POLICY STATEMENT

Proposed Change 1 to the Canterbury Regional Policy Statement (RPS) was notified on 28 July 2007 and submissions and further submissions have since been received. The purpose of Change 1 is to implement the Greater Christchurch Urban Development Strategy (UDS), being a growth management strategy to 2041 for the Greater Christchurch metropolitan region which comprises of an urban area and hinterland within the jurisdictions of Christchurch City, Waimakariri District, and Selwyn District Territorial Local Authorities.

The draft Lincoln Structure Plan Issues and Options Report June 2007 (draft LSP) was based on the projected figures from the UDS, which identified Lincoln as one of the south -western sector growth centres, and a key commercial/business activity centre which has the ability to act as a focal point for transport and a location suitable for more intensive development. Lincoln was earmarked to potentially serve a catchment of 23,000 people (within the wider area) with the ability to accommodate approximately 3,500 additional households by 2041. The UDS gives priority to mixed use developments and retaining the village/rural character through target densities of 10 households per ha.

The notification of Proposed Change 1 to the RPS reduced the projected population figures for Lincoln to 3,125 households by 2041 (excluding rural-residential development) and introduced a three tier staging regime, instead of the two tier as contained in the draft LSP. Corresponding "Urban Limits" are also identified on Map 1-I5 of Change 1, within which "Greenfield Outline Development Plan Areas" for both residential and business development are contained. Of particular note is the requirement for residential subdivision and development to achieve a minimum of 10 lots / households per hectare in Greenfields Areas.

Selwyn District Council subsequently lodged a submission on Change 1 requesting a reallocation of households from rural-residential to residential and clarifying that existing undeveloped but zoned land is included in the projected population figures. The final Structure Plan is therefore based on the Council's submission, being the most up-to-date information available at the present time. The overall household figure for Lincoln now used in formulating the LSP is 3,900.



ABOVE: Proposed Change 1 to the Regional Policy Statement—Lincoln Township

Where to from here

Accepting that the Council's submission may not be adopted, either in full or in part, and that decisions on other submissions may alter Change 1 in a way that affects the Structure Plan , the Council considers that the Structure Plan may be revisited following the release of decisions on Change 1 and resolution of any subsequent appeals to the Environment Court.

1.4 LEGAL STATUS

The overarching planning context for both the Structure Plan and the ISMP primarily stems from the Resource Management Act 1991 (RMA) and the Local Government Act 2002 (LGA). Selwyn District Council and Environment Canterbury have prepared various policy and planning documents in accordance with the relevant legislative requirements, which are at varying stages in the public participatory process.

Of particular relevance to the ISMP are the Canterbury Regional Policy Statement (RPS) and the Proposed Natural Resources Regional Plan (NRRP), both of which are formulated under the RMA. Selwyn District Council's Long Term Council Community Plan (LTCCP) and Draft Land Drainage Activity Management Plan are administered under the LGA, providing a strategic framework for managing the Council's assets, including land drainage, water race and reticulated service systems. While these documents provide a statutory basis for the formulation and implementation of the ISMP, it is noted that the formulation of the Structure Plan is not constrained by this statutory framework. However, it is anticipated that the Structure Plan will be implemented through changes to the District Plan and/or LTCCP.

The Structure Plan itself will be adopted by Council under the provisions of the LGA.

1.5 URBAN DESIGN FRAMEWORK

The urban design framework sets out the key assumptions, priorities, and goals of development for Lincoln. Its purpose is to provide a rationale and focus for what development should achieve. The use of a framework will ensure that a comprehensive view of Lincoln's potential is taken.

The framework is based on the following considerations:

An Integrated Approach

→ Ensuring that design is undertaken in a holistic manner to avoid the risks associated with 'tunnel vision' or artificial separation of intrinsically interrelated elements. This applies to both:

→ The core qualities of the environment (the 'quadruple bottom line'); and

→ The multidisciplinary intellectual disciplines and specialisations that society uses to apply knowledge.

Urban Design Principles

→ The design fundamentals that must guide development of the built environment;

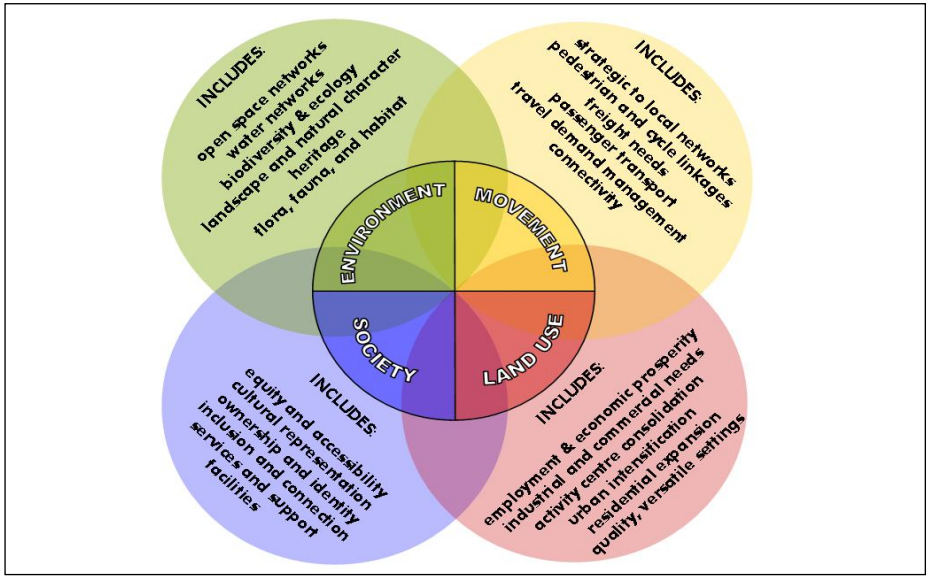
→ The essential qualities that are necessary to create the optimal physical settings to facilitate social and economic exchange.

Local Priorities

→ The long-term goals set out by communities in the Selwyn District Long Term Council Community Outcomes document;

Key Development Issues

→ The primary issues that would need to be considered in order to create a successful community. These are considered to relate to the following: Green network, Blue network, Movement network, Social network and Land Use.



ABOVE: Lincoln must integrate the technical specialities in order for the Structure Plan to be robust, grounded, and deliverable.

2.0 EXISTING ENVIRONMENT

2.1 POPULATION

Based on the 2001 Census of population and dwellings, the 'usually resident' population of Lincoln was 2,142 people. This corresponded to 660 households, with an average occupancy rate of 2.9 people. The preliminary 2006 figures show that the population has increased to 2,720 people.

2.2 EXISTING INFRASTRUCTURE

2.2.1 Water Supply

Lincoln is well served by groundwater artesian wells, located at Gerald St - West Belt, Kildare Terrace, and a small well at Millstream Drive. These wells are secure and no treatment is required. Urban areas within the township are fully reticulated. There is adequate pumping capacity to meet existing demand and there are no storage reservoirs. Lincoln University has its own wells supplying water, with an internal reticulation network.

2.2.2 Wastewater

Lincoln forms part of the Eastern Selwyn Sewerage Catchment, an area which presently pumps its wastewater into the Christchurch City Council's network and on to the Wastewater Treatment Plant at Bromley. Lincoln, Prebbleton, Tai Tapu and Springston are all part of this catchment. The capacity of the treatment plant at Lincoln is limited to the current agreement between Selwyn District Council and Christchurch City Council.

Lincoln township has a reticulated wastewater network serving the urban area, with primary aeration treatment at the Lincoln WWTP on River Road. This plant only has a capacity of 6600 population equivalent (PE). Treated wastewater is stored in a pond, which acts as a buffer, and from this pond it is pumped into a 250mm diameter pipeline via Springs Road and Shands Road to Main South Road (Hornby), where it enters the City's network.

2.2.3 Stormwater Disposal

Much of the Lincoln township is currently served by a conventional stormwater drainage system, with discharge from buildings to kerbs and channels and thence via pipes to waterways and streams. Road surfaces are drained via sumps and pipe connections. For newer subdivision development, stormwater is typically collected in small treatment and retention areas, before being either discharged to ground or into waterways.

2.2.4 Parks and Open Space

The Liffey Domain is an important central feature of the existing township. Areas for both passive and active recreation are also provided at Lincoln University, Lincoln High School and the Lincoln Domain, together with the Lincoln Golf Course and numerous neighbourhood reserves.

2.2.5 Electricity

Power infrastructure in Lincoln is provided and managed by Orion NZ Ltd. Orion's network in this area is linked to the Transpower grid at the Springston substation (GXP), which is located on the western edge of the study area on Weedons Road. Transpower is upgrading the Springston GXP from 33kV to 66kV to meet growing demand.

2.2.6 Telecommunications

Telecommunications infrastructure is provided by Telecom.

2.3 WATERWAYS AND DRAINAGE

2.3.1 Te Waihora / Lake Ellesmere

The study area is located within the Te Waihora/Lake Ellesmere catchment as all waterways in the study area, including the Halswell and L2 Rivers, discharge directly or indirectly into it and therefore can have an effect on the water quality and level of the lake. The lake has an area of about 20,000 ha and is subject to the National Water Conservation (Lake Ellesmere) Order 1990 for its outstanding wildlife habitat. The Water Conservation Order regulates the artificial opening levels of the lake to the sea. The bed of the Lake was returned to Ngai Tahu by the Crown as part of the Ngai Tahu Claims Settlement Act 1998. These water bodies are of significance to the local runanga for spiritual and food gathering reasons. The local and regional communities attach values to these waterbodies, and anglers and other recreational users also use them (URS, 2006)

2.3.2 L1 (Liffey Stream) and L2 River

Both the L1 Creek and the L2 River are sourced from springs in or around Lincoln township. The L1 Creek has its beginnings as a gully north of Boundary Road and west of Springs Road. The gully, which only contains flow during significant rainfall events, is directed underneath the Paparua Water Race (piped) and through culverts across Boundary Road in southward direction and Springs Road in eastward direction. Just to the North of Lincoln Township it is fed by the discharge of excess water from the Paparua Water Race before flow increases by the output of several springs downstream of the North Belt within the Liffey Reserve. The L1 Creek converges with the L2 River approximately 1km south of Lincoln township.

The L2 River is characterised and influenced by agricultural landuse and farming practices as well as drainage requirements e.g. the river has been straightened and channelised in its lower reaches and subject to frequent channel cleaning practices. The river is considered to be good habitat for trout and it is a popular fishing river in the Ellesmere/Selwyn catchment.

2.3.3 Land Drains

The Study Area is intersected by a system of open land drains. The purpose of the land drains is to remove surface water to enable the land to be used for agricultural and horticultural purposes. Today the drains are still maintained. Some designated drains are ECan's management responsibility (in the Halswell Drainage District) and other classified drains are SDC's management responsibility in the L2 Drainage District. All other smaller drains in the area on private land are the responsibility of the adjoining landowners. To maintain drainage capacity and protect the area from flooding, drain management practices are carried out by the L2 Drainage Committee and ECan using contractors with proven skills.

2.3.4 Paparua Water Race

The north western part of the ISMP area is serviced by a network of channels that form part of the lower reaches of the Paparua Stock Water Race which is fed from the Waimakariri River. The water race is administered by Selwyn District Council and Christchurch City Council and has been in operation for about 120 years. Excess water from the system is discharged within the study area into land drains within the L2 and Halswell River Catchment, the L1 Creek and into ground.

2.3.5 Other Streams

Other streams within the study area, as classified in the Proposed Natural Resources Regional Plan (PNRRP), are Springs Creek, a spring fed stream discharging into the L2 River south of Lincoln Township and parts of Townsend Drain discharging into drains within the Halswell River Catchment north of Edward Street.

2.4 TRANSPORTATION

Road access to Lincoln and the University area is via a network of 2-lane rural arterial and collector roads which provide linkages to Christchurch, the state highway system, and other townships within the District. Key routes to Christchurch include Springs Road, Birches Road and Ellesmere Road. There is a key route to Rolleston in the west, via Ellesmere Junction Road, Weedons Road and Springston-Rolleston Road. Ellesmere Junction Road also provides connections to other townships to the west, such as Leeston, and SH 1.

Lincoln is served by regional Public Passenger Transport (PPT), in particular buses. There is no provision for rail transport, although a railway service used to link Lincoln to Christchurch and other townships, such as Springston and Southbridge. The rail corridor is still available in some areas, and this is important in terms of future cycleway routes. The bus service now links Christchurch to the University and the township itself, reflecting the importance of these destinations.

2.5 SOCIAL / CULTURAL

Lincoln has a number of community facilities, clubs and other facilities. These include facilities such as medical and dental rooms, a hospital, several churches, Police, volunteer Fire Service, halls and a library. There are also a number of important heritage sites and buildings within the existing township. Such features are identified in the Social Network section of this document. It is noted that no areas or sites of cultural significance to Tangata Whenua have been identified to date within Lincoln township, or the wider Study Area.

2.6 SOILS

There is considerable variation in soil type and structure across the study area. To the south, the land is typically lower, and the soils are heavier and poorly drained. Further to the north and west, the land rises and the soils become lighter in structure and more free draining. These characteristics, which significantly affect stormwater infiltration capacity, are discussed in the Blue Network section of this document.

