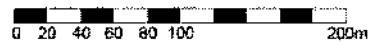


Appendix XXX Urban Plan Study Area



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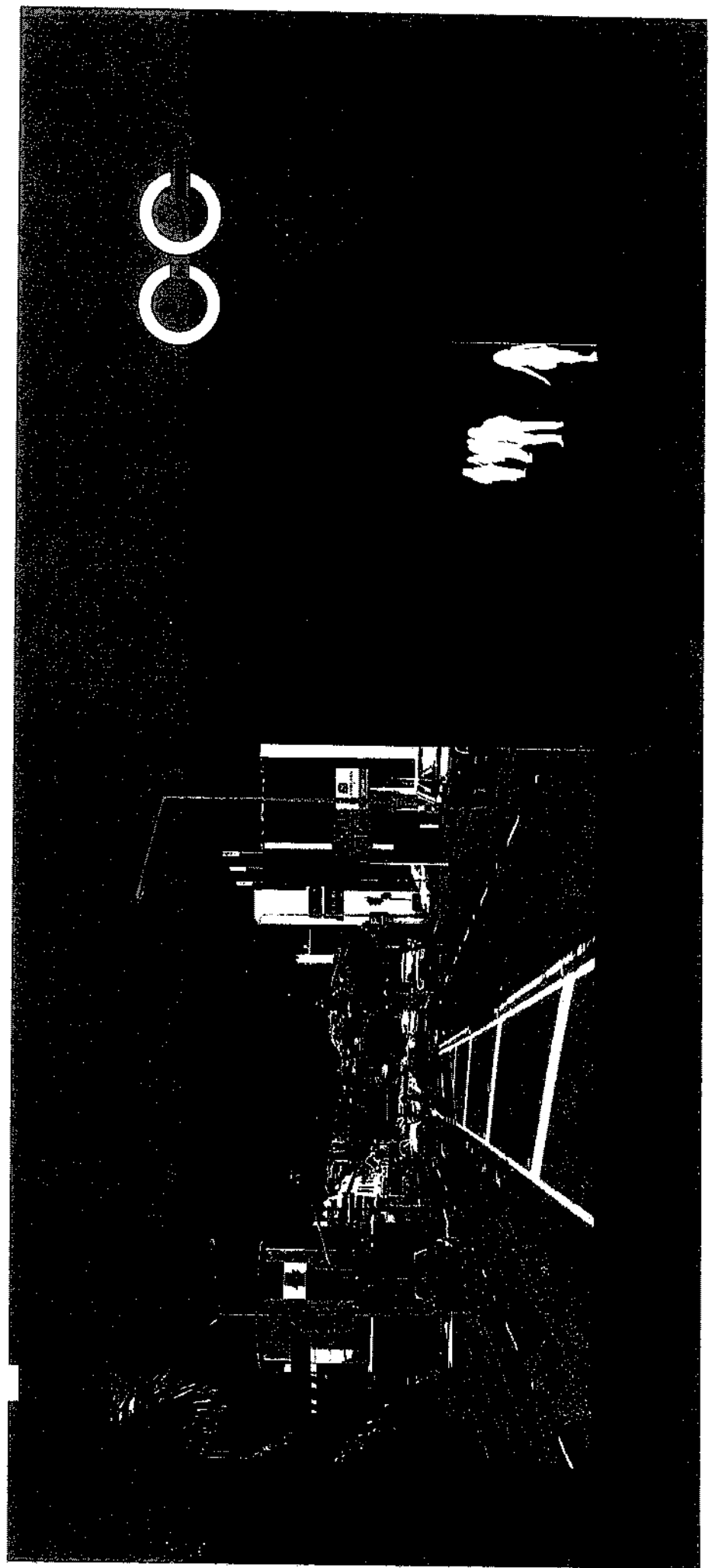
JUNE 2009
DATE

WALSHAM, CITY COUNCIL
CLIENT

NEW LYNN YIELD MODEL
JOB

NEW LYNN YIELD MODEL 08

TRACT REPORT



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DATE

THIS REPORT: Final Draft (Version 2) June 2009

REPLACES: Draft (Version 1) - September 2008

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CONTENTS

A4

INTRODUCTION & BACKGROUND

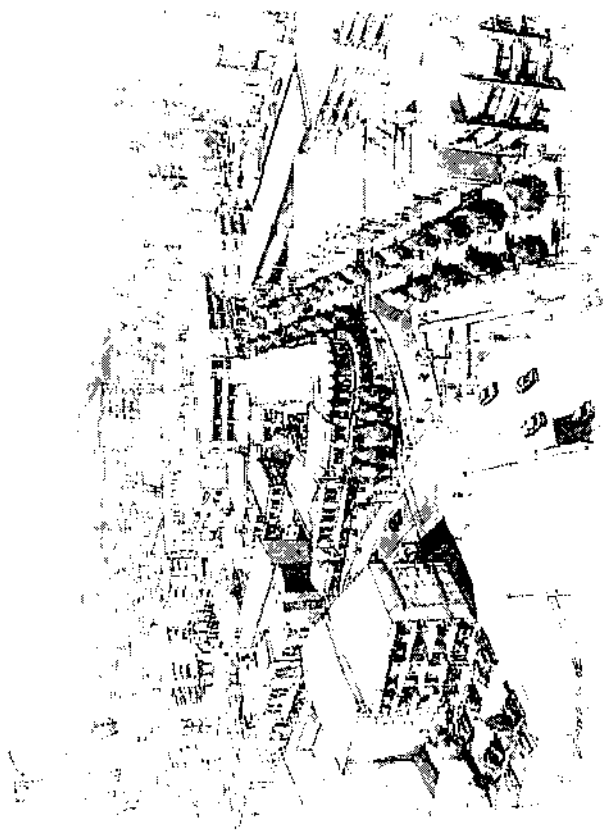
INTRODUCTION	1
TRANSIT ORIENTATED DEVELOPMENT (TOD)	2
SEVEN STRATEGIC AREAS OF CHANGE	4
MODELLING METHODOLOGY	6

SCENARIOS

SCENARIO 1 - FRAMEWORK MODEL	9
Explanation	10
Outcomes	11
Key Interventions	12
Implications	13
SCENARIO 2 - BOLSTERED MODEL	15
Explanation	16
Outcomes	17
Key Interventions	18
Implications	19
ADEQUACY OF ZONING	20
SUMMARY	21

SUMMARY

APPENDICES	23
Background	25
WCC Growth Strategy	27
Zoning Summary	29
Typology Sheets	31
Typologies Analysis	34
Framework Yield Spreadsheet	35
Bolstered Yield Spreadsheet	39

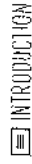


Aerial impressions found in the framework document.



Aerial impressions found in the framework document.

INTRODUCTION



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CG STUDIO WAS ENGAGED BY WAITAKERE CITY COUNCIL IN JULY 2008 TO VERIFY THE OUTCOMES OF THE RECENT FRAMEWORK DOCUMENT PLANNING PHASE. THE QUESTIONS THAT HAD BEEN RAISED IN THIS PROCESS WERE:

- How many households did the concept plans illustrate?
- Was this adequate for the Transit Oriented Design objectives?
- If not, what would such a TOD look like and how could this be achieved?
- What impact would this have on employment and job opportunities?

CG Studio, in conjunction with the WCC project team have taken a pragmatic approach of identifying an urban form outcome that was appropriate to the location and achieved the requirement to perform as a sub-regional centre.

It is an important process to help determine a future for New Lynn, one that could take a number of forms. As a result of these questions this current piece of work has been initiated to model more accurately the results of the earlier phases of work.

The team first identified building typologies that reflected good urban design and planning -- building blocks that would be adaptable and robust over time. Then using these building blocks, CG Studio identified preferred street block patterns required to support a TOD.

TRANSIT ORIENTATED DEVELOPMENT AND NEW LYNN

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REQUIREMENTS OF A TRANSIT ORIENTATED DESIGN (TOD)

The Framework Document outlined three important requirements of a TOD. These are:

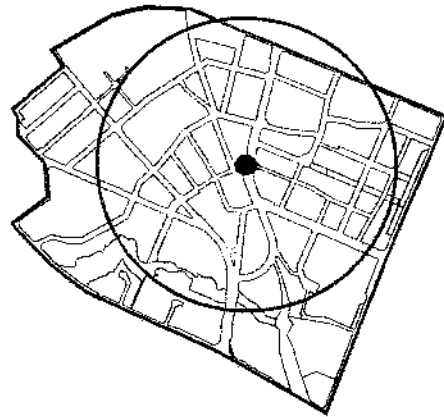
- 1) High density mixed use Urban Development within 10 minutes walk to the TOD
- 2) A systematic approach to managing: Private car use, Public transport use, Provision of public parking, Pedestrian/Cycle activity and Quality of public realm
- 3) Fit with city and Regional transit policy systems

Of these three elements the first is most relevant for the yield analysis being undertaken. The other two will be achieved through an integrated response to growth as a whole but it is important to ensure that the base level of development to support a TOD is delivered.

Studies have shown that transit users are willing to walk, ideally, a maximum of 10 minutes or approximately 600-800m to a transit node. Accordingly, residential development needs to be clustered within a walkable distance of transit stations, at a higher density than that which is existing in the surrounding area. As outlined in Appendix H to Proposed Change 6 to the Auckland Regional Policy Statement (ARPS) a minimum gross density required to support a sub-regional TOD like New Lynn is 60 household units per gross hectare and employment densities of 300 FTEs per gross hectare. Both residential and employment growth are essential in promoting high quality town centre outcomes and supporting the sustainability of a TOD and the wider City.

In New Lynn's case this translates into accommodating over 4,700 households and over 23,000 jobs, within an area represented by a 500m radius (approximately 78.5 hectares). In increasing residential densities there needs to be care in ensuring that New Lynn's role as an employment hub for Waitakere City is also strengthened.

A 500m radius as used in the Framework Document for New Lynn equates to approximately 78.5 ha (see diagram above right). The study area extends beyond this and it is this wider area that has been used as a logical area to evaluate what would serve as the core of development within a TOD (see diagram below right). Within the study area there is approximately 117.5 ha of land, which includes open space and roads.