2.7 LAND USE

The Study Area is based on the potential for providing growth options around the existing Lincoln urban area and takes into account the Lower Plains Flood Area associated with the Halswell River to the east, as shown on the Study Area Map in Section 1.2. This map also shows current township zonings as defined in the Proposed District Plan for business and living zones. The urban area is characterised by a predominately low residential density, a small commercial centre, a range of community facilities (e.g. golf course, churches, cemeteries, schools, hospital) and education and research activities associated with Lincoln University and the Crown Research Institutes. The remainder of the study area is zoned rural. The rural area contains a mix of activities, including those associated with intensive and extensive farming, research and education, community facilities, landfills and the sewerage plant.

3.0 CONSULTATION

3.1 ADVERTISING AND EARLY CONSULTATION

The first phase of the consultation process on the preparation of the LSP involved the publication of a public notice within the 'Council Call' section of the Central Canterbury News and Canterbury Times within three consecutive editions, commencing on 16 January 07. The purpose of this notice was to raise public awareness of the commencement of the ISMP and Structure Plan process. Individual meetings were held with Ministry of Education and Te Taumutu Rununga (on 17 January 07 and 9 February 07 respectively) to discuss their views on issues associated with both the Structure Plan and ISMP.

3.2 FOCUS GROUP MEETINGS

Consultation with key stakeholders was seen as a means of obtaining information and initial thoughts and ideas on the development of a Structure Plan. A list of key stakeholders was drawn up in early January 07 and broken down into the following focus groups:

Group 1 Environment Canterbury, Department of Conservation, Lincoln Envirotown Trust, L2 Drainage Committee, Waihora Ellesmere Trust;

Group 2 Developers and landowners known to want to develop their land, including Lincoln University, SDC Corporate Manager;

Group 3 Crown Research Institutes, Lincoln University, Lincoln University Students Association;

Group 4 Lincoln Business Association, SDC Economic Development Officer, Federated Farmers;

Group 5 Lincoln Community Committee, Lincoln High School, Lincoln Primary School, Lincoln Domain Management Committee, Lincoln and Districts Community Care Association, Ministry of Education, SDC Lincoln Library.

The meetings with the five focus groups were held on the 13th and 15th of February 2007. All focus group members were invited to attend a presentation on the last day of the Design Workshops held on 2, 3 & 4 April 2007.

3.3 PUBLIC MEETING

A public meeting was held in the Lincoln Community Centre on the evening of 2 April 07. The meeting commenced with a presentation to the public, which included information relating to the need for a Structure Plan and ISMP and an overview of the constraints and opportunities identified to date. Members of the public were then broken into small groups to discuss key issues regarding the future growth of the Township.

3.4 LANDOWNERS & INTERESTED PARTIES

A number of other potentially interested parties including landowners, utility operators and community groups were identified. A letter was sent out on 21 February 07 seeking comments from these parties by 16 March 07 and a number of responses were received. These responses were then collated and integrated into the ISMP and Structure Plan process.

3.5 COMMENTS ON DRAFT STRUCTURE PLAN—ISSUES & OPTIONS REPORT

Issues and Options Reports for both the Draft Structure Plan and Integrated Catchment Management Plan were subsequently prepared. The Council sought feedback on the reports and invited comments between 18 June—9 July 07. A summary pamphlet and response form were sent to all parties involved in the Focus Group Meetings and those who were known as interested parties.

An Information Display was erected within the Lincoln Library during the consultation period, which canvassed the key elements of the Issues and Options Reports. Council staff were available to answer questions over three two hour periods during this time. The reports, summary pamphlets and response forms were also available from the Information Display and on the Council's website.

A total of 35 responses were received during the consultation period. A summary of these responses and the decisions made on the various points raised with respect to the LSP and ISMP are available as a supplementary report to this document.

3.6 ADDITIONAL MEETINGS

A number of key stakeholders were invited to meet with members of the Project Team in order to discuss the Issues and Options Reports directly, including Ngai Tahu Property Ltd, Ministry of Education, Lincoln University, Landcare Research, Crop & Food Research, AgResearch and the Lincoln Township Committee. Meetings were subsequently held with Ngai Tahu Property Ltd, Lincoln University, Landcare Research and Crop & Food Research.

4.0 CONSTRAINTS AND OPPORTUNITIES

4.1 GENERAL CONSTRAINTS

(A) CROWN RESEARCH INSTITUTE & EDUCATIONAL LAND OWNERSHIP

Land owned by Lincoln University and Crown Research Institutes (CRI's) (500+ hectares) limited to educational and research functions. This included educational land at the Lincoln University campus located to the south-west of Lincoln township which has a long association with land-based disciplines and their associated industries (**1**), Lincoln Primary / High School (**2**) on the rectangular block of land accessible from North Belt and Boundary Road, and (**3**) CRI's e.g. Crop and Food Research, Manaaki Whenua Landcare Research are NZ state-owned entities which conduct scientific research.

(B) HIGH WATER TABLE/FLOOD AREA

Areas of low lying land to the east may not be suitable for development due to the proximity of lower flood plains associated with the Halswell River to the east, and high water table, poorly draining soils and the presence of springs in the south.

(C) HALSWELL RIVER DRAINAGE CATCHMENT

Boundary of the Halswell River catchment which has existing water quality and flooding issues. Limited capacity for stormwater runoff discharge thereby limiting development.

(D) STREAM SYSTEMS

The stream systems including Liffey / L2 river to be retained for ecological, recreational and water quality purposes. Series of water races to the north of the study area.

(E) WASTEWATER TREATMENT PLANT

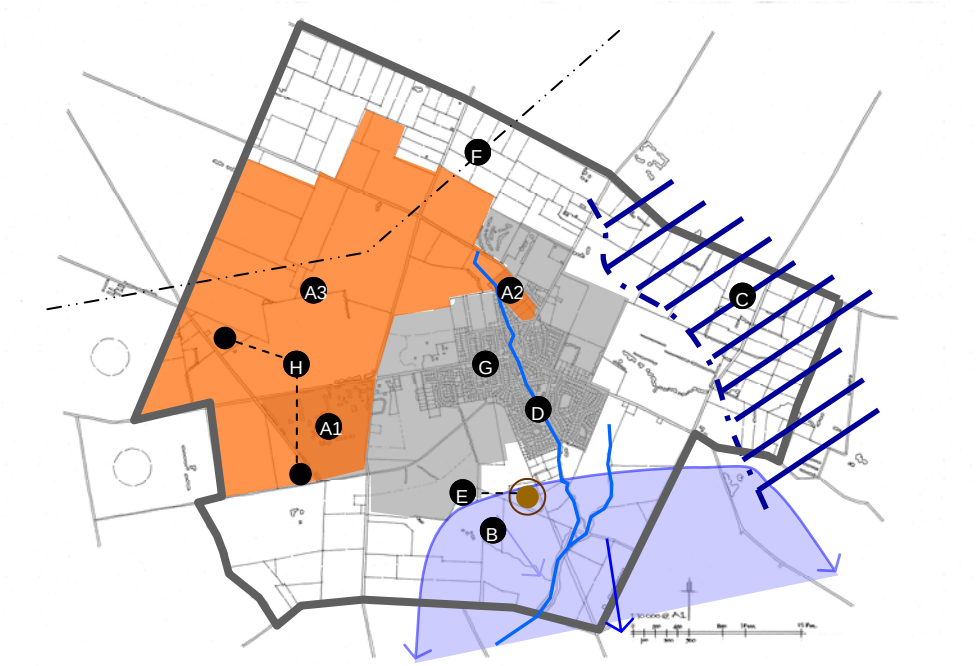
Existing wastewater treatment plant and surrounding 150m treatment plant buffer. The sewerage system and treatment plant has capacity considerations.

(F) TRANSMISSION LINES

3.2km of high voltage transmission lines and an electricity sub-station.

(G) ZONED LAND USES

Multiple land ownership, existing rural and research activities, low density District Plan land zoning of residential land and designations e.g. cemetery, landfills, reserves, heritage, community facilities.



ABOVE: Diagrammatic representation of general growth constraints identified in Lincoln

(H) CONTAMINATED LAND

Landfills (Selwyn District Council and University) and a number of other potentially contaminated sites from horticultural / agricultural activities. In addition to a cemetery in the north on Weedons Road.

4.2 GENERAL OPPORTUNITIES

(A) GOOD SOAKAGE AREA / AQUIFER

Land west of Birchs Road and south of Tancreds Road has soil with a generally higher drainage capacity located above an unconfined to semi confined aquifer. Water courses and drainage patterns can provide for both detention and recreational amenity.

(B) COUNCIL OWNED LAND

Vege block purchased from Crop and Food, Golf Course, Lincoln community centre site, 5.3ha between Lincolndale and Ryelands (former Zeestraten block), 80 Moffat Drive which provides eastern Liffey connection, former Country club site on Edward Street .

(C) UNDEVELOPED BUT ZONED LAND

Existing residential zoned land under the District Plan which is currently undeveloped e.g. Dairy Block.

(D) DEVELOPER INITIATIVE

Privately / CRI owned land where developer has indicated desire for demonstration project e.g. Landcare site.

(E) SECOND PRIMARY SCHOOL

To locate a school that has good traffic access, is close to residential areas and open space and doesn't diminish the walkable catchment of the town centre.

(F) MEDIUM DENSITY RESIDENTIAL USES

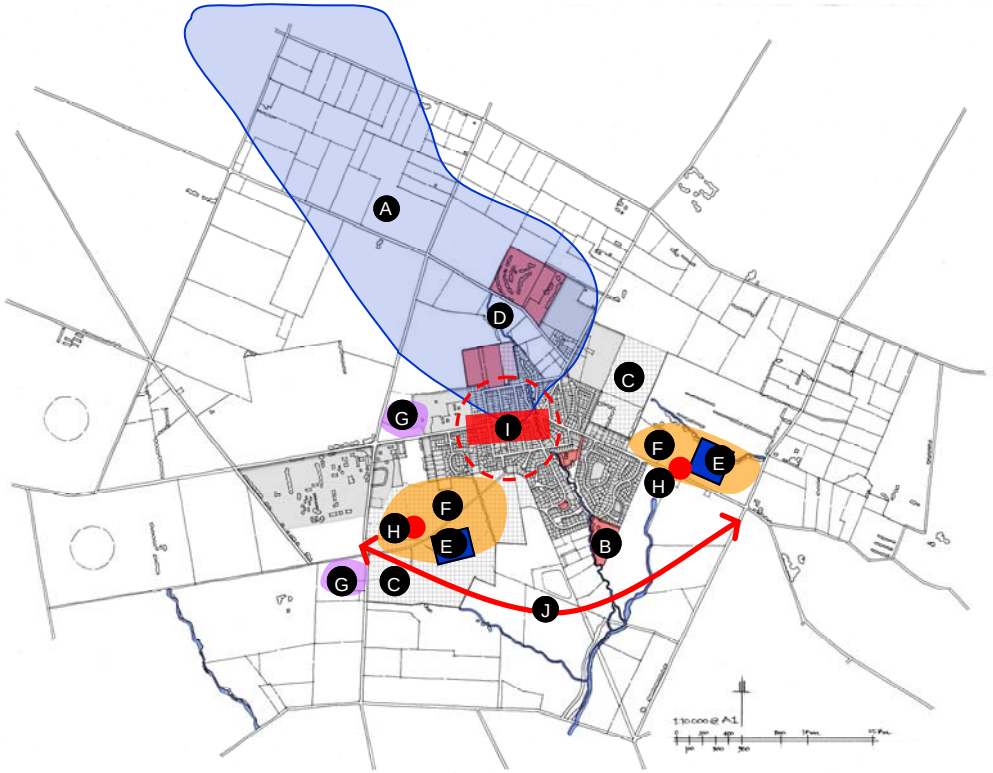
To locate high quality medium density residential uses in close proximity to open space system, neighbourhood centres, the walkable town centre catchment with improved connection to PT networks and employment areas.

(G) INDUSTRIAL & OTHER EMPLOYMENT USES

To locate industrial and other employment uses not compatible with the town centre or residential environments in locations with good accessibility and with minimal visual impact.

(H) DESTINATION RETAIL USES

To locate key destination retail uses that are not normally compatible with a fine grained retail 'main street' condition (e.g. supermarkets) in locations that will help draw movement through and past in order to help to strengthen the viability of the town centre as a whole.



ABOVE: Diagrammatic representation of general growth opportunities identified in Lincoln

(I) LINCOLN TOWN CENTRE

To consolidate the Lincoln town centre by locating business, retail, residential and community uses that will benefit from being close to the core area with the highest pedestrian activity, capture the movement economy and support main street function. Current extent of town centre zoning allows for growth.

(J) SOUTHERN 'BYPASS'

Use of a potential southern boundary road to help relieve heavy vehicle and future increased vehicle flows through the Lincoln centre and provide an alternative east-west connection to Lincoln

5.0 STRUCTURE PLAN

5.1 STRUCTURE PLAN PRINCIPLES

As a result of consultation and further refinement a number of changes have been made to the overall Structure Plan from the Issues and Options document. The Structure Plan has been formulated around a number of boundaries designed to cater for the outward spread of growth to 2041, based on current projections. This is a direct consequence of the desire to prevent continuous residential encroachment onto rural land to preserve the rural, open space character of Lincoln and to protect the environment and natural drainage systems. These boundaries are highly desirable to the successful management of growth in Lincoln.

The broad principles and key features of the Structure Plan are as follows:

1. The structure plan should provide for consolidated, sustainable coordinated development and the staged provision of services (sewer and stormwater) in a logical direction. A compact urban form incorporating urban design principles is sought.

2. Cadastral boundaries have been used to define the growth areas, but also take into account natural growth boundaries such as the Halswell River catchment to the northeast and high water tables to the south.

3. Non natural boundaries have also been included such as CRI & Lincoln University land to the west and northwest and roads such as Tancreds and Ellesmere.

4. Medium density development is located primarily outside of the existing urban area in order to maintain its character, particularly inside the four belts. The medium density areas are concentrated around the existing residential development and in close proximity to existing and proposed services. Medium density areas are provided for in all three stages. An average of 15 households per hectare has been adopted for the medium density areas.

5. Conventional residential has been assumed at 10 households per hectare.

6. A large Neighbourhood Centre (to be deferred until stage 2) of approximately 1.5 -2ha, a school site of 2.5ha and community facilities/large reserve of 2.5ha, are located within the main Dairy Block area.

7. A small Neighbourhood Centre (to be deferred until stage 2) of approximately 0.5ha is provided for on the north side of Edward Street oppose Southfield Drive.

8. Provision for a 3rd school of 2.5ha and a 2.5ha reserve area within the Stage 3 area north of Edward Street.

9. Separate business park and industrial areas.

10. An integrated transport and walking network.

11. Buffering at the rural road interface.

12. The sewage ponds will be removed in association with the development of the Eastern Selwyn Sewage Scheme

13. An area to the north-east of the sewage pond not previously in the urban area has been included as natural extension of the urban area once the sewage ponds are removed, providing for a more compact urban form.

14. A potential area for some rural/residential development has been added around the eastern edge as a buffering. Note this area will be required to be serviced.

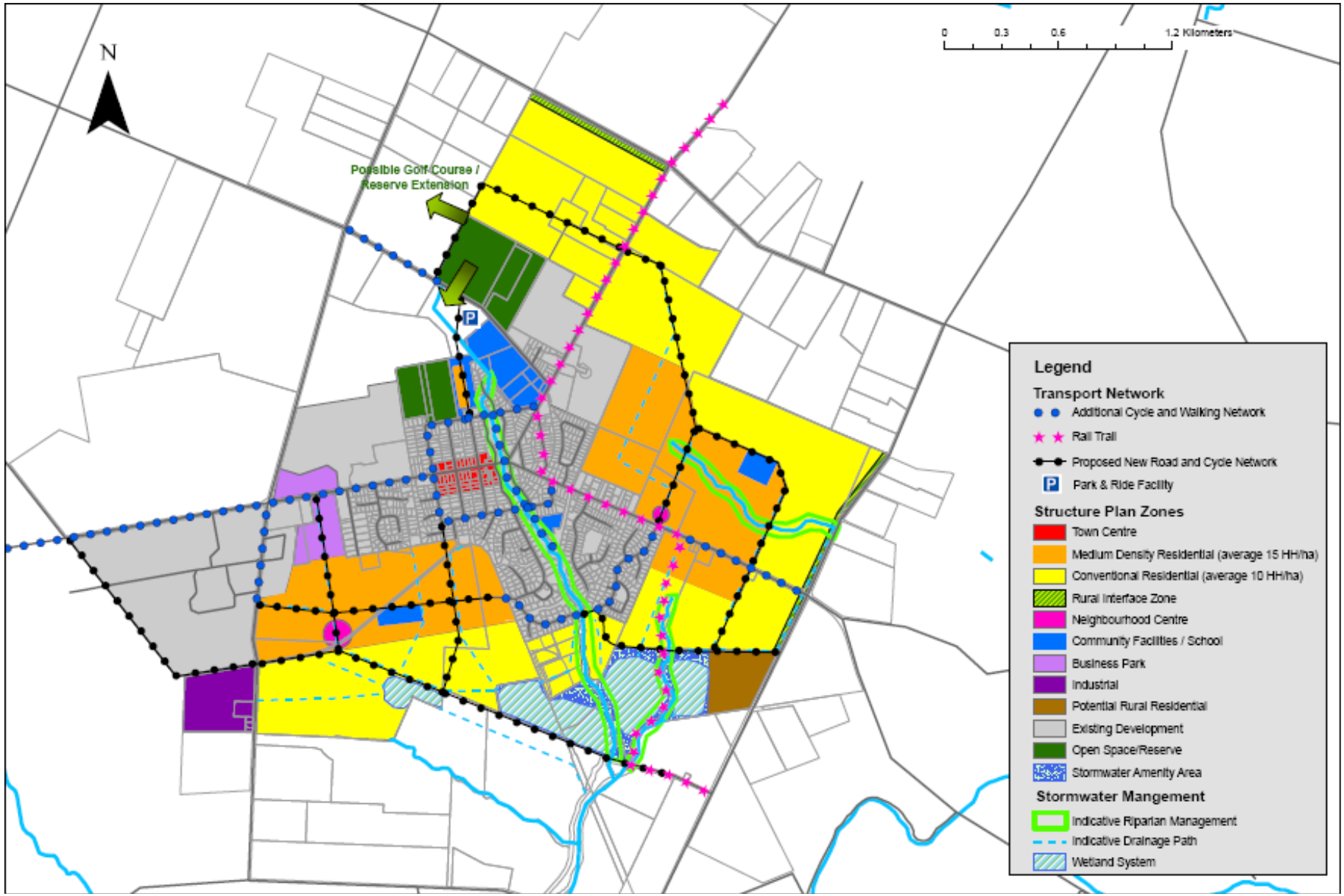
15. All major stormwater retention will generally be outside of the urban boundary, primarily around the existing wastewater treatment pond. The areas shown have been calculated as being equivalent to the area needed for retention. Indicative flow paths are also shown. The industrial area and a residential area south of the proposed boundary road will require a separate stormwater retention area due to existing land levels.

16. An allowance of 1.5% of overall development area has been made for the drainage of stormwater other than via road reserve or recreation reserve land.

17. The total number of hectares is 380 excluding the industrial and business park areas. The net area is approximately 360 hectares.

18. The structure plan achieves an overall density ratio of 10.7 households per hectare.

5.2 LINCOLN STRUCTURE PLAN



6.0 STAGING STRATEGY

6.1 STAGING STRATEGY

The Structure Plan must contain a staging plan that enables and shows the following:

- → The growth of the town centre and neighbourhood centres in logical increments that allow for the continuity of the social, employment and retail function of the town centre and enables Lincoln to develop in an integrated manner.
- → Development of a full range of uses concurrently in new neighbourhood centres. Uses in highest demand e.g. supermarket as a retail anchor should not be allowed to exist alone for unreasonably long periods.
- → How the initial development stages can occur without undue interference from construction of future stages.
- → How environmental impacts have been limited.
- → The provision of infrastructure (roading, stormwater, water, wastewater) in a logical and cost effective manner.

6.2 RESIDENTIAL DEVELOPMENT STAGING

The following assumptions have been used to establish a revised staging plan and take into account the definition of 'net density' in Proposed Plan Change 1 to the RPS.

1. Where possible existing zoned land has been included in Stage 1 due to its ability to be developed as of right at present, subject to servicing requirements.
2. The need to ensure that infrastructure is developed in a coordinated and logical fashion. In that regard servicing of eastern Lincoln will progress generally from the south to the north.
3. A need to ensure that there are reasonable levels of medium and conventional density land available in each stage.
4. A need to ensure there are different land ownerships available in each stage so that there is competition and the avoidance of land banking.

For the development of residential areas a three staged release of land is provided for (including the rezoning of existing residential zoned areas), beginning with that land immediately surrounding the existing urban area and in close proximity to the Lincoln town centre.

In line with the Council's submission on RPS Plan Change 1, it is proposed that Lincoln develops incrementally over an extended time period in a staged process as follows:

- → Stage 1 from 2007-2017 (10 years) 1300 Households;
- → Stage 2 from 2017-2026 (10 years) 1100 Households;
- → Stage 3 from 2026-2041 (15 years) 1500 Households.

The challenge for the Structure Plan is to carefully manage the supply of land to ensure it is used effectively, and needed service, community and employment-related infrastructure is provided in an integrated way, while ensuring that good choice is offered to the market place. The staging plan for residential development has been formulated with the following principles in mind:

- → Provide for housing choice;
- → Enable a reasonable degree of competition within the land market; (e.g. development opportunities not cornered by one land owner);
- → Support the provision of needed community infrastructure; (e.g. new school site, playing fields, community centre);
- → Develop required transport infrastructure; (especially long term bus routes including a Lincoln shuttle, new local routes and arterials);
- → Support development of the town centre and neighbourhood centres, ensuring that growth in new residential areas is consolidated prior to development of neighbourhood centres so that they do not become stand alone, isolated, single use retail areas;
- → Promote effective use of existing urban land, as well as the land to be released.
- → The establishment of service infrastructure in a logical and cost effective manner.

6.3 RETAIL DEVELOPMENT STAGING

The viability of the town centre is dependent on having a successful new large retail anchor to set up a pedestrian movement pattern that generates more passing trade for the finer grained retail. As such, a new supermarket anchor is recommended for the community centre site on Gerald Street to occur during stage 1. When large format retail such as a supermarket is established other uses tend to follow e.g. small retail, office, commercial or residential before more large format retail ensues. This is best done on a block by block basis.

Promoting the development of the town centre in stage 1 will ensure that complex issues around site configuration and amalgamation are able to be resolved, enhancement plans can be put in place, and the heart of the town is able to grow and consolidate itself as the primary commercial area prior to the establishment of neighbourhood centres in more easily developed greenfield locations.

Any development scenario that provides for residential and mixed use development outside of the Lincoln town centre catchment will benefit from the early provision of a neighbourhood centre with local retailing. The preference is for a second supermarket to be established within the southwestern neighbourhood centre.

6.4 PROVISION OF INFRASTRUCTURE

6.4.1 Roading Network

To cater for growth to the south part of Lincoln requires the extension and completion of Southfield Drive, which is intended to connect between Springs Road south of the University to Edward Street. Sections of Southfield Drive have already been constructed as part of the Ryelands Subdivision off South Belt and the Lincolndale Subdivision off Edward Street. Currently these are not connected as this is pending the construction of a bridge over the Liffey Stream.

Southfield Drive is expected to become an important east/west collector road link across the southern growth areas of Lincoln. Its relevance becomes even more important based on higher density development proposed in the Dairy Block (Stage 1). As a collector road it is intended that it will operate at a higher level of service in terms of design and function, and will eventually form part of a ring road system.

With the new bridge come opportunities to easily extend roading connections through to Stage 1 below Edward Street, which would also connect through to Edward Street. This offers advantages in the development of a local roading network within a relatively short period, avoiding the creation of disjointed no exit roads if development was spread over different periods. With the creation of these main roading corridors also comes the ability to utilise these for the strategic trunk water and sewerage services without the need to establish private land easements.

In addition, the inclusion of these areas in Stage 1 will provide important walking and cycling connections to be achieved that are currently identified as part of the wider Rail-trail route south from Lincoln, and also within Lincoln as part of esplanade developments alongside existing streams for both recreation and transport.

In this way it considered that the completion of Southfield Drive through the Dairy Block (Stage 1), together with the development of integrated local roading and walking and cycling opportunities in the area shown as Stage 1 below Edward Street, is ideally suited from the outset to cater for growth proposals in this part of Lincoln as part of Stage 1.

While the primary focus is on the completion of Southfield Drive, the Christchurch, Rolleston and Environs Transportation Study (CRETS) also identified that a new east/west roading link further south again was seen as advantageous. The Lincoln community originally identified that there should be a southern bypass of Lincoln to divert traffic (in particular heavy vehicles) from unnecessarily having to travel through the centre of Lincoln when travelling between State Highway 1 (Burnham) and 75 (Tai Tapu). However the substantial cost to construct 4km of new road is not justifiable on this basis alone. To make the justification of this road more acceptable its bypass function has been merged with a collector road function to cater for growth as it extends further south of Lincoln beyond the new sections of Southfield Drive.

The new road would connect from Ellesmere Junction Road west and south of the University to Ellesmere Road via Moirs Lane. Its intended position will cater for growth as it makes the transition from Stage 1 Dairy Block to the development of the Industrial Zone, Stage 2 areas and the wetland system. This could occur incrementally east or west to suit, originating from Springs Road. It is expected that between this new road, Southfield Drive and Gerald Street there will be good north/south connectivity of these roads together with walking and cycling facilities to provide a comprehensive local transportation network. This would also capitalise on connections to existing roads on the periphery of the existing township suited for this purpose such as West Belt, Douglas Street, and Hasendene Drive. It would be expected that Allendale Lane would be extended along the existing private ROW to serve the area south of Ryelands.

For the growth areas to the north east of Edward Street, Stage 1 above Edward Street provides for the start of Northfield Drive at the intersection of Edward Street and Southfield Drive. Growth can progressively proceed north into Stage 2 along with Northfield Drive which would eventually connect to Birchs Road. The combination of Stage 2 above Edward Street allows for this, together with the integration of walking and cycling facilities, such as the diversion of the Railtrail to a more direct route that bypasses the existing route on the more congested roads and streets towards the centre of Lincoln.

In this manner Northfield Drive and Southfield Drive would provide the primary collector route to serve Stages 1 and 2 between the north and south of Lincoln. This also has the advantage that this relatively large urban area can be efficiently served by public transport through the utilisation of this route. For Stage 3 zones more localised roads would extend in time from connections incorporated as part of Stages 1 and 2 to connect through to existing roads such as Birchs Road, Edward Street, Boundary Road and Ellesmere Road.