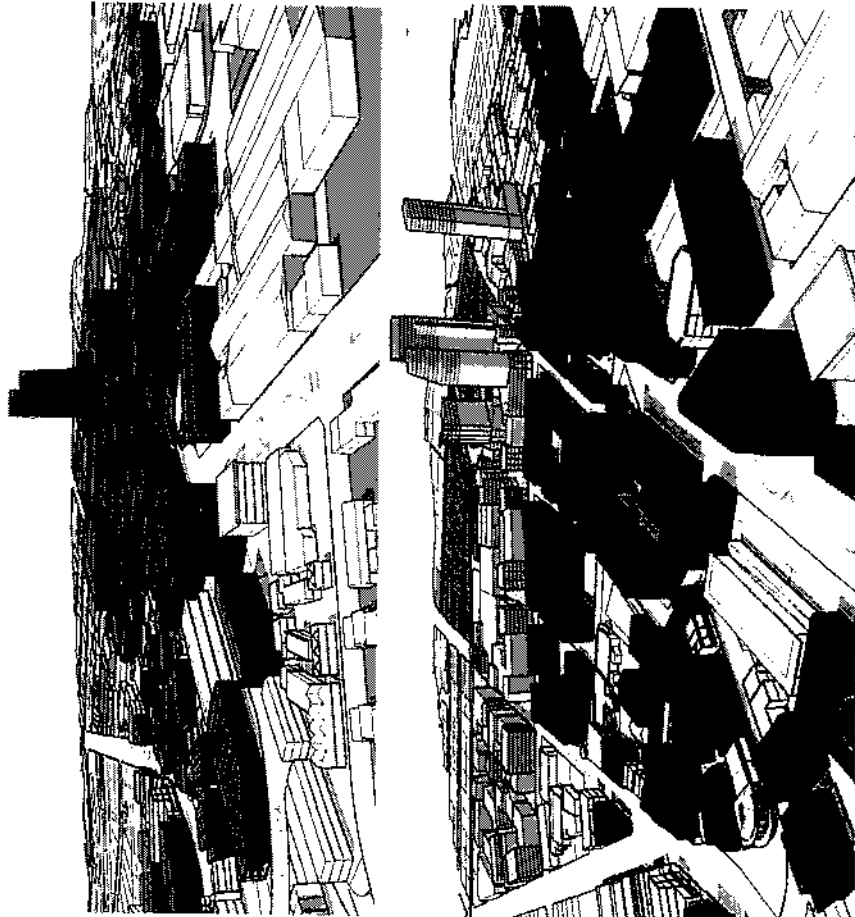
TWO SCENARIOS

The process of evaluation was undertaken in an iterative manner in two stages. Firstly the 2D Plan from the New Lynn Framework Document was evaluated to reveal the likely outputs with regard to residential, commercial, employment, and open space. This took the existing scenario as outlined in the document and where this did not deal in detail with an area included in the study area this was added. The typologies applied were drawn from those applied in the 3D Sketchup model generated at the time of developing the Framework.

Various building typologies were created and applied to estimate the yield of a development scenario similar to that outlined in the Framework Document. This revealed early on that the targets aimed for in a TOD for New Lynn may not be met as it reflected a fairly conservative approach taken in the Framework 2D and 3D models, that was more representative of a short-medium term outcome eg. to 2021.

In order to understand what would be required to provide the sorts of figures required by a TOD a second model was developed. This scenario was intended to look at the ultimate build out for New Lynn looking at a much longer time frame eg. 2057. A series of changes were made to the original model to reflect this longer time frame and greater development opportunities. The outputs for these various models were then compared and evaluated for insight into changes needed in the planning and policy frameworks related to New Lynn.

The results from these two models are the central focus of this report and have been outlined in brief at right.



A TOD covering a strict 500m radius would require at estimates of 60 HHU/ha and 300 FTEs/ha gross

Households	4,710
Population (0.29p/HHU)	13,659
Total Employment	21,550

A TOD covering the study area would require at estimates of 60 HHU/ha gross and 300 FTEs/ha.

Households	7,054
Population (0.29p/HHU)	20,456
Total Employment	35,270

Outcomes of Framework Model (Scenario 1)

Net Development Area (m ²)	Yield - Residential Household Units (HHUs)	Average Net Residential Density (HHUs/ha)	Estimated Population (people / HHU)	Yield - Commercial (m ²)	Estimated Employees (FTEs)	Theoretical Public Open Space (m ²)	Average Open Space per person (m ²)
845,654	2,315	19.7	6,714	376,106	7,409	224,356	33

Outcomes of Bolstered Model (Scenario 2)

Net Development Area (m ²)	Yield - Residential Household Units (HHUs)	Average Net Residential Density (HHUs/ha)	Estimated Population (people / HHU)	Yield - Commercial (m ²)	Estimated Employees (FTEs)	Theoretical Public Open Space (m ²)	Average Open Space per person (m ²)
833,876	7,581	64.5	18,953	600,626	11,850	237,881	13

From the Scenario 1 figures outlined it is apparent that Scenario 1 does not meet the TOD residential and employment targets for the study area or for the stricter area of 500m radius.

Scenario 1 provides a population of approximately 6,714, which represents a population shortfall of 13,286 to the target of 20,000. In order to narrow this gap there will need to be significant interventions made and increases in development potential to be modelled. Scenario 2 has been developed with this in mind to provide an option that illustrates what would be required to reach the figure of approximately 20,000 residents.

SEVEN STRATEGIC AREAS OF CHANGE

□ THE FRAMEWORK DOCUMENT IDENTIFIED SEVEN CORE STRATEGIC AREAS FOR PRELIMINARY RESPONSES THAT REQUIRED FURTHER RESPONSES AND ARTICULATION



PROJECT AREAS PLAN

Scale 1:6,000 @A4

■ Merchants' Quarter

■ The Island Cluster

■ The Main Street Quarter

■ The Arts Retail Quarter

■ Crown Lynn Residential Quarter

■ Portage Business Quarter

■ Remuera Residential Area

SEVEN STRATEGIC AREAS OF CHANGE

THE FRAMEWORK DOCUMENT IDENTIFIED SEVEN CORE CHARACTER AREAS (OR PRECINCTS) THAT REQUIRED DIFFERENT RESPONSES AND ARTICULATION.

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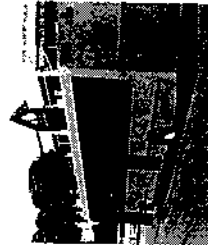
1 Merchants' Quarter

This character area within New Lynn's town centre should be redeveloped to reflect its history as a trade and retail area. This will comprise of a network of pedestrian-priority lanes and courtyards supporting a mix in uses and activities within the community



2 The Transit Center

The investment of undergrounding the rail line provides a unique opportunity to integrate the rail and bus services into a safe and efficient transit centre, overlooked by a constant activity of pedestrians and surrounding living environment developments.



3 The Axis Retail Quarter

The privately owned Lynn Mall site has the potential to be transformed over time into an efficiently-designed and appropriately-scaled retail development comprising a mix in retail, residential, commercial parking and public open space land uses



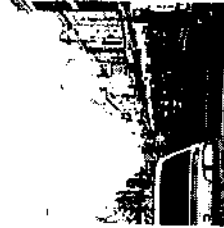
5 Crown Lynn Residential Quarter

The Living & saw provides the opportunity to create a sustainable residential neighbourhood within walking distance to a new transit centre and mixed use town centre. This area requires significant density intensification in order to support the TOD.



4 Main Street Quarter

Great North Road and Clark Street are characterised as Main Streets and form the central axis through a mixed use retail, business and residential town centre core that supports the transit centre



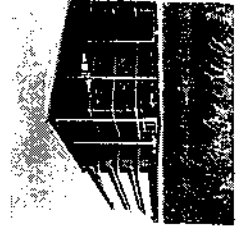
6 RewaRewa Residential Area

This currently suburban neighbourhood is identified in the District Plan for future residential growth in low-rise apartments

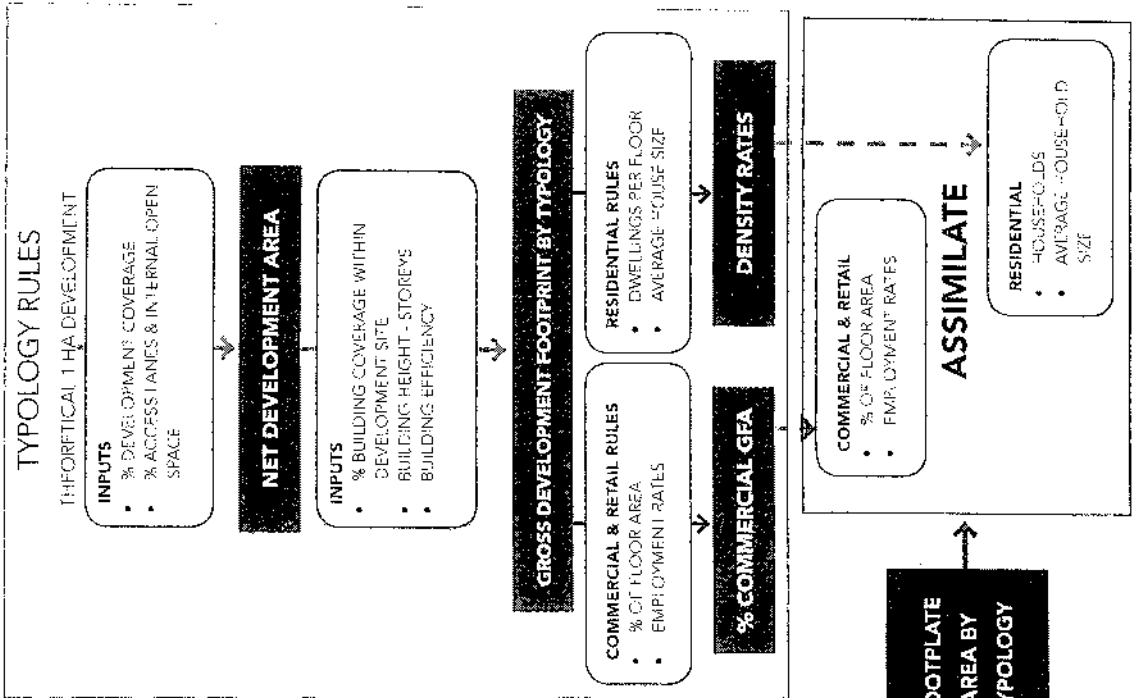


7 Portage Business Quarter

This business and light-industrial fringe surrounds the town centre and fits into the District Plan Working zone. A strategy to move job/intelligence-intensive industries can be developed.



MODELLING METHODOLOGY ANALYSIS



STUDY AREA

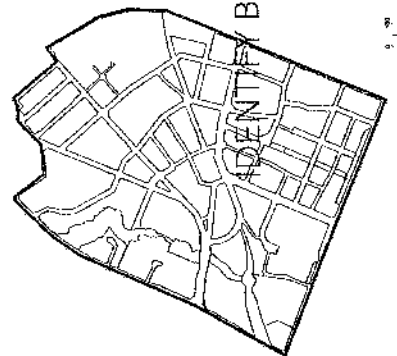
The area that is being evaluated in this yield model falls broadly into the 500m radius first outlined in the Framework Document for New Lynn. This area also loosely falls into the area that is most frequently thought of as New Lynn, being both its direct hinterland and the area most focused on commercial / retail / industrial or mixed residential uses.

In Urban Design terms this area forms a district or precinct in its own right and is heavily defined by a series of edges, namely the main roads the bound the area such as Rata Street and Portage Road. As it functions as a somewhat discrete unit and also fairly closely mimics the 500m radius most important for a TOD this is the area that has been selected for detailed yield modelling.

Specifically the study area is that shown on the map adjacent and bounded by Margan Ave to the South, Titirangi Road and Rata Street to the West, approximately the Whau River to the North and Portage Road to the East.

BLOCK DIVISION AND NUMBERING

Within this study area the blocks taken from the Masterplan included in the Framework Document have been used to calculate the total area available for development. The block pattern has been determined by eliminating the detail from the first plan and focusing on the areas framed by the street pattern. The resulting series of blocks have been numbered for reference, starting from the centre of the Merchants Quarter and radiating outwards. Numbering is purely for reference purposes and is not indicative of any other factor nor does it constitute a formal or informal ranking. The original plan with numbered blocks is included on page 18.