These smaller local roads are not seen as critical as to timing compared to the establishment of the primary collector road route, however they will enable the completion of a ring road system.

The staging of development promoted in the LSP is consistent with the objectives and general timing of works proposed by CRETS to provide a transport network to serve Lincoln and the other surrounding high growth areas of Prebbleton and Rolleston.

Strategic roading improvements for Lincoln, other than the proposed southern bypass/ collector road, include the widening of Ellesmere Rd to establish it as an arterial route with improved connects to Halswell, Wigram and Riccarton. Birchs Rd would be utilised for alternative modes of transport such as public transport and walking and cycling connecting to Prebbleton and beyond into Christchurch. A new main entry into the town centre via a connection from Boundary Road. A "Park n Ride" facility is also envisaged that utilises improved passenger transport services between Hornby and Halswell.

6.4.2 Water Supply

The staging pattern proposed in the Structure Plan, which sees development progressing outwards from the existing township boundaries, is suited to the logical expansion of the water supply network. The system consists of a series of wells, pumping untreated artesian water into an interconnected pipe reticulation system. While additional wells and pumps can be installed to service growth beyond the current capacity of the water supply system, there is an opportunity to optimise the level of investment in infrastructure while also taking account of future operating costs, in particular energy used for pumping, demand management and efficient use. As the township grows, the level of pipeline "interconnectedness" should also be increased, avoiding lengthy lines which are served from only one direction (eg "hanging" on dead-end lines).

In terms of the proposed staging pattern the Dairy Block, being a "single" development, can be planned for in a comprehensive manner, with multiple linkage points to existing infrastructure and the installation of new well(s). Stage 1 development to the east of the township can be serviced from the existing network, and if required an additional well can be installed in close proximity to existing wells. A single or multiple trunk mains can be planned for, to link through Stage 2 to the north and on to Birchs Road. Ideally, this should then be connected to existing mains reticulation on Birchs Road to provide connectivity, as well as enabling Stage 3 development to the west and east of Birchs Road to proceed.

Stage 3 development to the north and south of Edward St sensibly follows the Stage 2 extension of trunk mains along Edward St to the east. Again, additional well and pumping capacity is likely to be required, and this can be configured in general terms at an early stage. Connectivity should be planned for with Stage 2 development where there are roading connections.

In summary, the staging pattern is logical and efficient from a water supply perspective, with Stage 2 and Stage 3 being linked incrementally. The Council will however need to undertake network modelling and analysis of the proposed long term network in order to ensure that infrastructure provision and operational costs are optimised.

Where infrastructure needs to be provided outside, or in advance of, proposed development, Council will need to include such works in its capital programme and recover the growth related costs through development contributions. The modelling proposed above will provide this information.

6.4.3 Wastewater

Wastewater servicing for new development is based on a combination of gravity mains and new pumping stations, centralising the collection of wastewater at the existing wastewater treatment plant. Once the Eastern Selwyn Sewerage Scheme (ESSS) proposal for expansion of The Pines WWTP at Rolleston, together with reticulation, pumping and storage infrastructure in Lincoln has been completed, all of the Lincoln wastewater will be pumped directly to The Pines. From there, the provision of wastewater infrastructure to service all future development in Lincoln can proceed as planned. The key issue is obtaining a resource consent for an expanded The Pines treatment and disposal facility, and then completing the Lincoln to Rolleston connection.

The remaining primary physical constraint affecting future development is the ability to service lower lying areas to the south of the township, beyond existing zonings. This relates to the need for additional pumping effort to convey wastewater to the existing treatment plant site. Areas on the periphery of a notional "servicing limit" line could be serviced, but would be better suited to rural-residential land use to minimise pumping effort. Alternatively, selected lower lying areas could be filled to enable gravity drainage to a mains pumping station.

In terms of the proposed staging pattern, the Dairy Block can be serviced in a comprehensive manner, with wastewater being gravity drained to the existing wastewater treatment plant site for pumping to Rolleston. Detailed design will need to be undertaken to confirm the optimal configuration of mains size and whether booster pumping is needed. As with water supply, operational cost considerations should also be included.

Preliminary network planning for wastewater catchments north of Edward St shows that some development will be serviced from the existing Southfield Drive main, while eastward parts will largely be serviced from the new pumping station in the Stage 1 area to the south of Edward Street.

The Stage 1 development area north of Edward Street will be serviced from Southfield Drive. The route is initially along the proposed new Northfield Drive before turning west within Stage 1, and eventually connecting to Birchs Road, allowing parts of Stage 2 and then the Stage 3 development off Birchs Road to proceed incrementally.

One of the key components for providing a wastewater service further to the east is a new pumping station based near the headwaters of the L2 River. This will initially service Stage 1 development to the south of Edward St, as well as providing a stub connection to service the balance of Stage 2 and Stage 3 development on the north side of Edward Street. The reticulation configuration should tie into future roading patterns.

Thus, as with the water supply network, wastewater infrastructure will be installed progressively in a south to north direction from Edward St.

It is not possible to service further development on Birchs Road other than via this means. Recently completed developments are serviced by reticulation that crosses Birchs Road towards the east, a similar pattern to that proposed. Existing reticulation has no further capacity available to service future development on Birchs Road. Hence, the staging pattern is also logical and efficient for wastewater, with the northernmost land on Birchs Road being connected to the wastewater network as part of Stage 3.

In parallel with this, Stage 3 development can also proceed eastward to Ellesmere Road. On the north side of Edward Street, reticulation will connect via Edward Street and hence to the pumping station. On the south side reticulation within the development will be gravity directed to the pumping station. This will require a crossing of the upper L2 River headwaters and the creation of appropriate easements or corridors within both developments.

In summary, the staging pattern is logical and efficient from a wastewater servicing perspective with stages being serviced in an incremental manner. Because the reticulation is gravity driven, it must be initiated from planned existing connections (eg Southfield Drive) or new pumping stations which will be constructed at low points relative to development.

While Council has undertaken a wastewater catchment planning exercise, more work will be needed to finalise the layout of the trunk reticulation based on future roading layouts, development areas and zonings in order to configure reticulation and pumping capacity requirements. Pipe sizing through Stage 2 and Stage 3 developments in particular will need to be sized to accommodate all planned upstream growth. Council will need to fund some capital works, in particular pumping station(s). Development contributions will then be utilised to recover growth related costs.

6.4.4 Stormwater

The provision of stormwater drainage infrastructure is more fully described in the Integrated Stormwater Management Plan (ISMP) document. The concept supports the staged development proposal, with each wetland system serving different development areas, thus enabling construction of the wetlands to also be sequenced.

Development of the Dairy Block requires the construction of wetland areas 3a and 3b, both contained either within the block, land owned by Council, or land adjoining the wastewater treatment plant site that will need to be acquired. The smaller, western wetland 3a also services the proposed industrial zoning to the west of Springs Road, therefore the timing of the Stage 2 part of the Dairy Block and the industrial area need to be synchronised.

Stormwater runoff from Lincoln University will need to be managed within the site's own boundaries and an attenuated flow (that does not exceed the current peak discharge into the drainage network across Springs Road) continuing to be conveyed through the Dairy Block and into either of the wetland areas. This will require detailed design configuration at the development stage.

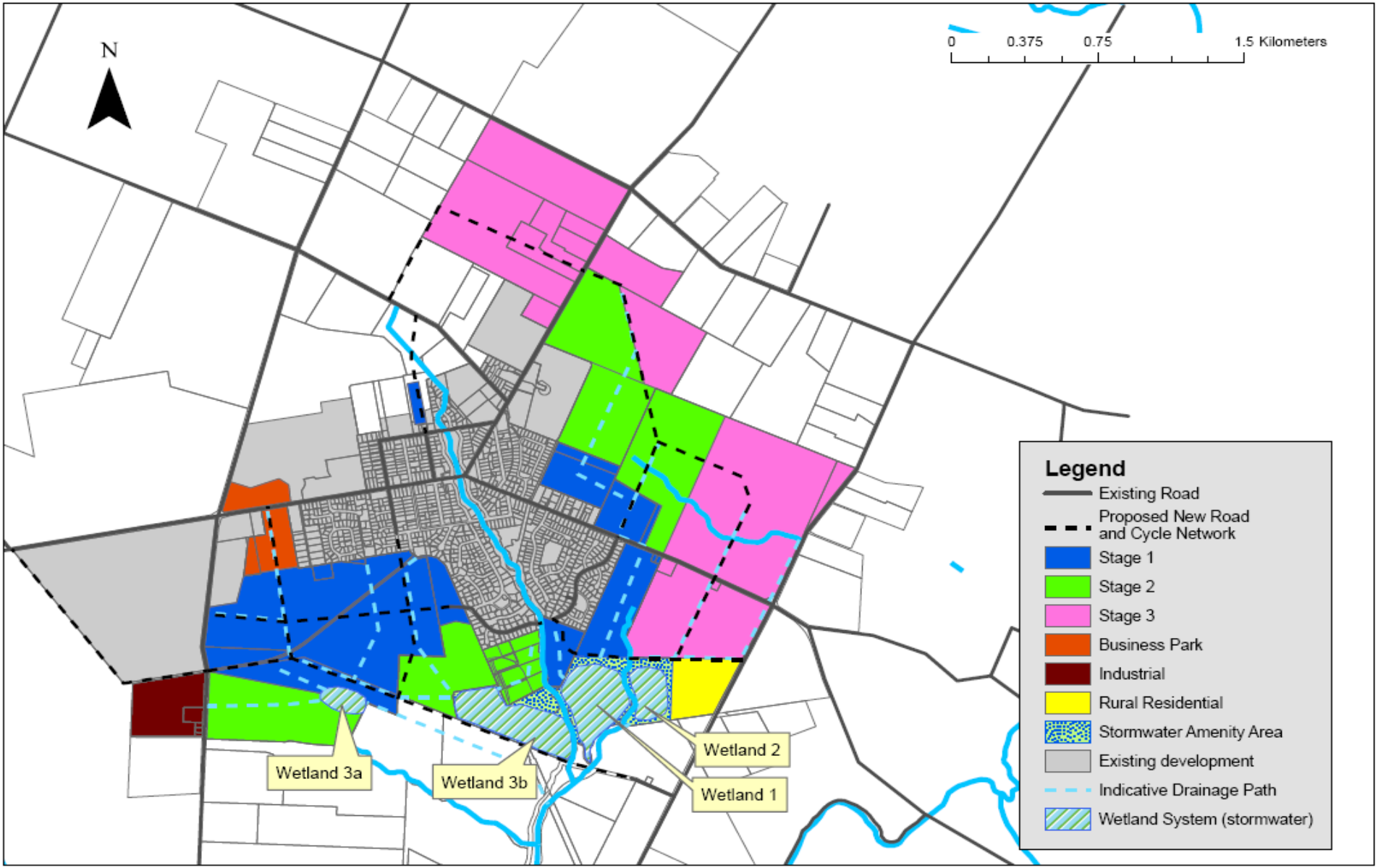
Remaining Stage 1 development, to the southeast and northeast of the existing township, will be accommodated in wetland 1, between the Upper L2 River and L1 Creek. In the medium term, it will also treat stormwater from all of Stage 2 north of Edward Street and Stage 3 (for areas where soakage is not a suitable means of treatment and disposal) in the vicinity of Birchs Road. Conveyance infrastructure will need to be progressively installed in a south to north direction.

The balance of Stage 3 development to the east will be connected to wetland 2, located on the eastern side of the Upper L2 River. Logically, development on the south side of Edward Street would proceed first, accompanied by the construction of the wetland and the conveyance system to Edward Street, into which Stage 3 development on the north side would be connected.

In the event that the sequencing of development does not match the provision of stormwater wetland pond areas, temporary storage and treatment areas would need to be provided by developers, of a matching performance to that expected of the wetlands system. These would then need to be decommissioned once the ultimate wetland system is provided.

Some capital investment by the Council will be required, which will be recovered through development contributions.

6.4 RESIDENTIAL STAGING PLAN



7.0 KEY NETWORK AND ACTIVITY AREAS

7.1 BLUE NETWORK

7.1.1 INTRODUCTION

The blue network relates to water management, and typically integrated stormwater, water supply, wastewater and the consideration of water quality and quantity issues.

A successful blue network provides visual amenity value in addition to ecological enhancement and provides security to buildings through reduced flood risk. It is also integrated into green (open space) networks and is a source of local identity and amenity.

7.1.2 BLUE NETWORK AIMS

The key aim of the blue network for Lincoln should be the protection of the streams and rivers systems and the natural aquifer and spring system. Maintaining and where possible enhancing the existing water quality of these features should be a priority whilst providing a high amenity interface between land uses and the L1 Creek and L2 River.

Key aims should include:

- → to manage the stormwater, water and wastewater systems (in particular stormwater) associated with development in a manner that respects the water quality and quantity of the receiving environment;
- → utilising best-practice techniques in design and management of stormwater;
- → Integration of green and movement networks into the blue network to maximise amenity and efficiency opportunities.