IDENTIFY TYPOLOGIES WITHIN BLOCK

FOOTPLATE AREA BY TYPOLOGY

GROSS DEVELOPABLE AREA

IDENTIFY BLOCKS

INPUT % OF BLOCK BY TYPOLOGY

OUTCOMES BLOCK, PRECINCT & TOTAL

- RESIDENTIAL YIELD
- EST. POPULATION
- COMMERCIAL GFA
- ESTIMATED JOBS
- TOTAL OPEN SPACE - PUBLIC & PRIVATE

COMMERCIAL & RETAIL

- % OF FLOOR AREA
- EMPLOYMENT RATES

ASSIMILATE

RESIDENTIAL

- HOUSEHOLDS
- AVERAGE HOUSEHOLD SIZE

AN

EXPLANATION

IN ORDER TO CALCULATE THE AMOUNT OF DEVELOPMENT THAT CAN TAKE PLACE WITHIN THESE BLOCKS A SERIES OF BUILDING TYPOLOGIES WERE DEVELOPED TO CREATE A DENSITY FIGURE PER HA TO BE APPLIED TO THESE GROSS AREAS. THE TYPOLOGIES WERE DEVELOPED IN A SPREADSHEET FORM TO INCLUDE SUCH ASPECTS AS:

A12

Block Coverage: The % of a block that could be developed.

Internal Access Lanes: The % of block put aside for internal access, including rear lanes

Open Spaces: The % of a block given over to public open space. This could be in a variety of forms including green open space, hard formal spaces and semi-private open spaces related to buildings.

Net Development Area: The % of a block left over for development after lanes / internal access and open space is removed.

Building Coverage: The theoretical % of the Net Development Area that can be built on with impervious building surfaces.

Building Footprint: The resulting theoretical area of building footprint.

Height: The number of average floors in storeys.

Efficiency: The % of a Building Footprint that will be actually built and used for the purpose of the building, this allows for associated areas such as stairwells / storage.

GFA (Gross Floor Area): The final area (measured in square metres) figure for residential development.

Commercial or retail %: The % of the Residential GFA put aside for Commercial / retail purposes.

Commercial GFA: The resulting Commercial GFA from application of Commercial or Retail % to residential GFA.

Commercial as a % of Net Development Area: An indicator of the level of commercial uses within the residential areas as measured by the Commercial GFA divided by the Net Development Area.

Employment Rate (Employees / Ha): The figure of FTEs/Ha for each typology drawn from work undertaken by Hill Young Cooper for the Waikaree Drait GMS. This has only been applied to commercial/business land and soon additional numbers representing home based employment will need to be applied to both the models and GMS figures equally.

Lot Unit Size: The dwelling unit / lot size (in square metres) for each residential unit

HHU per Ha (net): The figure of households per hectare derived by dividing the Residential GFA by the average unit / lot size.

These typologies were then applied to each block at specific levels to provide outputs of residential yield, estimated population, commercial yield, employment count and theoretical open space.

The figures above have been drawn out of conventional practice within the development industry. They will not be representative of exact development figures within a particular building that has been developed to detailed design but are representative of general thresholds and development outcomes at a level suitable for this analysis.

In addition to the Typology spreadsheet a series of international examples were drawn from to provide a vision of what is desirable and achievable within the New Lynn TOD. These examples were used to guide the height, density and scale of typologies and are outlined fully within Appendix A.

CAR PARKING WITHIN THE TFD

One of the core assumptions in the modelling is that the road network will provide limited short-term visitor parking. All other parking requirements are contained within the commercial footprint calculations.

The rationale for this approach is that moving to any higher density than what currently exists will require significant investment, either through basement parking solutions or multi-level parking buildings and this will require a financial return. In the case of apartments this may be included within the purchase price or rental, but as is most often the case in Auckland today these are leased independently. The major shopping centres factor in parking costs within tenants ground rents.

OPEN SPACE ASSUMPTIONS

As density increases, the land available for open space decreases proportionately. In traditional suburban developments open space is generally around 35% of the total area as most amenity is provided within individual lots. However in higher density areas this open space will be in the 20-25% range. This means that in urban environments more emphasis is placed on quality outcomes for open space, and the requirement to consolidate components into useable parcels.

low = 35-40% gross area

medium = 30-35% gross area

high = 25-30% gross area

NEW LYNN YIELD MODEL
JOB

WATKINSVILLE COUNCIL
COUNCIL

AUGUST 2007
DATE

FINAL DRAFT (VERSION 2)
VERSION

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SCENARIO NUMBER 1 - FRAMEWORK MODEL

SCENARIO NUMBER 1 - FRAMEWORK MODEL

EXPLANATION

The essence of the Framework Document and the concept vision (as illustrated on page 20) focussed on a number of core components, particularly:

- Redeveloping the existing shopping mall to the eastern part of the site and moving to a multi-level car parking strategy
- Developing a mixed use precinct as a transition between the Merchants Quarter Main Street and the shopping mall

This model is developed around the existing District Plan rules in Plan Change 17, with limited use of tower-style residential development. The intention of the Framework Model was to illustrate a vision for future development that was achievable within a medium time-frame and required limited infrastructural change beyond that already identified in Council plans.





The most dominant feature of this scenario is the limited use of height to achieve higher density outcomes. The majority of building typologies utilised in this model are only 3-4 storeys high. The increase in density is achieved through a more efficient use of private space and the shift to a greater use of apartments.

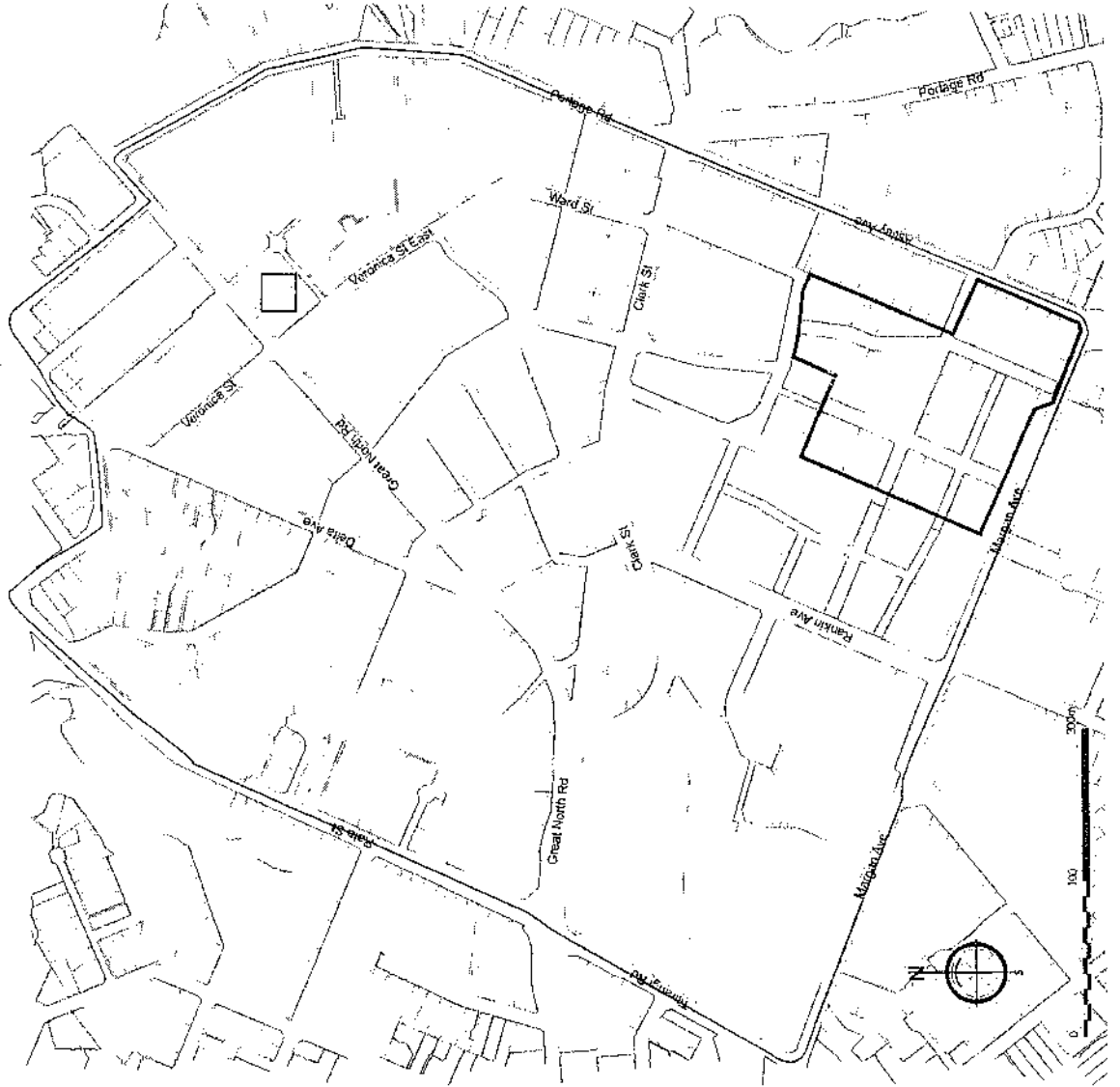
By using low level, walk-up style mixed use apartments as much as possible within the centre the amount of commercial/retail provision within New Lynn is also increased. This is in line with the expectations of Council and what would be considered good urban planning.

In this scenario, there is a marked increase in the use of terraced styled housing on the fringes of the TOD area. This is a typology that currently exists within New Lynn but has achieved limited success due to the quality of the built product. The limitation of this typology is that once the land ownership is fractured, it becomes increasingly difficult to redevelop to higher intensity over time.

In some ways, the Framework Model could be more aptly named the "Transition Model" as it identifies the benefits and risks of undertaking certain approaches at this point in time.

AKK

-  Existing Open Space
-  Proposed Open Space
-  Railway Corridor
-  Living & Area



OUTCOMES OF THE FRAMEWORK MODEL

Notes

The Framework model has been developed as an expansion of current rules and guidelines. The sketchup model opposite illustrates new buildings in red and existing buildings in white.

In this scenario there are only two areas identified for development with substantial height:

1. A single multi-level residential tower within the Axis Quarter, and;
2. A 12 story tower within the Main Street Quarter at the Totara Ave/Ransom Ave intersections.

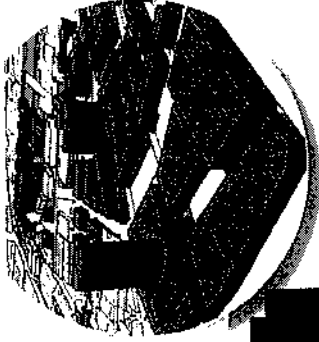
These locations were identified as starting points for future intensification, capable of making gateways statements for the wider New Lynn area

ARC

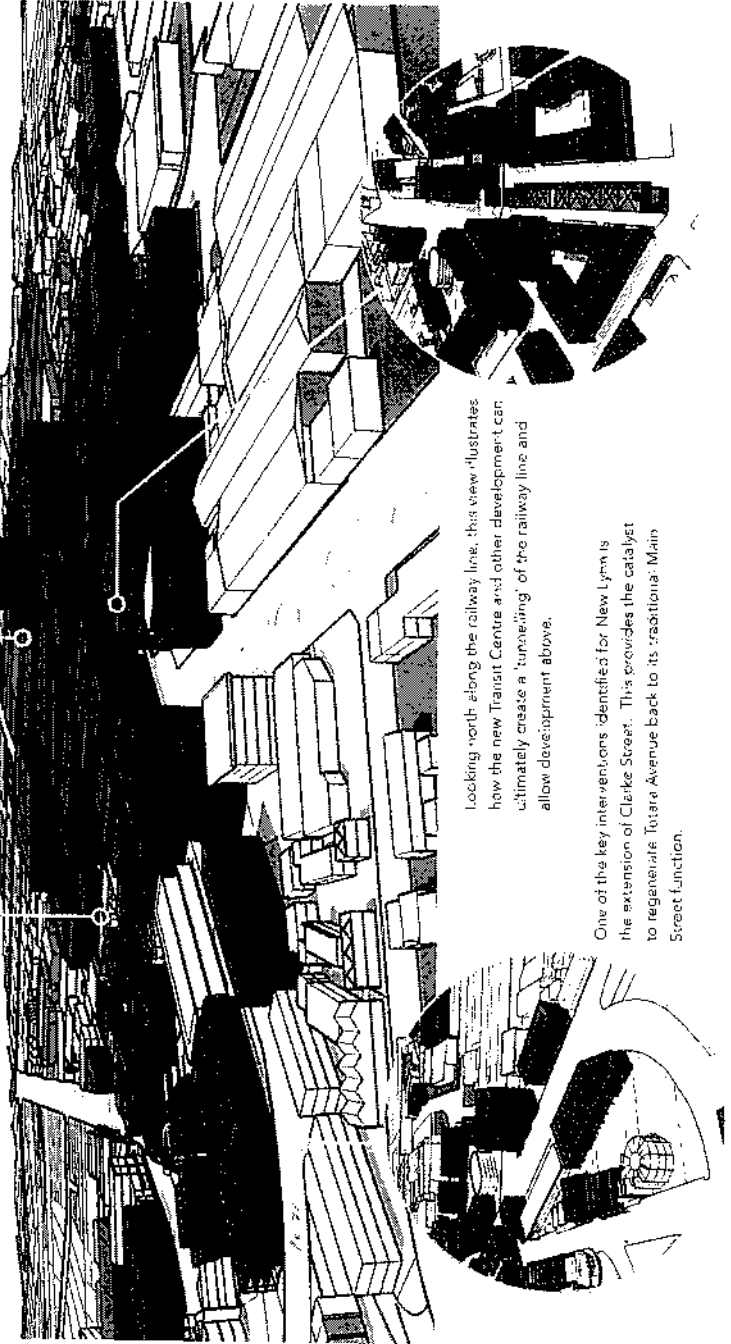
BECAUSE ONE OF THE CORE URBAN DESIGN PRINCIPLES IS TO ACHIEVE ACTIVATED GROUND FLOOR FRONTS, TOWER DEVELOPMENTS STILL RETAIN A COMPONENT OF COMMERCIAL AND RETAIL FOOTPLATES. NO PROVISION IS MADE FOR CAR PARKING WITHIN TOWER DEVELOPMENTS, AS WITH MOST CITY AREAS, THEY GENERATE A FINANCIAL RETURN AND ARE THEREFORE TREATED AS COMMERCIAL SPACE WITHIN THE MODEL.



The view of the Mercants' Quarter from the north illustrates how the current attributes of scale and mass are maintained, but are framed by the surrounding precincts with greater height.

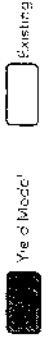


View from the east of the redevelopment of Lynn Mall as an urban shopping centre. This view shows the area that is currently at-grade parking, as a multi-level shopping centre



Looking north along the railway line, this view illustrates how the new Transit Centre and other development can ultimately create a 'turning' of the railway line and allow development above.

One of the key interventions identified for New Lynn is the extension of Clarke Street. This provides the catalyst to regenerate Totara Avenue back to its traditional 'Main Street' function.



KEY INTERVENTIONS

ACHIEVING THE VISION FOR NEW LYNN'S TOWN CENTRE IS DEPENDENT ON THE FOLLOWING 14 INTERVENTIONS THAT ARE COVERED WITHIN THE FRAMEWORK DOCUMENT



- 1. Railway Station**
Develop the new Railway Station within the Herana Street, Totara Avenue and Clark Street urban development block.
- 2. Bus Stops**
Reposition the New Lynn Bus Station onto a bus only street directly adjacent to the railway station entrance and exit point.
- 3. Clark St. Bypass**
Build the Clark Street Bypass to Great North Road.
- 4. Social Infrastructure Planning and Investment**
Expand and enhance the existing social infrastructure provision within the town centre to support the increased population within New Lynn and surrounding catchment.
- 5. Merchants' Quarter**
Redevelop the historic block between Great North Road, Totara Avenue and Memorial Drive as New Lynn's Character Precinct reflecting its history as a trade and retail area.
- 6. Totara Avenue**
Develop Totara Avenue between Great North Road and Clark Street as New Lynn's Historic High Street.
- 7. Integrated Mix in Land Uses**
Create an integrated mix in retail, commercial and residential landuses within the town centre linked through safe and legible pedestrian and cycle connections
- 8. Residential Intensification**
Intensify residential precincts within walking distance to the TOD in particular the Living 5 and 6 precincts.
- 9. The Axis Retail Development**
Develop a short, medium and long term development strategy for the mixed use retail hub to integrate it into the surrounding urban fabric.
- 10. News Development**
Provide a new public lane along the eastern edge of the existing creek accessing new live-work news housing.
- 11. Public Parking**
Provide two new public parking buildings along Great North Road and behind the New Lynn Community Centre to support the TOD and retail areas.
- 12. Main Streets**
Implement Streetscape and Landscape Strategies along Clark Street and Great North Road to develop their busy and robust Main Street characters.
- 13. Public Open Space**
Provide a primary and secondary system of public open spaces in each precinct within the town centre.
- 14. Herana Street Extension**
Provide a legible pedestrian and vehicular connection from the new Living 6 precinct to the Transit centre through the Herana Street Extension

IMPLICATIONS OF SCENARIO NUMBER 1 ANALYSIS

COMPARISON TO WCC GROWTH STRATEGY

Scenario 1 provides a density of development that is comparable with the figures for residential and employment from the WCC GMS (estimated for 2021). To compare these two areas the meshblocks that correspond to areas outside the study area have been removed.

As at 2001 there were 1110 HHUs and 6132 FTEs in the wider New Lynn area, with the GMS predicting an increase of 7,500 people and 5,500 jobs by 2021. Within the area that directly correlates with the study area there were 519 HHUs and 4796 FTEs present in 2001.

Scenario 1 provides 2,315 dwellings within the study area, as opposed to 2,897 within the GMS 2021 estimates for the same area. It also provides 7,409 FTEs as opposed to approximately 10,526 for the area of business land in the GMS.

This indicates that this development scenario does not deliver the results anticipated in the GMS to 2021 for residential development, by a small margin. It also does not achieve the anticipated level of FTEs but by a much larger margin. This reflects the fairly conservative, and it could be argued realistic, development outcomes sought in Scenario 1, with only limited height and density increases over existing levels.

Figures from GMS Estimates for Meshblocks Corresponding to Study Area

Households	2,897
Total Employment	10,526

Figures from Scenario 1

Households	2,315
Total Employment	7,409

Outcomes of Framework Model

Net Development Area (m ²)	Yield - Residential Households (HHUs)	Average Household Size	Average Net Residential Density (HHUs/Ha)	Estimated Population (2.9 people / HHU)	Yield - Commercial (m ²)	Estimated Employees (FTEs)	Theoretical Public Open Space (m ²)	Average Open Space per person (m ²)
845,654	2,315	2.9* people per HHU	19.7	6,574	376,106	7,409	224,356	34

*Note 2.5 in Living Area 6

COMPARISON TO TOD REQUIREMENTS

A 500m radius as used in the Framework Document for New Lynn equates to approximately 78.5 ha. The study area extends beyond this and it is this wider area that has been used as a logical area to evaluate what would serve as the core of development within a TOD, see diagram below right. Within the study area there is approximately 17.5 ha of land, which includes open space and roads.

As outlined in the Framework Document for New Lynn gross density targets were sought for both HHUs (60/ha) and FTEs (300/ha). The implications of these two figures are outlined below.

A TOD covering a strict 500m radius would require at estimates of 60 HHU/ha and 300 FTEs/ha gross

Households	4,710
Population (@2.9p/HHU)	13,659
Total Employment	23,550

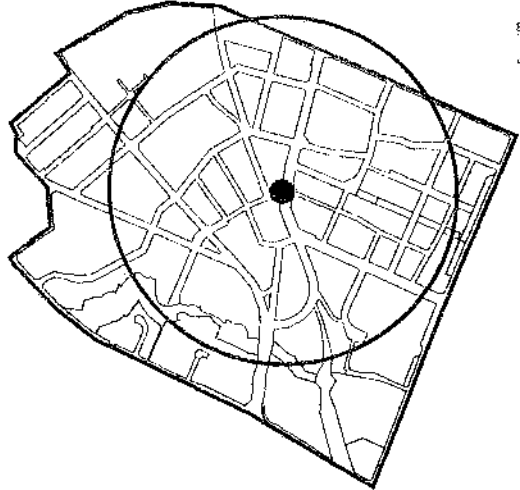
A TOD covering the study area would require at estimates of 60 HHU/ha gross and 300 FTEs/ha.

Households	7,054
Population (@2.9p/HHU)	20,456
Total Employment	35,770

(Note the population figure has been approximated down to 20,000 people to serve as a round figure target for Scenario 2)

FROM THE SCENARIO 1 FIGURES OUTLINED BELOW IT IS APPARENT THAT SCENARIO 1 CLEARLY DOES NOT MEET THE TOD RESIDENTIAL AND EMPLOYMENT TARGETS FOR THE STUDY AREA OR FOR THE STRICTER AREA OF 500M RADIUS. IT IS QUITE LIKELY THAT SUCH HIGH EMPLOYMENT FIGURES WILL NOT BE REACHED UNLESS THERE ARE MAJOR BROWNFIELD DEVELOPMENTS AND REGENERATION OF EMPLOYMENT AREAS, MOVING THEM TOWARDS SIGNIFICANTLY HIGHER DENSITIES.

SCENARIO 1 PROVIDES A POPULATION OF APPROXIMATELY 6,714, WHICH REPRESENTS A POPULATION SHORTFALL OF 13,286 TO THE TARGET OF 20,000. IN ORDER TO NARROW THIS GAP THERE WILL NEED TO BE SIGNIFICANT INTERVENTIONS MADE AND INCREASES IN DEVELOPMENT POTENTIAL TO BE MODELLED. SCENARIO 2 HAS BEEN DEVELOPED WITH THIS IN MIND TO PROVIDE AN OPTION THAT ILLUSTRATES WHAT WOULD BE REQUIRED TO REACH THE FIGURE OF APPROXIMATELY 20,000 RESIDENTS.