7.1.3 BLUE NETWORK PRINCIPLES

- → Providing for intensification and redevelopment while maintaining adequate stormwater quality/quantity and eliminating cross connection into wastewater services e.g. preserving capacity by encouraging development in preferred soakage areas with higher drainage capacity;
- → coherently incorporating the design of stormwater infrastructure into development (**1**) so that it reinforces, rather than detracts from amenity (**2**);
- → pursuing opportunities for low impact solutions to stormwater management including encouraging stormwater discharge to the ground, limiting the use of impermeable surfaces where applicable and centralised stormwater treatment and retention areas for multi-purpose use (retention, treatment, amenity, habitat, recreation)(**3**);
- → providing for ecological enhancement and restoration of natural waterways such as streams (L1 Creek and L2 River) and springs to allow 'natural' stormwater functioning in addition to improving amenity and accessibility (**4**).

7.1.4 ISSUES FOR LINCOLN

The following water issues need to be considered in the future development of Lincoln. Stormwater issues are addressed in the Lincoln Integrated Stormwater Management Plan (ISMP).

- → Water quantity;
- → Water quality/stream health;
- → Land drainage and discharge;
- → Water supply and capacity;
- → Wastewater.

7.1.5 BLUE NETWORK—STORMWATER MANAGEMENT APPROACH

Centralised stormwater treatment ponds and wetland system.
Stormwater will be captured and treated in a series of wetlands/pond systems at the lower end of existing drainage and waterway catchments. The Upper L2 River and L1 Creek (Liffey) form natural boundaries separating four principal wetland areas, one to the east of the Upper L2, the second above the confluence of the Upper L2 and L1 creek, and the third to the west of the L1 Creek and which also utilises land currently occupied by the wastewater storage pond (refer S 5.1.7). There is also provision for a 4th smaller wetland further to the west.

Stormwater runoff will be conveyed using a combination of piped reticulation and swales with subsoil drains, the latter providing a degree of pre-treatment. The majority of future residential and commercial developments will be incorporated into this system, along with some existing areas where the current stormwater discharge point can be readily connected.

Remaining existing developed areas, largely the more established residential and commercial areas with direct discharges into the L1 Creek, will in the meantime remain as they are. Over time, improvements can be made to individual discharge points to improve water quality, and also to manage the effects of stormwater entering the wastewater system and adversely affecting infiltration levels.

'Preferred Soakage Areas' with on site stormwater disposal to ground soakage.
Discharge directly to ground is able to occur in areas to the west of Birchs Road. This will result in:

- Discharge roof water directly to ground.
- Direct runoff from driveways and hard standing areas to rain gardens or swales for discharge to ground.
- Road runoff directed into rain gardens or swales for ground soakage

Lowland wetland systems
Lowland areas (Dairy Block, parts of the area between Birchs Road and Ellesmere Road and the block of land in the south western corner of Ellesmere Road and Edward Street). Discharge to wetland systems designed to treat, polish and attenuate the stormwater runoff.

Within this area, key secondary roads are proposed to include provision of swales with underdrains in the central median strip to provide for stormwater biofiltration, attenuation and conveyance to the wetland systems.

It is noted that much of this infrastructure will need to be installed generally in a northerly direction and funded by SDC in absence of development with development contributions or other mechanisms being used to recover appropriate costs from developers.

7.1.6 BLUE NETWORK—WATER SUPPLY

New water well(s)
Additional wells can be readily added to the existing system with locations being dependent on factors such as proximity to development, pipe network capacity, scale of development etc. Wells will typically be installed by Council with the capital costs being recovered through development contributions.

Pipe network capacity
As development occurs, pipelines servicing individual subdivision developments will be interconnected to provide a higher level of network redundancy. Some mains will require capacity upgrades in time and modelling will be undertaken to identify the scale and timing of this work so appropriate development contributions can be assessed.

7.1.7 BLUE NETWORK—WASTEWATER

Eastern Selwyn Sewerage Scheme (ESSS)
Two documents have recently been completed that determine the future provision of wastewater infrastructure:

- District Wastewater Strategy (Maunsell, April 2008)
- Eastern Selwyn Sewerage Options (MWH, October 2007)

Council has adopted land based treatment and disposal of sewerage effluent as its preferred policy, with a centralised facility now operating at The Pines (Rolleston). This will be expanded to cater for the growth anticipated in the Urban Development Strategy.

From Lincoln's perspective, it is extremely important that the infrastructure needed to convey wastewater to The Pines be progressed as the capacity limitations of the existing situation will constrain growth.

The MWH report states that the 2007 population of Lincoln was around 3400. Assessments of the Population Equivalent (PE) of other land uses (Lincoln University, Commercial areas, schools, research agencies etc) total around 2800 PE, bringing the total wastewater demand to 6200 PE. Given that the capacity of the pumps and pipeline to the CCC network is based on 6600 PE, there is only a small theoretical margin currently available for growth.

Wastewater Treatment Plant & Storage Pond
The adoption of The Pines as a centralised treatment facility for the ESSS townships of Rolleston, Lincoln, Springston and Prebbleton requires the decommissioning of this facility. This can only occur once reticulation to Rolleston, pumping and balanced storage infrastructure has been constructed. Once the pond has been decommissioned, the site will be redeveloped as an integral part of the centralised stormwater treatment ponds and wetlands system.

7.1.8 BLUE NETWORK—IMPLEMENTATION

- **Obtain necessary resource consents to implement the ISMP.**
- **Seek to obtain land for wetland systems through land acquisition.**
- **Implementation of the Eastern Selwyn Sewerage Scheme.**
- **Detail design of wastewater and stormwater reticulation system.**
- **Controls/limitations on impervious areas.**

7.2 GREEN NETWORK

7.2.1 INTRODUCTION

The green network refers to the system of parks, pedestrian walkways, recreational spaces, and facilities that interact with the movement network and land use mix. A key to a successful green network is in providing a range of experiences that correspond to logical movement patterns and provide choice and amenity to users.

7.2.2 GREEN NETWORK AIMS

Establishing a successful green network will require the prioritisation of space towards enhancing experiences and pedestrian choice. The following should be key aims of the green network:

- → an integrated series of green spaces providing a high degree of appeal, amenity, and usability;
- → identify and connect key features (in particular the Liffey Stream corridor) into a network of local and cultural significance, and include ecological enhancement where possible;
- → develop a network that provides the greatest possible range of experiences and sensations while integrating into land use activities across the Structure Plan Area;
- → Provision of playgrounds and sports fields to meet active recreational needs.

7.2.3 GREEN NETWORK PRINCIPLES

- → Protecting land of a high landscape and visual value;
- → coherently contributing to the wider green networks and linkages of the area by providing an integrated series of open spaces and connecting the existing park / reserve network throughout the area;
- → reinforce the interface of the land and stream edges through improving the quality and amenity of the reserve network and Liffey/L2 linkages;
- → the maintenance and where possible the enhancement of sensitive ecological values in the Structure Plan area;
- → using open spaces and the green network for the full range of active and passive recreational opportunities;
- → providing a range of 'urban' open spaces including both traditional 'green' or soft spaces, and harder, paved squares;
- → focus on route quality by the incorporation of landscaping, street tree planting in the town and neighbourhood centres along key movement corridors and when a street forms part of a green network, use prominent, heavy landscaping to emphasise this role.
- → provision of a series of high quality public neighbourhood parks of a useable shape, fronting a street and with good residential interface. Pedestrian connections between these maximised;
- → Providing a site with sufficient space to create a 'sports park hub' for playing fields.

7.2.4 ISSUES FOR LINCOLN

The following aspects need to be addressed if the green network is to successfully contribute to the future of Lincoln.

Rural character and views

- → Strong rural landscape character;
- → Preservation of important views (**1**).

Open space provision

- → The need for additional active sports fields in addition to the Lincoln Domain (**2**). This presents an opportunity for co-location/ use of sports grounds or facilities between educational providers such as schools and Lincoln University and the community (**3**);
- → Golf course limited to 9 holes (**4**);
- → Need for provision of smaller reserves (1000-5000m²) and pocket parks within a 10 minute walking distance for residents.

Green linkages

- → Need for a continuous walkway connection along the Liffey corridor.

7.2.5 GREEN NETWORK APPROACH

A green network based on maximising amenity and protecting open space and land with a high visual value emerges with the following elements:

Protection of rural edges

Provision of a green buffer surrounding the existing and future residential land by retaining an open rural edge on major entrance roads and avoiding development on, or reverse sensitivity issues associated with, the CRI land. Rural edges retained south of the new boundary road and Ellesmere Junction Road, west of Springs Road, east of Ellesmere Road, and Birchs Road near the intersection with Tancreds Road. Protect open farm land with high visual and landscape value, rural view corridors approaching Lincoln. Prevent future residential sprawl onto rural land and retain rural character of Lincoln.

Liffey Stream/L2 biodiversity corridor

Provision of a continuous green linkage along the Liffey Stream to protect natural drainage, biodiversity within and through the catchment and to provide a high amenity open space area for recreational uses. Involves connection and extension of existing and future esplanade reserves and strips, reserve and community based activities and Council owned properties.

Green corridors

Provision of landscaped linkages along waterways, stormwater management areas and walking/cycle networks, including between the town centre and University. These include: riparian margins and recreational open spaces along western and eastern wetland systems; and existing and proposed rail trail.

Network of neighbourhood parks

Provision of a series of local parks in the two neighbourhood centres for passive and active recreation. In locations with public road frontage and well integrated with the residential lot layouts so activities face the park thus maximising potential for views and windows of open space as well as safety from passive surveillance. Connected with pedestrian networks.

Landscaped street network

Upgraded landscaping along main street networks. Inclusion of street trees along Gerald Street to soften and break up the long vista of retail and commercial development.

Expansion of golf course

Potential to expand the existing 9 hole golf course to the south and west, providing a buffer between rural and urban development.

New major green space

Combining and developing existing Lincoln High School grounds, existing golf course and Vege block into a major green space for recreational and community uses (sports ground+ public amenities).

Green buffers and linkages

Provision of green buffers to allow a reasonable setback distance between potentially incompatible activities (reverse sensitivity). This includes a landscaped buffer between the northern residential development edge and the Halswell River drainage catchment; and a buffer between residential land uses and Crop and Food research land. Native planting around this facility creates an ecological island for birdlife.

Provision of local sportsfields

In addition to the sports reserves provided at Lincoln University, Lincoln High School and the Lincoln Domain, provide for additional space for reserves on either:

(1) the portion of Lincoln Golf Course to the west of the Cemetery subject to the golf course extension;

(2) land associated with the new Primary School(s) (for joint use e.g. public use after school hours and in weekend). Reserve to be serviced by roads and surrounding residential uses oriented toward reserve to provide passive surveillance;

(3) the block to the north and west of the existing Lincoln Domain owned by NZ Institute of Crop and Food Research;

(4) the recently purchased "Vege Block" that adjoins the eastern boundary of Lincoln Domain

Open space associated with stormwater management

Provision of a series of landscaped, open stormwater swales connecting to the wetland system. These can be formed as part of redevelopment, particularly in the north-eastern areas but may also be appropriate in the Dairy Block as a transition into wetland areas.

Village green/Town Centre Enhancement

Provision of a soft landscaped green in the heart of the town centre adjacent to community facilities and high pedestrian use areas.

Coordinated enhancement of the town centre through paving treatment, landscaping treatment, imaging and general infrastructure improvements

7.2.6 GREEN NETWORK—IMPLEMENTATION

- **Establish overall land requirement for future sporting and recreation needs. Identify locations for reserves.**
- **Ensure funding in LTCCP for future development of reserves.**
- **Investigate co-location opportunities with community facilities and schools.**
- **Develop and implement a 'Main Street' or Town Centre enhancement plan e.g. landscaping, paving, seating and imaging and including the provision of a 'green space' adjacent to community facilities or a pedestrian area.**
- **Enhance Gerald Street connection between the Town Centre and the University with the inclusion of street trees.**
- **Ensure that linkages are created between areas of activity.**
- **Ensure that a network of parks and reserves are created and that all residences are within 10 minutes walk of a reserve.**
- **Progress enhancement of Liffey Stream corridor.**
- **Progress discussions with Landcare and Crop and Food regarding the potential to expand the existing golf course to 18 holes and establishing new reserve areas. This should ensure a buffer is created between residential land use and the Crop and Food land.**

7.3 MOVEMENT NETWORK

7.3.1 INTRODUCTION

This refers to the system of roads, cycleways, pathways and linkages throughout a settlement. It has a relationship with green networks in respect of pedestrian and cycling linkages.

7.3.2 MOVEMENT NETWORK AIMS

The key to the successful and coherent growth in Lincoln will be the enhancement of existing and new 'through' route linkages and bypass routes, in particular to enable better pedestrian, cycling and vehicular accessibility throughout the settlement. In parallel to this will be the provision for public transport services over time.

In particular, the following aims should be targeted:

- → provision must be made for efficient and safe movement through and from the town. This is best achieved through a connected network, primarily of streets that combine all modes of movement;
- → to provide effective strategies to reduce motor vehicle traffic and encourage the use of buses, bicycles, together with walking through the town centre;
- → by providing a town centre layout that is complementary to necessary movement needs in that it reduces the need for multiple short vehicle trips and encourages walking and cycling.

7.3.3 MOVEMENT NETWORK PRINCIPLES

The primary principles for establishing a successful movement network include:

- → Safety— good traffic design should be applied to reduce traffic accidents;
- → Efficiency— the movement network should be connected to provide a choice of routes and reduced travel distances.
- → Walkability— urban blocks should be kept relatively small to facilitate and encourage walking;
- → Legibility— to ensure the layout is easily understood by users, routes should be relatively direct;
- → Choice— a range of interconnected networks should be provided;
- → Livable, active streets— attractive and pedestrian friendly;
- → Slower vehicle speeds;
- → On-street parking— should be provided where practical;
- → Less exclusivity— integrate different transport modes (e.g. vehicle, cycle, pedestrian) into one clear area of public 'street';
- → Off-street parking— mitigate visual impact of off-street parking;
- → Street character— high quality visual character desirable.

7.3.4 ISSUES FOR LINCOLN

The following traffic-related issues are considered to be those most crucial to the development of a successful and robust movement network in Lincoln:

- → Contributing to a wider regional connection between destinations and activity centres and understanding consequential traffic related impacts;
- → A coordinated approach to developing a more sustainable transport system;
- → Making provision for the predominantly seasonal and 8am-5pm nature of the settlement and the high non-local employment base;
- → Understanding the local points of congestion (**1**);
- → Connecting the rail trail;
- → Providing for additional east-west movement without compromising existing town centre traffic movements;
- → Coherently connecting arterial and collector roads (**2**);
- → Improving traffic circulation through the central Lincoln shopping area (**3**);
- → Identifying the different transport needs associated with different parties;
- → Encouraging short term visits in the town centre (**4**);
- → Making provision for a future public transport system into and around the main retailing core.
- → Providing for adequate bus and cycle lanes where necessary and practical;
- → Developing living streets and walkable communities.

7.3.5 MOVEMENT NETWORK—ROADING NETWORK APPROACH

Main road entry
Creation of a new main road entry to Lincoln from Shands Road onto Boundary Road into the town centre.

Boundary road
Provision of a 'boundary road' south of Lincoln bypassing the town centre, which links Ellesmere Road to Springs Road south of the University with connections into the Dairy Block. Majority funded by development.

Connected local street network
New collector streets to provide an efficient network which facilitates local movement and residential area linkages. These will generally be funded through development.

(1) **New 'Vege Block' road** extending through the 'Vege block' from Boundary Road to connect to William Street leading to heart of Lincoln town centre.

(2) **Dairy Block Road link** through Dairy Block connecting the new southern boundary road and Gerald Street

(3) **West belt extension** south to the boundary road.

(4) **Northern collector/loop road**
Extension off Boundary Road north between the CRI's land and current golf course to connect to Birchs Road and loop south to connect across Edward Street to Southfield Drive north. Creates a buffer to the rural edge and provides residential area linkages to the north as a collector/loop road.

(5) **Extension of Southfield Drive west** across the Dairy Block to connect to the South Drive in Lincoln University.

(6) **Extension of Hazendene Road**
Extension of Hazendene Road currently terminated at a local subdivision to connect to new east-west collector road going through the Dairy Block.

(7) **Extend North Belt west**
Potential to extend North Belt west onto CRI land.

New Bridge
New at grade bridge across the Liffey stream from Southfield Drive.

North and West Belt collector links strengthened in conjunction with new Vege Block road.

Rural road interface buffer
Tancreds and Ellesmere Roads are designed to act as a buffer between developed urban areas and rural land, preventing continuous outward growth of Lincoln township. This may be achieved through development setbacks, landscaping or limited access strips.

7.3.6 MOVEMENT NETWORK—WALKING AND CYCLE NETWORK APPROACH

A connected walking/cycling network is proposed for Lincoln as follows:

Pedestrian / cycle network

Use of key collector roads in addition to dedicated walking and cycling routes along recreational pathways.

Rail trail extension

Extension of the existing rail trail from Birchs Road to East Belt along Edward Street and south to the proposed boundary road.

Town Centre / University

Strengthen link between the town centre and the University.

7.3.7 MOVEMENT NETWORK—PUBLIC TRANSPORT NETWORK APPROACH

(1) Lincoln shuttle—use Birchs Road as main Lincoln servicing route circulating past existing schools, town centre to university.

(2) Internal Lincoln Shuttle outer collector loop—future shuttle loop using new outer collector roads.

(3) Lincoln to City via Halswell—provision of a direct bus link between Halswell and Lincoln via Ellesmere Road, Edward and Gerald Streets.

(4) Lincoln to City via Prebbleton—continuation of the current bus route with an increase in frequency to 15mins.

Park and Ride Facility

Park and ride facilities are public transport stations that allow commuters to leave their personal vehicles in a secure parking area and transfer to a bus system for the rest of their trip. The vehicle is stored in the lot during the day and retrieved when the commuter returns.

The preferred location for a park and ride facility is on Boundary Road given that it is in close proximity to the town centre and employment areas, schools and existing (and future) public transport services; and the rail trail. It has the potential to capture commuter catchments within Lincoln and at a sub-regional level. This location also has a high degree of visibility (community presence) from major streets and community facilities., and the ability to establish an independent presence.

7.3.8 MOVEMENT NETWORK—IMPLEMENTATION

- **Ensure connectivity of overall roading, pedestrian and cycle network through input into Outline Plan.**
- **Establish alignment for designating any required arterial roads (e.g. southern 'boundary road').**
- **Make provision for a new entrance into Lincoln from Shands Road via Boundary Road onto Williams Street.**
- **Define in the outline plan and facilitate ring road route.**
- **Provide for the following connections:**
  - **Gerald Street through the Dairy Block to the new boundary road.**
  - **Extension of West Belt south to new boundary road.**
  - **Extend Southfield Drive west to connect to South Drive (in Lincoln University).**
  - **Connect Hazendene Road to extended Southfield Drive.**
- **Provide funding for and establish bridge link across Liffey Stream from Southfield Drive.**
- **Investigate establishing a Park n Ride system based on Boundary Road site.**
- **Facilitate the continuation of the rail trail.**
- **Improve pedestrian / cycle link between Town Centre / University through dedicated space and continuous surface treatment.**
- **Promote new bus route via Halswell.**
- **Investigate option of developing a ring road shuttle bus.**
- **Provide for bus and cycle lanes within new and where possible existing roads.**
- **Make provision for bus shelters.**
- **Ensure adequate parking available within Town Centre.**
- **Limit access off Tancreds & Ellesmere Roads.**

7.4 SOCIAL NETWORK

7.4.1 INTRODUCTION

Social network refers to the provision of social infrastructure such as educational, healthcare and community facilities, and also the qualitative aspects of fostering a sense of place and identity.

7.4.2 SOCIAL NETWORKS AIMS

A successful social network provides residents with a sense of community, good accessibility to facilities and networks and the opportunity to participate in the community. This leads to improvements in the level of health and well being in addition to providing leisure and recreational opportunities. The following should be key aims of the social network:

- → reliable accessibility to the services they need to live, work, and play;
- → Lincoln maintains a strong sense of local identity, ownership and respect, participation, and pride (**1**);
- → Encouraging a physical and healthy lifestyle by maximising both passive and active recreational opportunities (**2**);
- → Designing a built environment which responds to the needs of an aging population ;
- → Use of Crime Prevention Through Environmental Design (CPTED) principles to ensure safe streets and spaces;
- → Logical, coherent and legible provision of social infrastructure (including community facilities) which are integrated and connected to business, retail, open space, residential, and other uses which maximise visibility and access;
- → An environment which fosters social capital and an active public life (**3**);
- → Facilitate place making through the provision of gathering spaces, an active and vibrant public realm and high amenity places for local enjoyment (**4**).

7.4.3 SOCIAL NETWORKS PRINCIPLES

- → Providing for community and other facilities as required to support the residential population;
- → Ensure older and marginalised groups (disabled and youth) are active members of the community;
- → Delivering affordable low cost and 'starter' housing for lower income earners, students and an aging population;
- → Delivering accessible housing which facilitates a flexible range of viable household types and living arrangements;
- → Future provision of primary schools which are locally accessible to new residential growth areas thereby creating walkable school catchments;
- → Stimulate social wellbeing through employment creation and accessibility to that employment.
- → Clustering of healthcare and social services to reduce the need for vehicle movements and to facilitate ease of access and anonymity.

7.4.4 ISSUES FOR LINCOLN

- → Lincoln's 'rural' or 'village' character and sense of identity very strong attractor to new and existing residents which should be retained in the face of population growth and intensification;
- → Need for a retirement village/rest home/accessible housing opportunities to enable Lincoln's elderly and aging population to age in places with good accessibility to PT, amenities and healthcare;
- → Lincoln despite being a smaller centre fulfils both local and higher order service needs. Effort needs to be directed into improving social integration between the University and township e.g. facility use, meetings and events etc.;
- → An aging stock of community facilities in need of upgrade or replacement such as a new library and community centre;
- → The location of any new library, service centre and community centre.
- → Population growth to support the provision of at least one additional Primary School in Lincoln in close proximity to residential population, amenities and services;
- → Relative lack of provision of places to meet (formal & informal) for all members of the community and recreation / social focal points for youth.

7.4.5 SOCIAL NETWORK APPROACH

New schools

New primary school(s) positioned to maximise access to new residential catchments with good access to main arterials. Provides open space amenity to surrounding residential areas and the potential for further land acquisition for sports reserves.

New community centre

The draft LSP considered a number of options for the location of a new community centre and associated sports facilities. Overall, the "Vege Block' is now considered to be the most suitable location for this activity for the following reasons:

- → Council owned land;
- → Located close to existing Lincoln High School and Primary School;
- → On a future PT network and adjacent to the preferred Park and Ride facility location;
- → Allows for the merging of reserve based and community based activities;
- → On future road linkage through Vege Block to connect town centre to Boundary Road;
- → Does not create a non-business related activity in the main pedestrian area of the town centre.

New library and Council Service Centre

Of primary importance to the effective and efficient functioning of a library and service centre is their location within the town centre and on the main thoroughfare.

To this extent, either the existing Gerald Street site or a new Gerald Street site on the southeastern corner of Gerald and Maurice Street are preferable. Both of these sites are located in the heart of the town centre with high visibility; have the ability to capture pedestrian movement to and from local shops; are serviced by PT routes along Gerald Street; and have the ability to provide ancillary community uses and provision of a mix of retail/commercial activities.

Country Club community precinct

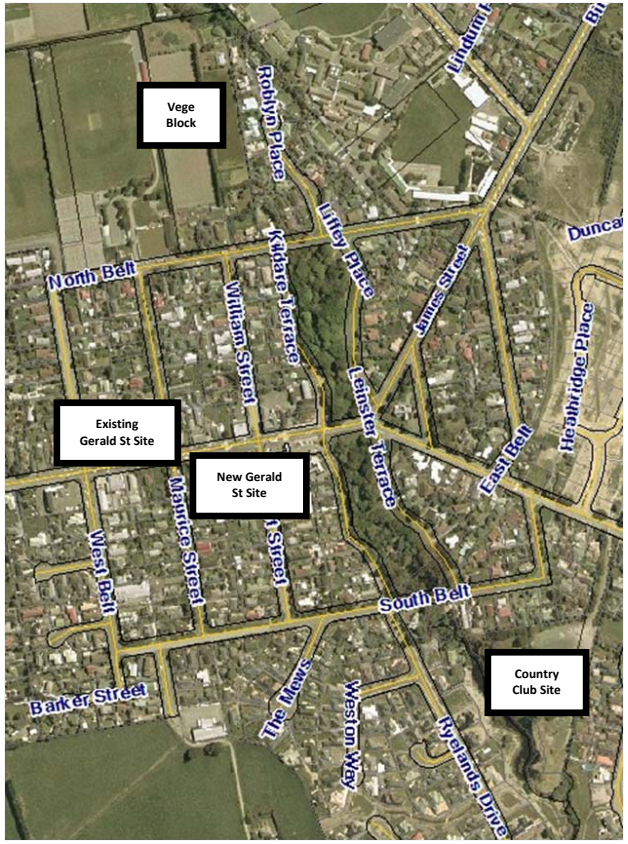
Location of a community arts centre, retirement village/resthome and a pre-school on the old Country Club site accessible from Edward Street. Location adjacent to stream and open space reserves maximises amenity and provides close connection to main transport routes including PT and walking and cycle networks along the Liffey stream corridor.

Affordable Housing

Affordable housing is a developing area with recently released Government policy, still to be confirmed. Nevertheless, it is likely that some form of legislation around this issue will be forthcoming and the Council will need to give consideration to this when it occurs.

Community Liaison

Continued community liaison over the implementation of the LSP will be important.



7.4.6 SOCIAL NETWORK— IMPLEMENTATION

- **Pursue development of a new Community Centre adjoining the Lincoln Domain.**
- **Develop a Council Service Centre and library within the Town Centre, ensuring integration with the town centre.**
- **Investigate potential options for affordable housing based on current Government policy.**
- **Pursue development options for Ellesmere Country Club site.**
- **Liaise with MoE regarding provision of new primary school(s).**
- **Consult with MoE regarding joint use and/or development of community facilities in association with new school(s).**
- **Establish ongoing liaison group within Lincoln.**

7.5 LAND USE

7.5.1 INTRODUCTION

The correct mixture of land uses is critical to a successful development. In addition to requiring a fundamental balance between commercial, employment, living and recreational opportunities, a bottom line of self -sufficiency must be provided to ensure long term prosperity.

7.5.2 LAND USE AIMS

The key land use aim for Lincoln should be to maximise choice and opportunity. Not only is this in respect of the range of land uses provided within the settlement, but also the internal diversity provided within each use.