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NEW YORK YIELD MODEL
JOB

WASTAVERE CITY COUNCIL
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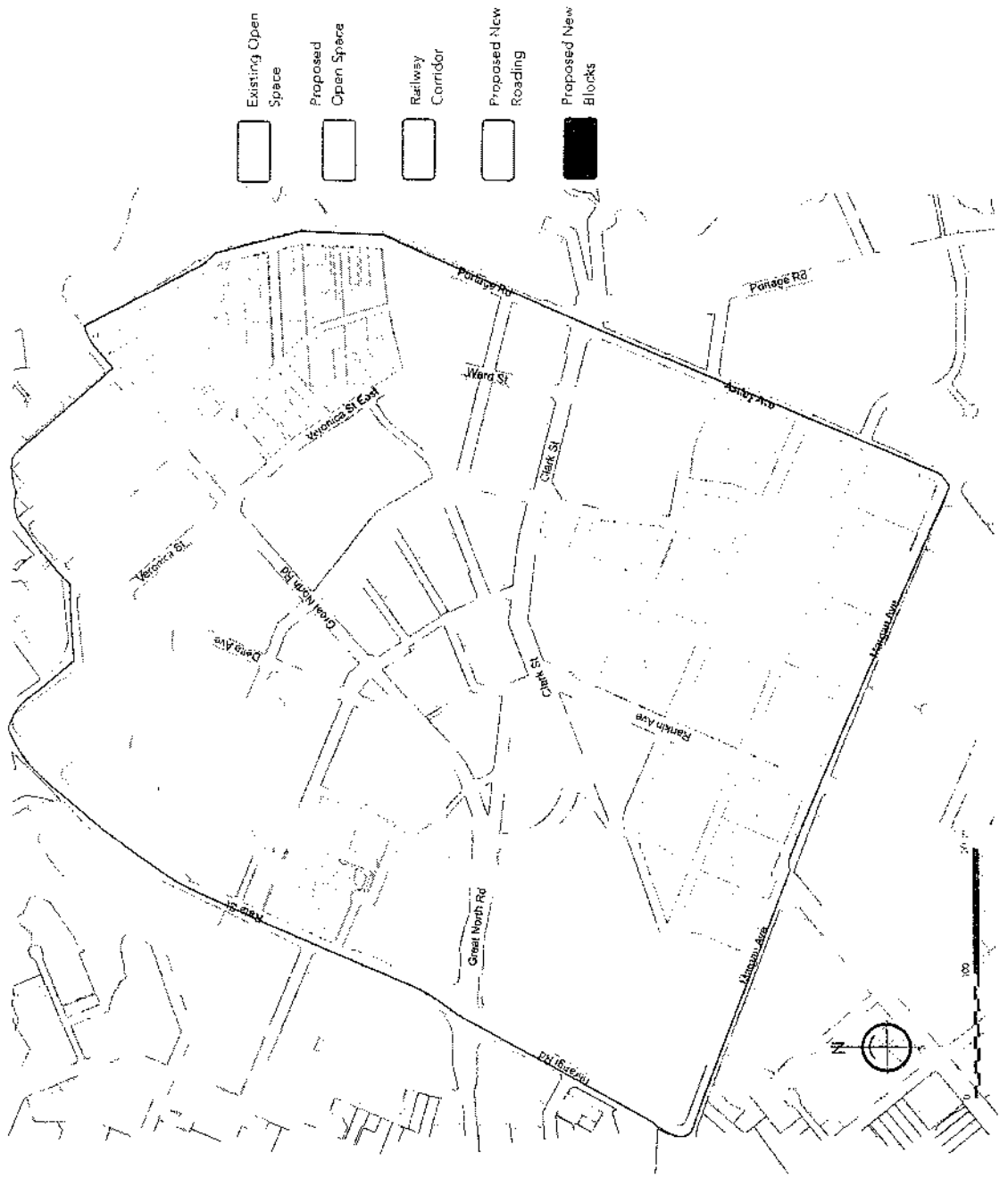
JUNE 2009
DATE

FINAL DRAFT WEASUN 2
VERSION

SCENARIO NUMBER 2 - BOLSTERED MODEL

A18

SCENARIO NUMBER 2 - BOLSTERED MODEL



EXPLANATION

The bolstered vision for New Lynn has been developed around the following premises:

- To achieve the population requirements to support a TOD
 - To create an urban form reflective of a downtown city center environment
- This model has been developed around the need to create a functionally and visually focused core, supported by a true 'city living environment'. It is a logical progression of the existing development in the Framework Model, demonstrating how the right controls and incentivised development can create a strong and unique identity.

Another major feature of the strategic vision is the re-development of the shopping mall (Lynn Mall) to the northern corner. This has been modelled as a "277" type urban mall that provides an activated frontage to the street. In this instance it would require the creation of a major entry and frontage to Veronica Street East, with internalised entries from the existing triangle precinct.

Business functions would increasingly be focused on the existing commercial/industrial precincts in the centre. The new street system within the Great North, Veronica Street/Ward Street and Portage Road industrial/commercial area results in the creation of a new business park area. This would reflect the scale and intensity of the mall opposite (Blocks 13, 14a and 14b).

Building Typologies

Some changes to urban form have been promoted that provide a finer grain of block pattern and enable a higher density outcome. It is important to note that achieving density does not necessarily result solely in high-rise developments as high rise towers require larger set-backs than more traditional forms of apartments. This model:

- Restricts the area for towers
- Ensures that over-shadowing is constrained to commercial areas
- Creates a focal point for viewing from a distance
- Provides a retail/commercial frontage on the ground floor

Consequently the areas for tower development have been limited to the south-eastern areas, adjacent to the new shopping mall and business park. Density has been achieved elsewhere through the use of "penimeter apartments" typology that effectively utilise closely linked individual apartment buildings focused around generous park and courtyard spaces.

A19

OUTCOMES OF BOLSTERED PLAN



The redevelopment of the New Lynn Mall is pivotal to the wider development of New Lynn. In the Bolstered Model, the Mall has been accentuated further to provide a strong frontage to Great North Road and Veronica Street.

The entry to the Mall from the Merchants Quarter is more gradual through the development of mixed use 'Gateway' buildings, where the Mall currently stands.

Towers of up to 30 storeys create the visual focus and critical mass needed for a true urban town centre development.

The view from Great North road towards the Merchants' Quarter demonstrates how the towers, even though they are set back from the central core, provide a significant visual focus for New Lynn.

Looking east towards the Transit Centre and towers beyond the development on the southern side of Totara Ave behind Cavanco House provides the ideal situation for a business hub with limited residential.

Notes

The sketchup model opposite illustrates bolstered buildings in yellow.

Feasibility Check

To validate the options put forward, a simple but effective technique is to find an example to closely approximate what is being proposed.

277 Newmarket demonstrates the approach that a future development of Lynn Mall will need to address. Shoppers parking is accommodated within the building itself, commercial uses on the upper floors and retail stores that activate the street.



KEY INTERVENTIONS

In relative terms the changes identified as being fundamental to achieving good urban form and being capable of achieving the TOD objective are minor, but will require significant redevelopment of some blocks eg. Ambroico Place.

To achieve the higher density outcomes a finer grain of block pattern is necessary, to ensure a formal division of spaces and multiple choices of routes are available to commuters. When land is relatively cheap, developers will generally provide this internal road network (integrated developments). However, as land values increase, the only way to future-proof urban form to accommodate density is to provide a robust and legible public road network.

Notes

The major difference between the Framework model and the Bolstered model is the slight reduction in Net Developable area as a result of the finer block pattern. Higher density urban environments require a finer grain of block pattern, resulting in a reduced net developable area, which is offset by a higher internal block efficiency.

The Net difference in additional Open Space provided within the blocks also remains relatively constant between the two models.

Another feature of the Bolstered model is the reduction in household size from 2.9 people per household to 2.5. This is a response to higher density, apartment-style living that traditionally has a lower average household size. This may not necessarily be an outcome in the longer term.

A KEY GOAL OF THE BOLSTERED MODEL WAS TO RETAIN AND ENHANCE THE COMMERCIAL AND INDUSTRIAL LAND THAT EXISTS WITHIN NEW LYNN. NOTWITHSTANDING THIS, THERE WILL NO DOUBT BE A CONSOLIDATION OF LOCATIONS AND SPACES AS TECHNOLOGIES CHANGE AND INCREASED RESIDENTIAL PROXIMITY PUTS PRESSURE ON CURRENT PRACTICES AND LAND STEWARDSHIP. THE AREA TO THE NORTHEAST OF VERONICA STREET IS IDEALLY SUITED FOR THIS AND CAN BE FURTHER ENHANCED AS A COMMERCIAL/ INDUSTRIAL PRECINCT.

3 New Block Patterning and Roading

The expansion and extension of Claydon Lane, and the development of a new road linking Veronica St East with Furrage Road provide the driver for an intensification and redevelopment of the commercial and industrial land. This more integrated road system can provide a better urban framework with substantial areas of prime commercial land able to be released through the consolidation of private access ways and service courts. This new road network not only achieves this, but also provides the opportunity for more business to have frontage onto roads. It also provides workers safer, more direct pedestrian routes from the Transit Centre and the main shopping precinct to places of work.



1. Road Extension and Stream Crossing
The extension of Kapongo Crescent into the lane network on the opposite side of the stream. As residential density increases this allows a safe and direct pedestrian connection to the core of the Main Street Precinct to replace that which is currently closed. Limited low-speed vehicle access across the stream to the lane network and parking areas reduces congestion and vehicle conflict on the main arterial.

2. New Block Patterning and Roading
This anticipates the redevelopment of Ambroico Place into a higher density and better designed outcome. The location of 5 new blocks from the current one, not only creates an finer, more functional block sizes, but provides greater connectivity through the site. The repositioning of Ambroico Place, this extension/ modification of Melview Place and the addition of 2 new roads from Murgan Ave provides the opportunity for residents to link more directly to the stream/ open space network on both sides of Franklin Ave. It also means commuters and visitors arriving from the south are more likely to park away from the inner core and walk the short distance to the centre at peak times.

5 Claydon Roading Network

Once the most important urban interventions for the development of New Lynn is the development of the Claydon site. Central to this is the creation of a simple, legible roading system that maximises connectivity not only within the site, but across it. Providing more connections from Ashley Ave into the Claydon site will relieve pressure from the major intersection on Rardin Ave, Murgan Ave and Portage Road. The resulting smaller block sizes are also more suitable to higher density residential or commercial building approaches. It is essential that this area is designed to the highest standards as it will define the future of New Lynn as a livable environment.

4. New Central Park

A new park space has always been considered in various forms as part of any redevelopment on the Claydon site. The Bolstered model demonstrates that the provision of a large urban park is not only feasible, but central to the development of a high density residential precinct. It also allows for stormwater retention.

AQ1

IMPLICATIONS OF SCENARIO NUMBER 2 ANALYSIS

COMPARISON TO WCC GROWTH STRATEGY

Scenario 2 has been compared against the 2057 estimates anticipated by the GMS work. As per Scenario 1, the meshblocks that are not included in the study area have been excluded to ensure an accurate comparison.

Scenario 2 provides 7,581 dwellings within the study area, as opposed to 3,440 within the GMS 2057 estimates for the same area. It also provides approximately 11,850 FTEs as opposed to approximately 9,494 for the same area of business land in the GMS.

This results in a significant increase in the residential development occurring in the relevant meshblocks, one that far exceeds present expectations out to 2057. The increase is directly related to the increased height and density outcomes provided for in this Scenario. The number of FTEs is greater than that provided for in the GMS 2057 estimates and Scenario 2 probably realistically estimate the maximum potential for redevelopment and intensification of employment, which is always limited.

Figures from GMS Estimates (2057) for Meshblocks Corresponding to Study Area

Households	3,440
Total Employment	9,494

Figures from Scenario 2

Households	7,581
Total Employment	11,850

Outcomes of Bolstered Model

Net Development Area (m ²)	Yield - Residential Household Units (HHUs)	Average Households Size	Average Net Residential Density (HHUs/ha)	Estimated Population (2.5 people / HHU)	Yield - Commercial (m ²)	Estimated Employees (FTEs)	Theoretical Public Open Space (m ²)	Average Open Space per person (m ²)
833,876	7,581	2.5 people per HHU	64.5	18,953	600,626	11,850	237,881	13

COMPARISON TO TOD REQUIREMENTS

A 500m radius as used in the Framework Document for New Lynn equates to approximately 78.5 ha. The study area extends beyond this and it is this wider area that has been used as a logical area to evaluate what would serve as the core of development within a TOD, see diagram below right. Within this study area there is approximately 117.5 ha of land, which includes open space and roads.