In the context of housing, this would mean that in addition to providing a range of housing types e.g. (detached (**1**), semi detached (**2**), terraced (**3**), apartment (**4**) etc.) a range of options within each typology should also be provided (i.e. studio, one, two, three + bedrooms, walk up apartments (no elevator provided) and student accommodation).

In the context of business activities, this suggests that a range of employment opportunities should be provided across as many activity types as possible. The town centre currently has a retail bias and while this is likely to continue, provision for appropriate office and agricultural technology based employment should be made.

7.5.3 LOW IMPACT URBAN DESIGN

Low impact design is defined as a "design approach for site development that protects and incorporates natural site features into erosion and sediment control and stormwater management plans" ('Low Impact Design Manual for the Auckland Region', ARC Technical Publication No. 124). This approach has strong potential to improve urbanisation in terms of sustainability principles.

Typical features of low impact design are:

- Minimising earthworks and landform change;
- Maintain established treed areas;
- Minimise impervious surfaces such as by limiting road widths and use of pervious paving;
- Use of bio-filtration practices such as swales and buffer strips;
- Creating natural areas to manage stormwater quantity and quality, as well as adding amenity;
- Cluster development — higher density housing with more shared open space;
- Providing wildlife linkages;
- Maintaining natural hydrological conditions such as by maintaining wet areas and soakage areas;
- Avoiding soil compaction;
- Maximising solar energy;
- Reusing water.

The purpose is to minimise erosion, protect aquatic habitats, protect and enhance biodiversity and natural character of water bodies, protect significant indigenous habitats, flora and fauna, maintain wetland areas, protect public access to water bodies and so on.

7.5.4 RESIDENTIAL LAND USES ISSUES IN LINCOLN

The key residential land use issues for Lincoln are:

→ The widest possible range of densities, dwelling types, and living opportunities should be provided within the area;

→ Provide for higher residential densities without undermining the existing conventional nature of residential and aesthetic values as defined throughout the settlement nor detract from those areas of high visual and environmental quality sensitive to change, such as that inside the four belts;

→ Provision of higher density living typologies in order provide for a varied and rich residential environment that provides a variety of housing choice including affordable and accessible housing for lower income, student and aging population groups;

→ Dwellings designed to take advantage of the sun and elements to maximise energy self sufficiency and have good interface with the public realm;

→ The structure of land blocks needs to encourage and facilitate permeable pedestrian movement.

7.5.5 RESIDENTIAL APPROACH IN LINCOLN

Conventional residential

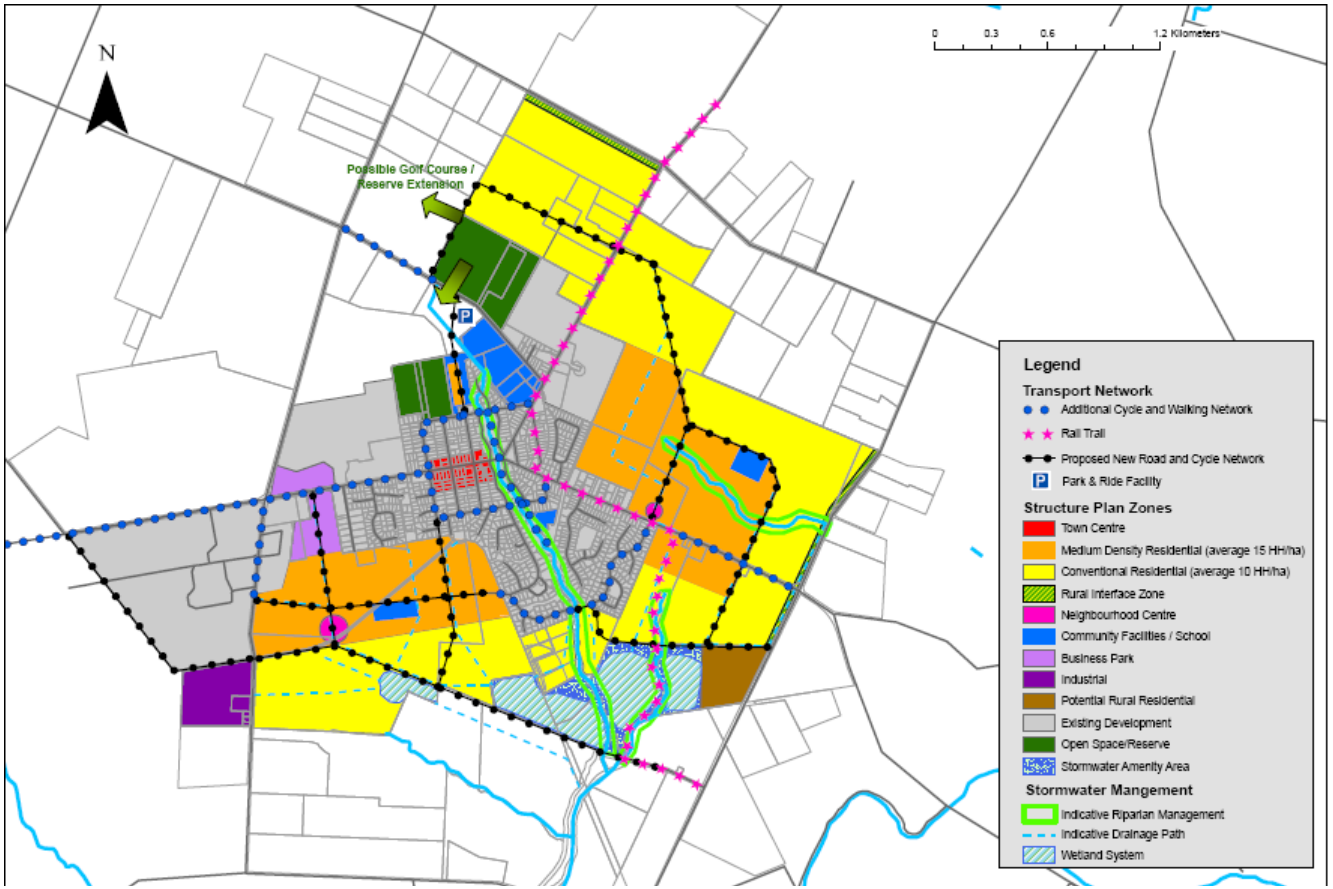
It is anticipated that conventional detached housing (10 households per hectare) will form a major component of residential living in Lincoln growth areas, primarily around the outer edge, so that the low density residential nature of the area is retained. Nevertheless, there is an opportunity to provide increased density levels to cater for a more diverse community in the future.

Medium density residential

This typology provides a more compact style of housing mostly comprising of semi-attached or attached units.

This type of housing is to be provided in areas which have good accessibility to open space networks and adjacent 'public' amenities such as parks, shops or areas of high open space amenity. Areas of medium density housing should be within the walkable catchment of an activity centre and serviced by public transport. All residential development should have coherent fronts and backs to avoid user conflicts.

This type of living can be developed on individual lots of between 250-400sq m or comprehensively on larger lots normally in the range of 1,500 sq m or larger. Comprehensive housing developments are when multiple residential units are designed and planned in an integrated manner where all required resource and subdivision consents are submitted together along with plans of the proposed development. Comprehensive housing developments permit more intensive housing if they are designed with features which enhance on-site amenity and quality.



The LSP identifies areas for medium density development around the edge of the existing urban area and in close proximity to existing and proposed services. An average density of 15 households per hectare is sought within these areas. This will enable a range of density levels to be considered.

Rural-residential

Apart from one small area, rural-residential development areas have not been included within the Structure Plan because of existing flooding, ground water and wastewater constraints, remote distances from existing services and the potential to constrain future growth. The one area identified will need to be fully serviced.

7.5.6 EMPLOYMENT / ACTIVITY CENTRES

Lincoln currently has a unique employment situation as a consequence of the proximity of large research and educational institutions of Lincoln University and Crown Research Institutes with large employee bases.

7.5.7 EMPLOYMENT / ACTIVITY CENTRE AIMS

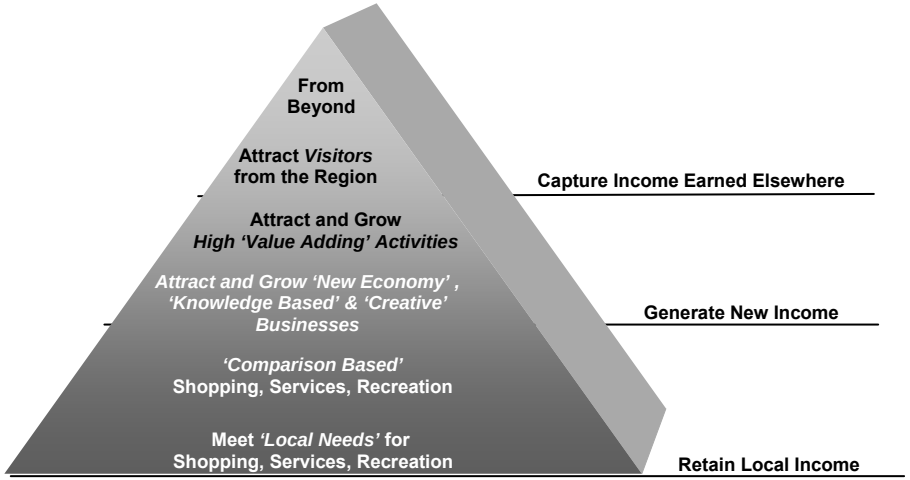
- → Stimulate employment creation through the provision of a wider range of employment opportunities than is currently available in order to meet the projected job demands from population driven growth;
- → Strengthen village character by retention of small scale local retailing in the town centre;
- → Enhanced town centre vibrancy through the provision of additional office space and supermarkets and smaller neighbourhood centres.

7.5.8 EMPLOYMENT ISSUES IN LINCOLN

- → Retaining existing wealth generated in Lincoln from the residents, student and working population while creating new wealth in the agricultural, research (Uni/CRI) and new economy (such as technology) employment sectors;
- → Capturing incomes and wealth by promoting employment self sufficiency to encourage people to become both residents and workers/students in Lincoln and additionally from tourists/visitors to the area;
- → Providing a broader range of local jobs including entry and low level employment;
- → Strengthen village character by consolidating small scale retail growth in the town centre and not allowing prime retail and main street expansion west along Gerald Street towards the University;
- → Consolidate the town centre along Gerald Street as a magnet for people and goods, harnessing the movement economy and creating a vibrant sense of 'place';
- → Providing for smaller neighbourhood centres to meet local retail needs;
- → Providing for industrial land uses comprising of less attractive activities (vehicle services, service trades, builders yards etc.) and clean production industries (technology based industries and food production) in a logical manner that takes into account factors of demand, buffering from potential adjacent residential land uses and activity compatibility.
- → Develop Lincoln as a place with quality places to meet, spend quality time and establish new businesses;
- → Create superior business settings to establish different clusters of economic activities at appropriate locations in Lincoln.

7.5.9 QUALITY OF PLACE, TIME AND MEETING PLACES

It is recognised that Lincoln is unable to compete on price, variety and range of retailing and services or by offering boutique/prestige products. Effort therefore needs to be made to promote it as an employment environment with quality places and meeting spaces that enable people to spend quality time with colleagues, family and friends.



This is essential to:

- → Improve the physical opportunities for innovation, networking and R&D especially given the research/ university economic base;
- → Local retailers and businesses to benefit from the town centre and new neighbourhood centres to benefit from attracting university and CRIs staff, the students and other workers;
- → Attract university and CRI staff and knowledge workers, post doctorates and those with scarce skills, and their families, as permanent residents;
- → Create the 'business case' for new small businesses to locate in the Lincoln town centre and new neighbourhood centres to attract day visitors and weekend visitors that support local business and weekend vitality.

To do this, Lincoln needs to provide exceptionally good 'magnet attractions' in the most appropriate locations (including youth, childcare, youth facilities, a garden centre, wetland and open space recreation areas etc). These 'magnets' will attract residents and visitors and need to be connected to each of the centres and current employment areas at Lincoln University and CRI's via a connected street network and walking/cycling routes.

7.5.10 EMPLOYMENT APPROACH IN LINCOLN

Flexible business and retail space is needed.

Retail space
In the order of 8,600sq m of additional retail space will be required by 2041 including the provision of two supermarkets (approximately 2500-4000sq m each) with one located in the town centre on the community centre site and one located in the neighbourhood centres situated on the Dairy Block.

Office space
- 8,600 sq m of office space by 2041:
- 6,600sq m good quality 'affordable'
- 1,900 sq m quality 'modest cost'
- 100 sq m top quality 'prestige'

Assumptions:
- 700 sq m will require retail frontage and the remainder can be located at suitable superior quality, affordable small office locations.
- At least 2,500sq m will come from scientific research sectors.

Town centre
- Retention of local and small scale retailing.
- Provision for office space with retail frontage.
- 2,500sq m supermarket located on community centre site.

Neighbourhood centres
Two neighbourhood centres (east and south-west of the existing town centre) for convenience retailing with one centre (on the Dairy Block) also having a 3000-4000sq m supermarket anchor.

Business park
Approximately 4.6ha located on the north eastern corner of Springs Road and Gerald Street for potentially 4,500sq m of office space and other compatible clean production industries.

Types of uses that would be appropriate include opportunities for business services, office services, showrooms and studios, affordable research and development spaces and affordable + flexible studio space e.g. for design professions.

Other uses in the business park could include 6ha dedicated to clean production industries such as technology based industries/storage or food production/small scale manufacturing (5ha).

Industrial activities
Also located in the south western corner of the intersection of Springs Road and the southern boundary road a mixture of 'less attractive' industrial activities and a specific range of non-retail uses on business land that are functionally compatible including:

- Vehicle servicing premises
- Agricultural related businesses and services
- Service trade premises
- Small scale industries
- General industries
- Utility and builders yards

7.5.11 COMMERCIAL CENTRE STRATEGY

The Structure Plan provides for reinforcement of the Lincoln town centre along the Gerald Street axis as the primary commercial centre". Providing a single node town centre based on the existing centre is seen as imperative for the future growth of Lincoln so that the retail and social energy can be concentrated and to enable a high degree of land use diversity within a focussed walkable area.

In addition the Plan provides for two secondary commercial centres to meet local daily retail needs for residents in the new development areas. One centre is located south of Gerald Street along the proposed Dairy Block road and the other east of the town centre along Edward Street.

These commercial centres have an important relationship with the movement networks, residential catchments, business areas and the future incremental growth of the settlement over time.

7.5.12 LINCOLN TOWN CENTRE

The Lincoln town centre along Gerald Street is on existing business zoned land and will function as the major commercial centre for the settlement. A significant proportion of zoned land in the centre is undeveloped for business purposes enabling substantial opportunities for growth of commercial activities within the centre. The main street is proposed to have a strengthened community centre function in addition to providing for more commercial jobs. The town centre will continue to be the area which provides the highest concentration of retail and office jobs.

Key facilities required within the Gerald Street town centre will be:

- → A supermarket of 2000-4000 sq m and associated specialty retailing on the preferred location of the community centre site;
- → Mixed use developments, with commercial activities only at ground floor;
- → Office space with retail frontage of up to 700 sqm;
- → Office space of up to 1500 sq m;
- → A library/service centre;
- → 1 small town square;
- → Enhanced streetscape and amenity provision.

The existing zoned Business 1 area, with its depth on the south side of Gerald Street, may need to be supplemented with increased depth on the northern side around the proposed supermarket site.

7.5.13 NEIGHBOURHOOD CENTRES

In addition to growth in the town centre along the main street, the Structure Plan has incorporated two new neighbourhood centres for future small scale retail development.

These local centres will need to be appropriately located to serve new residential catchments and be serviced by movement networks.

A neighbourhood centre located to the south -west is designed to maximise traffic generated along the proposed boundary road and traffic to Lincoln University as well as capturing the movement economy of the new residential area to the south of Gerald Street through the Dairy Block. A neighbourhood centre located to the east of the town centre is designed to capture the movement economy of the new residential area in the north as well as being supported by the main road traffic along Edward Street.

These centres will provide for local convenience retailing to meet the daily needs of their surrounding new residential catchments (e.g. bakeries, takeaway bars, florists, hairdressers etc.). The status of the neighbourhood centres however should only be realised when their primary residential catchment has been largely developed.

Neighbourhood centre south-west

Located along the new Dairy Block road intersecting at both the western extension of Southfield Drive and the southern boundary road, this centre serves the new residential catchment to the south of Gerald Street. It is likely that this centre would take on a broader range of services over time due to its proximity to the proposed southern boundary road with heavy vehicle traffic, Lincoln University and industrial development. This centre has the potential to be a University village precinct.

Key facilities required will be:

- → Provision of a supermarket of 3000-4000 sq m.
- → Local convenience retailing and office space of up to 1000 sq m.
- → A small amount of office space.

Neighbourhood centre east

Located along Edward Street at the intersection with the proposed Northfield Drive, this centre will serve the new residential catchment to the north of Edward Street. Key facilities required will be:

- → Local convenience retailing and office space of approximately 1000 sq m.

7.5.14 PROVISION OF FUTURE SUPERMARKETS

Supermarkets are designed to serve residential catchments of around 8000 persons. As such, long term planning horizons dictate two full service supermarkets will eventually be required to service the projected population of Lincoln. A number of potential locations were identified and as a result of further investigations, refinement and consultation two preferred sites have been identified:

(1) Community Centre site

- → On the periphery but located within 200m of core town centre area bounded by West Belt, Gerald and Lyttelton Streets; highly walkable and accessible;
- → Will reinforce the town centre as the primary commercial area.
- → Council owned land.

(2) South-western neighbourhood centre

- → Located on proposed Dairy Block road in proximity to new medium density residential catchment south of the town, approximately 1000m south west of the core town area.
- → Close proximity to the University.
- → Close to the new 'boundary road'.

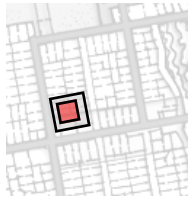
Location rationale

Preference is to locate the first supermarket in the town centre on the community centre site and in the long term, a second supermarket within the southeastern neighbourhood centre.

The LSP seeks to firstly consolidate the town centre as the main area for retail activity in Lincoln thereby reducing potential conflicts and distributional effects between centres and strengthen its position. A supermarket in this location becomes a core retail anchor for the main street which has direct connections to the areas of highest pedestrian and vehicular activity. The supermarket will draw movement past and through the town centre and main street and is a key to strengthening the viability of the core retail area and main street function. The community centre site allows for the desired outcome of finer grain continuous retail frontage to be established. Potential layouts are shown on the following page.

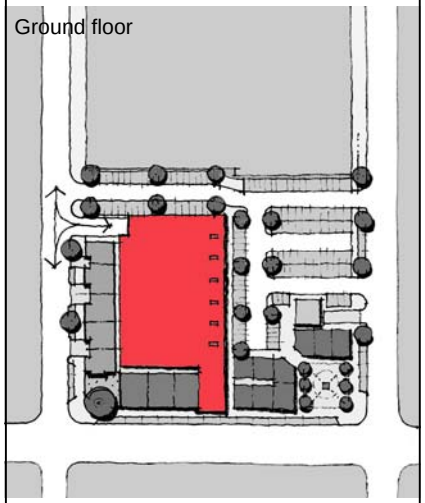
The second supermarket constructed during the second development stage post 2017 in the southwestern neighbourhood centre has the ability to integrate and capture the movement economy associated with future residential areas and custom associated with the University and university accommodation. Its location will have good accessibility, visual exposure to through local and sub-regional traffic.

POSSIBLE DESIGN OF SUPERMARKET ON COMMUNITY CENTRE SITE



OPTION A1

Ground floor

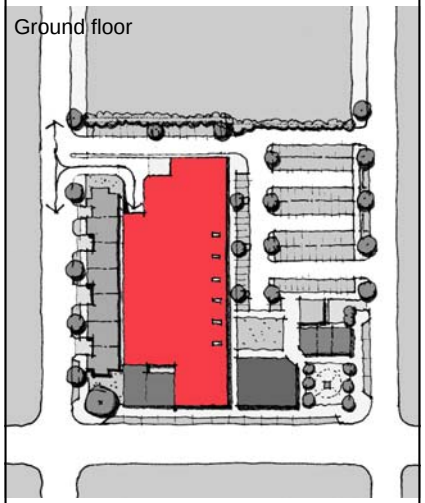


SUPERMARKET A1

Approximately 2,000 sq m
130 car parks
Does not require the purchase of additional lots to the north

OPTION A2

Ground floor

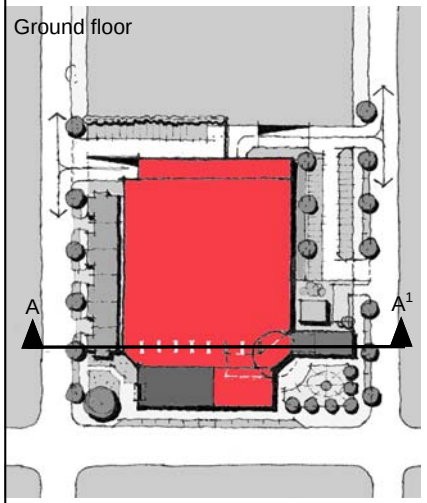


SUPERMARKET A2

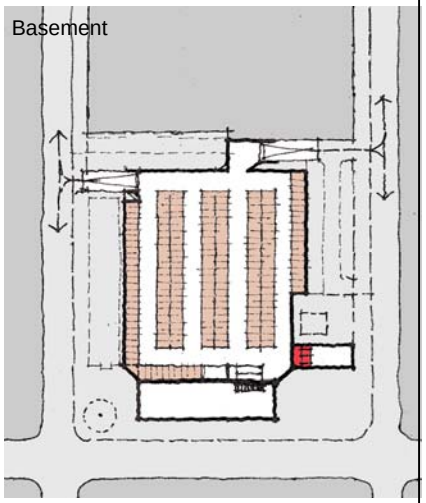
Approximately 2,500 sq m
145 car parks
Requires the purchase of additional lots x 2 to the north

OPTION A3

Ground floor



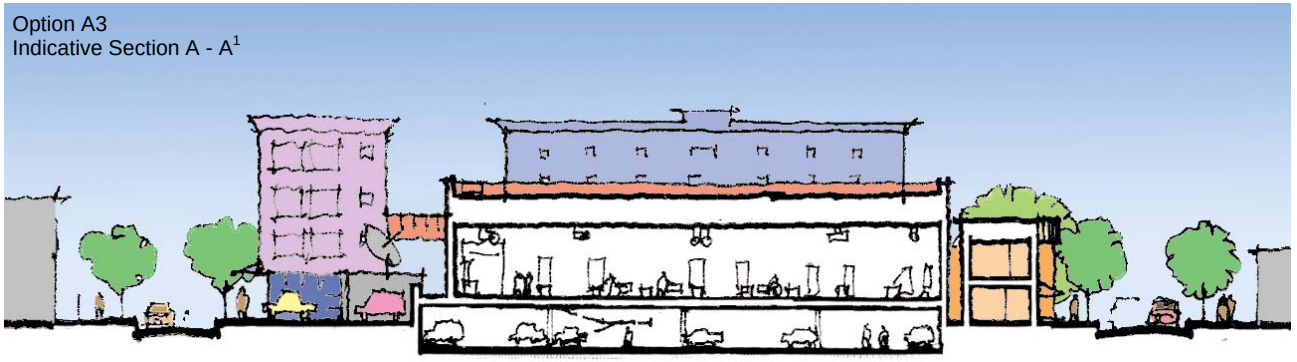
Basement



SUPERMARKET A3

Approximately 4,000 sq m
50 car parks ground floor
195 car parks in basement = total of 245 car parks
Requires the purchase of additional lots x 2 to the north

Option A3
Indicative Section A - A^1



7.5.15 LAND USE—IMPLEMENTATION

- **Review and revise the present objective and policy framework in the Growth of Townships section of the District Plan both generically and specifically relating to Lincoln by:**
  - **Reviewing objective 1 and policy 1 which encourage spaciousness and the domination of large section sizes.**
  - **Introducing strong specific policies for Lincoln around the staging of development over the three stages, which include the need to ensure a compact, well connected and appropriately serviced township; and promoting commercial development within the Town Centre in the first stage prior to further commercial land being released in new 'neighbourhood centres' in stage 2.**
- **Develop new Living zones and associated new minimum lot size standards based around medium and low density thresholds. This could either be a two tiered approach (e.g. with 400m^2 and 600m^2 minimums) or a three tiered density threshold (e.g. a plot ratio for medium density, followed by 400m^2 and 600m^2 thresholds). This review should include consideration of enabling the provisions of alternative forms of housing for the elderly and students.**
- **Develop rules around the new zones. These should include a complete review of existing rules and adoption of those appropriate ones and the consideration and where appropriate development of new rules, particularly where they support good urban design principles.**
- **Investigate and develop a Recreation or Open Space zone, with rules associated with recreation activities.**
- **Prepare an Outline Plan for the expansion of urban area based on the Structure Plan.**
- **Rezone land in stage 1 (to 2017). This will included the new residential zones, and deferred B1 zones (the two neighbourhood centres).**
- **Defer land within stage 2 and 3 for urban purposes.**
- **Enable the development of a supermarket on the Community centre site by rezoning residential land to the north B1.**
- **Zone the industrial area B2 prior to 2017.**
- **Develop a new Technology Business Park zone and associated rules prior to 2017. New zone should contain a limit on retailing and amenity standards higher than the B2 zone.**
- **Investigate low impact urban design solutions, which may be able to be incorporated into the District Plan.**

APPENDIX 1

Lincoln Structure Plan Process

The Structure Plan process is initiated by gathering information on the project area, consultation with key stakeholders and the general public, and completing place based constraint and opportunity mapping. This has been heavily informed by the Selwyn Proposed District Plan, Greater Christchurch Urban Development Strategy (UDS), Plan Change 1 to the Regional Policy Statement and the Integrated Stormwater Management Plan (the latter has been formulated concurrently with the Structure Plan).

An ideal structure for each of the networks has been prepared following rigorous preliminary option testing of solutions at Inquiry-By-Design workshops held with Selwyn District Council and Environment Canterbury officers and a multidisciplinary consultant team. A draft Issues and Options Report was produced and reviewed and used to inform the development of a preferred Structure Plan for Lincoln.

The Structure Plan identifies the location, type, form and timing of growth up to 2041 in addition to physical and social infrastructure provision, open spaces, key employment areas and land uses. This projected horizon is in accordance with the UDS.