As outlined in the Framework Document for New Lynn gross density targets were sought for both HHUs (60/ha) and FTEs (300/ha). The implications of these two figures are outlined below.

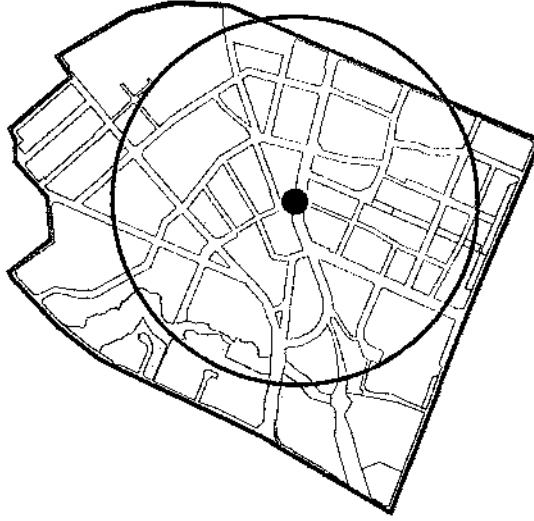
A TOD covering a strict 500m radius would require at estimates of 60 HHU/ha and 300 FTEs/ha gross

Households	4,710
Population (@2.5p/HHU)	13,659
Total Employment	23,550

A TOD covering the study area would require at estimates of 60 HHU/ha and 300 FTEs/ha gross.

Households	7,054
Population (@2.5p/HHU)	20,456
Total Employment	35,270

(Note the population figure has been approximated down to 20,000 people to serve as a round figure target for Scenario 2)



FROM THE FIGURES OUTLINED IT IS APPARENT THAT SCENARIO 2 ALMOST -MEETS THE RESIDENTIAL POPULATION TARGET OF APPROXIMATELY 20,000 FOR THE STUDY AREA, AND HAS EXCEEDED THE EMPLOYMENT TARGETS OF 9,494 FTEs. THE FIGURE ACHIEVED REPRESENTS A MAJOR INCREASE OVER TODAY'S EMPLOYMENT NUMBERS AND IS PROBABLY REPRESENTATIVE OF REALISTIC AND FINITE REDEVELOPMENT OPPORTUNITIES AVAILABLE TO INCREASE EMPLOYMENT DENSITIES. THE ONLY WAY TO INCREASE THIS FURTHER MAY BE TO RE-ZONE LAND FROM INTENDED RESIDENTIAL USES TO COMMERCIAL ONES, WHICH WOULD IN TURN REDUCE THE RESIDENTIAL YIELD.

ADEQUACY OF ZONING ANALYSIS

QUALITY AND GUIDANCE

Recent history in Auckland City has demonstrated that limited or weak control over building design, particularly with residential apartments, has led a degradation of the quality within the city.

It is imperative that building controls, particularly with apartments, are of the highest standard to ensure that:

- Outcomes support the development of the wider New Lynn TOD
- Create quality lifestyle options for resident
- Are robust to had change and adaptation over time

In general, guidelines will not be strong enough to ensure these basic goals are met, unless they are tied in with the planning rules at the highest levels.

Height related to wind effects
 Requiring consents for wind effects of buildings should not produce this problem as this often an issue of location and building design and there is usually a solution. It is important to ensure minimal adverse effect of taller buildings on design and pedestrian amenity to support the other aims of the TOD and so this should be retained.

2) ADEQUACY OF THE ZONING LOCATION AND QUANTITY IN NEW LYNN

Need to alter living 5 zoning

There will be a need to alter Ambrico Place and parts of the Rewarewa precinct zoned Living 5 to living 6. For the Rewarewa precinct this would be the areas close to the areas zoned Community in the current District Plan. Living 5 provides medium density outcomes and this will not provide high enough densities close to the New Lynn centre to provide similar outcomes to the bolstered model. There will be a need to incentivise development, particularly in the Ambrico Place area where it is already substantially developed and a greater development potential such as provided by living 6 can achieve this. Due to the nature of redevelopment in this area it will most likely be a longer term outcome.

Areas to be rezoned beyond the study area.

Rezoning areas beyond the study area to Living 5 will promote greater intensification and support for the TOD. This is particularly relevant for areas to the south and west of the study area. However, attention needs to be given to the adequacy of a Living 5 zoning when applied to fragmented low density suburban areas and whether this will produce high quality urban design outcomes.

Another area that would require attention is not prematurely zoning to Living 5 areas that could be suitable for Living 6 development in the future, for example larger blocks at the fringe of the study area if considered strategically important. Further analysis of the area beyond the immediate study area would be required to establish this.

As outlined above the zones present in New Lynn have the potential to deliver the outcomes sought in the bolstered model. Whether these are actually delivered depends significantly on the willingness of the development community to take this vision on. With the changes outlined above and some further work the majority of these invitations can be mitigated. There is still a potential risk of restricted height development caused by the height limits related to the Monier Air Discharge consent. This is an area high-priority for further investigation and there will most likely be ways to mitigate this risk.

Evaluating the adequacy of zoning to achieve the bolstered model can be divided into two distinct areas.

- 1) The adequacy of the zoning framework as set up by the District Plan and its rules/standards
- 2) Adequacy of the zoning, both location and quantity in New Lynn

1) ADEQUACY OF THE ZONING FRAMEWORK

Height in Relation to Boundary for the Community and L6 environments.

The recession planes within these environments may limit the potential height of development to less than that anticipated by the bolstered model, but only in limited circumstances. This is particularly important for the Community environment that is the majority of the New Lynn area and has great potential to provide mixed use development of significant height and density.

The standards where the Community environment adjoins the Living 6, Open Space and Memorial Drive provide 10m / 15m plus a recession plane, and this can provide for significant height where blocks are of sufficient size. Where the Community environment adjoins Living 5 this is more restrictive at 2.5m plus a recession plane, limiting the ability to provide such heights. This problem is mitigated by the very few locations where these two environments abut one another.

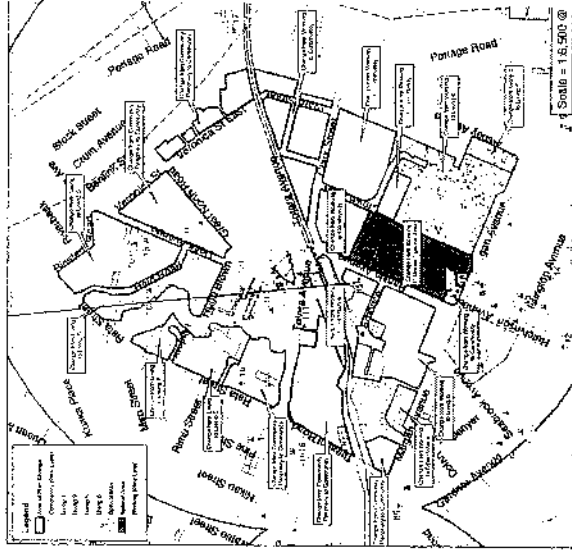
A Discretionary Consent is required when these permitted standards are breached. This is not particularly onerous and is probably an appropriate mechanism to assess applications that infringe these standards. Consideration should be given to making this Limited Discretionary to give greater certainty to development that is being undertaken that fulfils other priorities but infringes this standard alone.

Height related to the Monier discharge consent

The limits on development height to 20m/25m in the New Lynn area will have an impact on the incentive to develop until this consent is no longer utilised. While the onus is on proposed developments to demonstrate minimal adverse effects on residents for reverse sensitivity purposes this may not be feasible in all cases.

There may not be feasible solutions other than reverse sensitivity caveats applied to development, which may or may not be deemed suitable by the interested parties. This may add to development risk and reduce the development of buildings of the heights required to meet the bolstered model. A possible perverse effect could be to incentivise new development of less than 20m (5-6 storeys), which may not provide the densities required and may lock up the land for a significant period of time before re-development occurs.

The impact of this issue is mitigated by it being related solely to the air discharge issues linked to the Monier site, if the use of this site changes then this will no longer be applicable.



Proposed Plan Change No. 17

A26

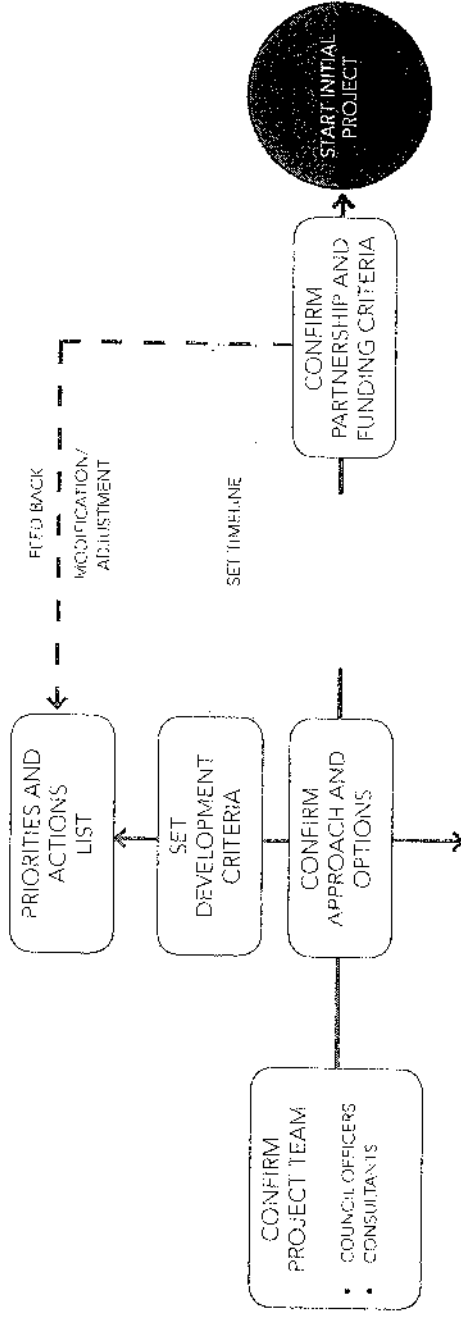
MOVING FORWARD

ESSENTIALLY NEW LYNN'S TIME HAS COME

RECENT STUDIES IN THE USA (TRADING PLACES, ALAN EHRENHALT, 2008) HAVE IDENTIFIED THE CONCEPT OF DEMOGRAPHIC INVERSION. THE YOUNG, AFFLUENT, ECONOMICALLY MOBILE AND THE EMPTY NESTERS ARE ABANDONING SUBURBIA IN SEARCH OF COMMUNITY AND THE EXCITEMENT OF CITY LIFE.

THIS FORM OF LIVING WAS CELEBRATED BY JANE JACOBS (IN BOOKS SUCH AS 'THE DEATH AND LIFE OF GREAT AMERICAN CITIES') DECADES AGO. JACOBS SPOKE LOVINGLY OF THE DIVERSITY OF CITY STREETS, THE NEED FOR HETEROGENEOUS POPULATIONS AND A NEIGHBOURHOOD THAT IS ACTIVELY ENGAGED IN POLICING ITS OWN BEHAVIOR.

A24



OPTIONS AVAILABLE

<p>MODIFY EXISTING RULES</p> <p>Identify rule / policy changes necessary to achieve identified outcomes</p>	<p>PROACTIVE PLANNING</p> <p>Encourage outcomes that reinforce a TOD and healthy urban form environment, including:</p> <ul style="list-style-type: none"> Incentive multi-modal design outcomes Promote use and development of Development Contributions Fast track consent process Public realm improvement in conjunction with development 	<p>INCENTIVISE AND ACTIVATE</p> <p>Development Corporation to lead Vision approach - international</p> <p>Consider use as development (active) test by:</p> <ul style="list-style-type: none"> Incentivising urban interventions - (not public and private development) Do not market intervention - (not features and land banking) Agency seeking development opportunities Active urban social programme Marketing used promotion
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Anyone that has visited the quirky, mid-rise, mixed use neighborhoods of lower Manhattan might think that any other city thesis would be misguided.

However, in New Zealand, for us to deliver a vibrant, mixed use, city centre at New Lynn we will need more than rules and market forces.

It will require:

- Minimum as well as maximum development targets
- A strong economic development and urban renewal strategy
- A dedicated team driven and focused on delivery of vision
- A courageous and bold local authority
- Strategic development intervention
- Most of all - A realistic timeframe

WAITAKERE CITY COUNCIL HAS ALREADY EMBARKED ON THIS PATH. THE COMPONENTS ABOVE ARE STARTING TO BE ADDRESSED. FOR NEW LYNN TO REACH THE FULL POTENTIAL A WELL-RESOURCED AND MANDATED TEAM WILL NEED TO DRIVE THIS PROJECT.

NEW YORK FIELD MODEL
JOB

SWITZERLAND, J.P. COULON
CLIENT

JUNE 2009
DATE

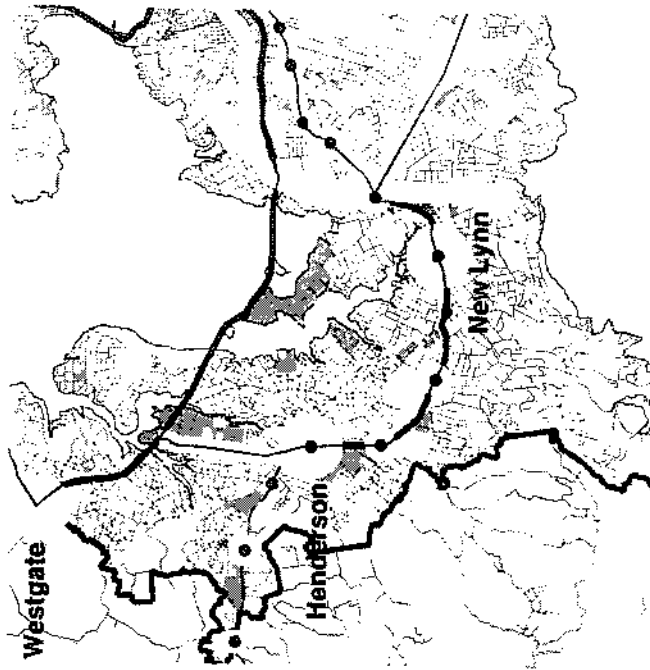
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APPENDICES

PROJECT BACKGROUND

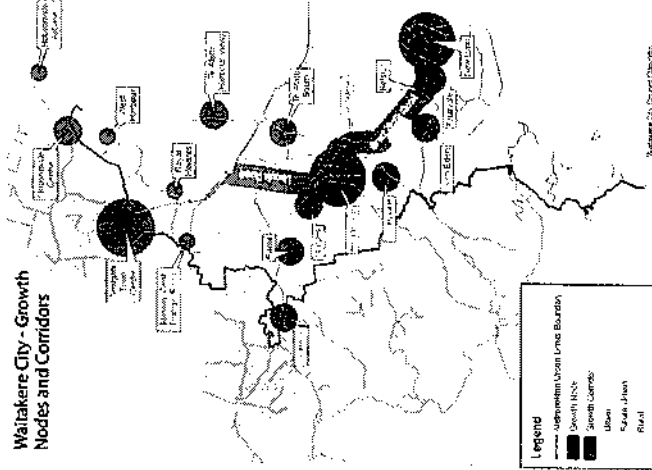
INTRODUCTION



REGIONAL AND SUB-REGIONAL SIGNIFICANCE

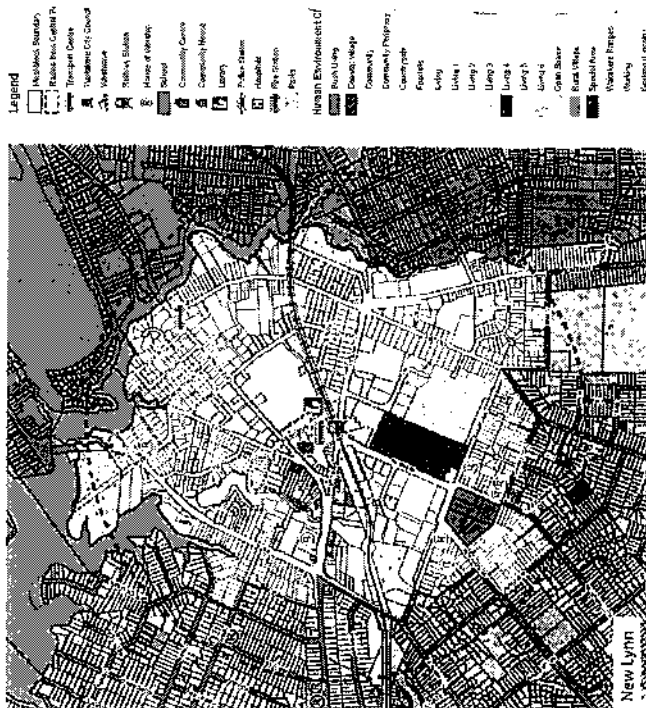
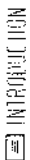
New Lynn is a Sub-Regional centre within Waikare City, serving the city and a local population of approximately 2300 people (1221 dwellings in 2005) and 6800 employees (7137 FTEs in 2005). It plays a significant role in providing retail, community services and employment to the city and is one of three existing and proposed Sub-Regions/ Centres that also includes Westgate and Henderson. The centre provides a community centre, library, local health services and a public transportation interchange for rail and bus in addition to a significant employment base. It also contains existing medium and high density residential development.

As shown in the map above (sourced from the ARGS) it occupies an important strategic position on the Western Rail Corridor at the gateway from Auckland City to Waikare City. It will also be in close proximity to a completed western ring route (SH2), eventually connecting SH16 with SH1. Due to its position it functions as an important centre for both the south-western sections of Waikare City and also the western sections of Auckland City.



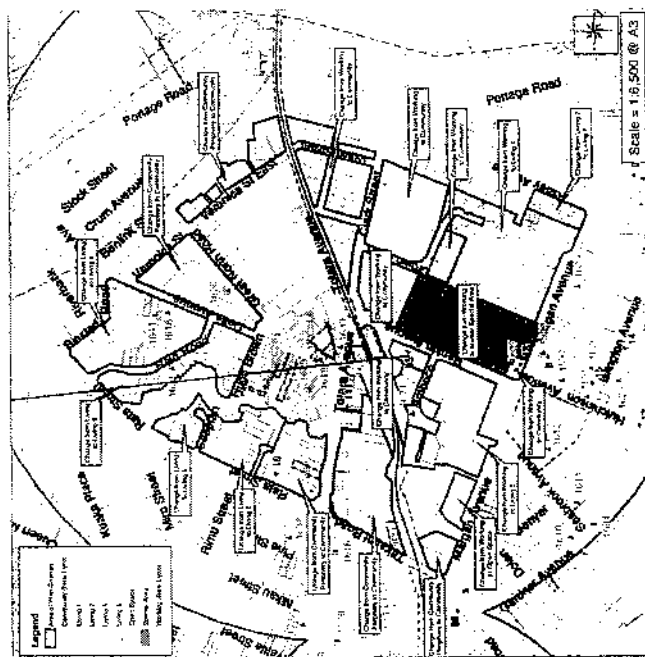
It was anticipated that New Lynn would provide an additional 9,600 residents within the North and Western Sectors Agreement released in 2007, but neither this nor the Auckland Regional Growth Strategy (ARGS) considered employment needs in detail. The latest Draft Growth Management Strategy for Waikare City (diagram above) has indicated that a high growth rate for New Lynn would see population increases of just over 7,500 people between 2007 and 2021. Employment under this scenario will also increase significantly (almost double) within the centre, with approximately 5,500 more jobs by 2021, by way of intensification of existing land use, particularly in and around the central area.

PROJECT BACKGROUND



LAND USE

The current land uses contained within this 1km radius include a significant proportion of employment and commercial focused uses, represented by Community and Working Environments (New Lynn Map above sourced from the WCC GMS). To the south there are significant brown field opportunities for residential intensification within areas of existing commercial activity. Surrounding this commercial core are significant areas of existing residential land use that is dominated by lower density detached housing, with the exception of some areas of medium density development eg. Ambrico Place and Crown Lynn Place.



PLAN CHANGE 17

The strategic importance of New Lynn has led to its inclusion within changes made under the Local Government Act Amendment (Auckland) 2004, which has resulted in Plan Change 17 for the New Lynn area. This Plan Change has had decisions released and is currently under appeal.

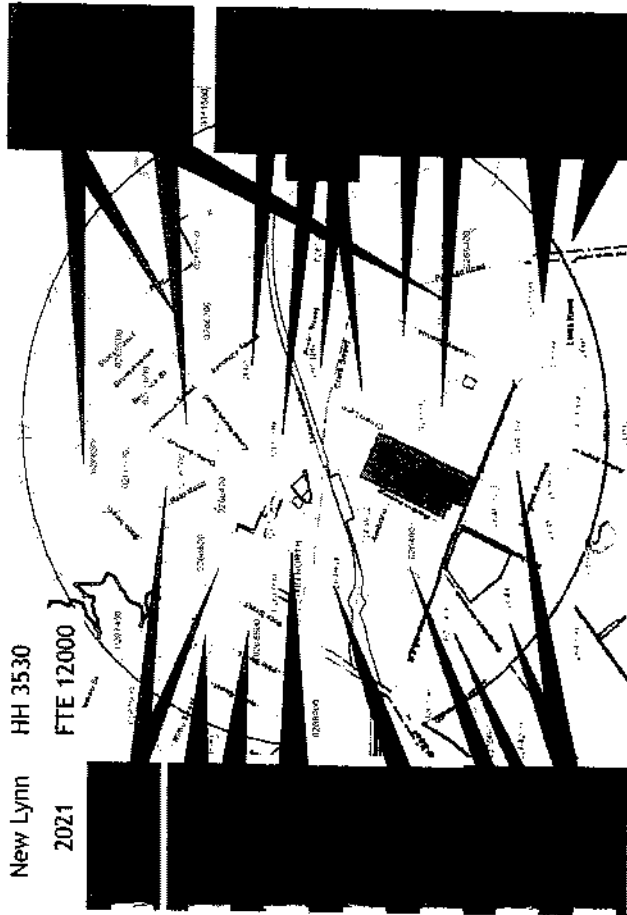
Plan Change 17 meant that New Lynn was the first of the city centres to be given a comprehensive zoning plan to encourage intensive apartment and mixed use development in conjunction with a vibrant and safe pedestrian-focused city centre. This Plan Change focused on a 1km radius from the train station, as is shown in the map above.

Plan Change 17 anticipates a mixture of land uses within New Lynn, from main street shop frontages (with offices and apartments above), through to larger malls, and high rise apartments. Retention of the industrial base surrounding the town centre is recognised as a major issue and this will provide for local and regional employment opportunities for activities not suitable for the town centre core. This may however require a transition to the typical existing low rise and large footprint factory/warehouse

PROJECT BACKGROUND WCC GROWTH STRATEGY

□ BACKGROUND FIELD WORK

A28



MAP 1 2021



MAP 2 2057

PROJECT BACKGROUND WCC GROWTH STRATEGY

BACKGROUND YIELD WORK

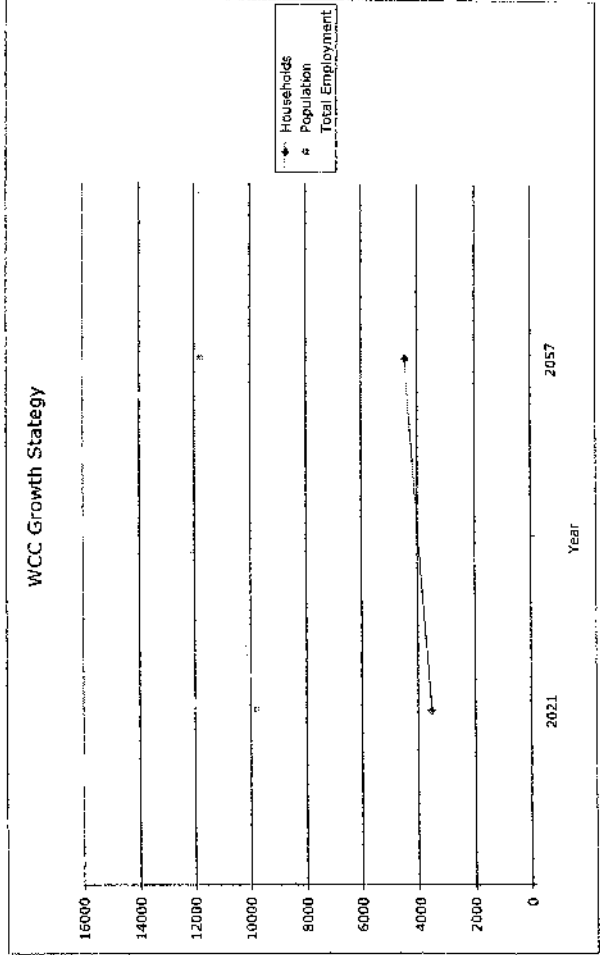
WCC GROWTH STRATEGY BACKGROUND YIELD WORK

As part of the background work for the creation of the Draft Growth Management Strategy, Hill Young Cooper were commissioned to create a series of growth projections for Waiāzere City. This was detailed mesh block based work that focused on the implications for the number of dwelling units and employment (as represented by Full Time Equivalents (FTEs)) in these areas. This work included New Lynn and the results have been updated using the original methodology as more recent statistics have become available. These figures are included here and give a useful reference point and baseline from which further yield work can be assessed.

The preceding maps also show a spatial distribution of the dwelling unit and employee figures. These outline in brief the various building typologies used to generate these numbers. Like the figures adjacent these maps are useful in establishing a baseline of desirable levels of growth. It is important to note that because this work was based on meshblocks a full 1km radius from the train station was not evaluated, only the meshblocks that wholly fell within this radius as shown by the purple line. In addition meshblocks that are part of Auckland City and within the 1km radius are also not included. Future updates to this work are likely to address these issues.

Figures 2021

House holds	3526	Figures 2057	Households	4420
Population	9752		Population	11756
Business Land Employment	9348		Business Land Employment	11086
HH Based Employment	2545		HH Based Employment	3308
Total Employment	11893		Total Employment	14194



ZONING SUMMARY ANALYSIS

COMMUNITY

Height

Rule 6B: Building Height/Air Discharges

Permitted Activities- any buildings where the building height is either less than 20m within 250m of the Moner Discharge Device (Chimney) or less than 250m when located greater than 25m from the Moner Discharge Device

At heights beyond this a Limited Discretionary consent is required, with the need to demonstrate the ability to mitigate adverse effects on occupants.

Wind

Rule 6A.1: Wind Effects

Permitted Activities - Any building where the building height is less than 20 metres.

At heights beyond it is a Limited Discretionary Consent - need to demonstrate ability to mitigate effects of wind on design and pedestrian amenity.

Height in relation to Boundary

Rule 2.1 Height in Relation To Boundaries

Permitted Activities - Buildings that do not project beyond the following recession plane:

- southernmost site boundary/recession plane 35°
- all other site boundaries recession plane 45°

As measured from any relevant point 2.5 metres vertically above ground level on any site boundary adjoining land within a Living Environment (except the Living & Environment within the New Lynn Town Centre), or an Open Space Environment.

Buildings which do not project beyond a recession plane of 45° as measured from any relevant point 10 metres vertically above ground level on any site boundary adjoining land within the Living & Environment within the New Lynn Town Centre.

Rule 2A: Height in Relation to Boundaries New Lynn

Buildings on sites fronting Memorial Drive or adjoining land within an Open Space Environment built within a recession plane measured at 45° into the site from a point 15 metres above the ground of the boundary with Memorial Drive or the Open Space Environment.

Beyond these standards a Discretionary Consent is required.

WORKING ENVIRONMENT

Height

No maximum height limit, controlled by Height in Relation to Boundary controls if applicable.

Height in relation to Boundary

Rule 2.1: Height and Height in Relation to Boundary

Permitted Activities -

a) buildings which do not project beyond the following recession plane:

- southernmost site boundary/recession plane 35°
- all other site boundaries recession plane 45°

as measured from any relevant point 2.5m vertically above ground level on any site boundary adjoining land within a Living Environment or an Open Space Environment

(b) Buildings which do not project beyond a recession plane of 45° as measured from any relevant point 10 metres vertically above ground level on any site boundary adjoining land within the Living Environment within the New Lynn Town Centre.

Coverage/Impervious surfaces

Rule 4: Impervious Surfaces

Permitted Activities - 100% impervious surface in the Working environment.

Residential Density

Rule 7: Residential Activities

Residential development is not anticipated in this environment. One dwelling is permitted if it is subsidiary to a non-residential activity on site, otherwise it is a non-complying activity.

Yards

Rule 3.1 Building and Development Location

Permitted Activities - Buildings are to be located no less than 6.0 metres from either a Living Environment or an Open Space Environment. Otherwise a Discretionary Consent is required.

ZONING SUMMARY

ANALYSIS

LIVING 6

Height

Rule 4.1: Building Height

Permitted Activities - Buildings with a minimum building height of 4 storeys, and a maximum building height of 10 storeys in the L6 environment. This is provided that for buildings over 20 metres in height Rules 6A and 6B of the Community Environment also apply, this rule requires a Limited Discretionary consent for buildings over these heights.

Height in relation to Boundary

Rule 5: Height in Relation to Boundary

Permitted Activities- Buildings that do not project upon beyond the following recession planes

- Southern- 35°
- Northern- 55°
- Eastern/ Western- 45°

as measured from 2.5m vertically above ground level

In addition the ground floor of a building in the L6 zone must be located no less than 5m from a site boundary.

Coverage/Impervious surfaces

As part of the criteria for a Limited Discretionary consent for apartment development impervious surfaces are capped at 70% for apartments. If impervious surfaces are beyond this level a Discretionary consent is required.

Density

Rule 2: Residential Activities / Density

No explicit guidance provided around density.

Apartments can be established in the L6 environment if:

- It meets City Wide Rule 1: Apartment Design and City Wide Rule 10: Noise attenuation,
- It does not locate habitable rooms within 20 metres of land zoned Working Environment (New Lynn) or the Monier (CSR) Special Area;
- It provides each individual apartment or the apartment building as a whole with a forced air mechanical ventilation system.

LIVING 5 ENVIRONMENT

Height

Rule 4: Building Height

Permitted Activities - Buildings have a maximum height of 11m. Beyond this a Discretionary Consent required.

Height in relation to Boundary

Rule 5: Height in Relation To Boundaries/Separator: Of Buildings

Permitted Activities - Buildings that do not project upon beyond the following recession planes

- s - Southern- 35°
- n - Northern- 55°
- e/w- Eastern/ Western- 45°

as measured from 2.5m vertically above ground level

Coverage/Impervious surfaces

As part of the criteria for a Limited Discretionary consent for medium density development impervious surfaces are capped at 70% for medium density / apartments. If impervious surfaces are beyond this level a Discretionary Consent is required.

Density

Rule 2: Residential Activities / Density

Requires a Limited Discretionary Consent as long as

- Medium density / apartments are established on a site not less than 1500m² with a minimum street frontage of 20m

- There is a minimum density of 1 dwelling unit per 200m² site area is provided

- It complies with City Wide Rule 1: Apartment Design

If these are not complied with then a Discretionary Consent is required.

Yards

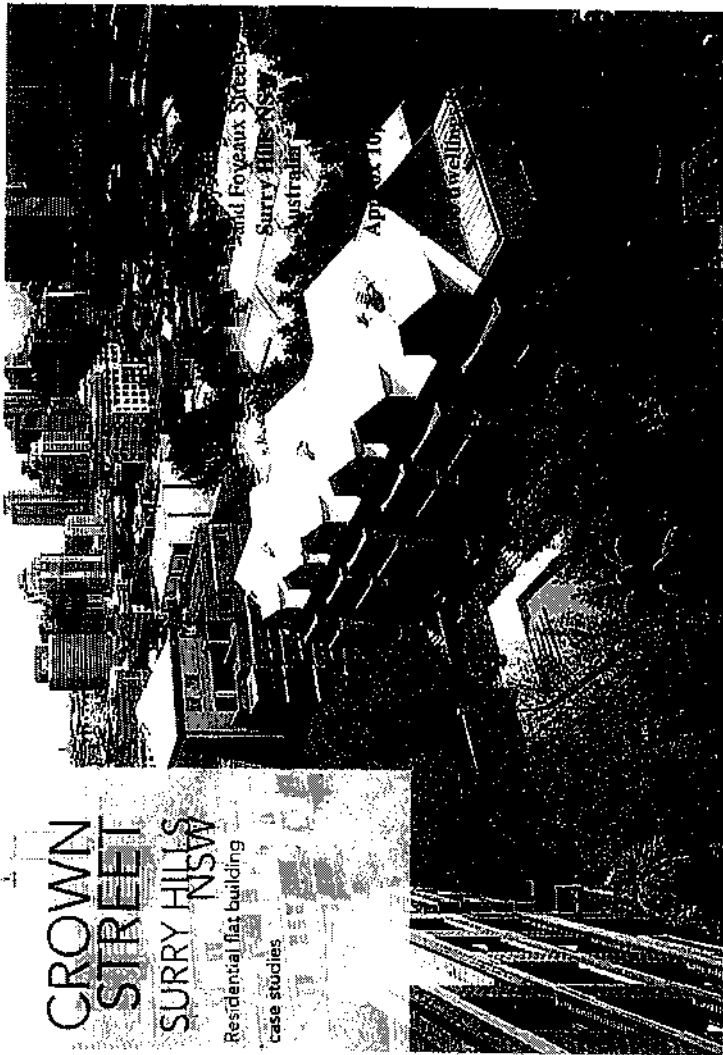
Rule 6.1 and 6.2: Front Yards

Require a 3m minimum front yard for all apartments in the Living 5 environment. If this is not complied with a Limited Discretionary Consent is required.

Mixed use
Perimeter
Block

CROWN
STREET
SURRY HILLS NSW

Residential flat building
case studies



The Crown Street Housing project is characterised by perimeter block development that wraps around a north-facing central courtyard.

The large building is successfully broken down into two smaller, well-scaled forms. The prominent building entry is overlooked by apartments and balconies.

The use of porticos, balconies and awnings to modulate the facade helps break down the scale of the building and make it appear less imposing.

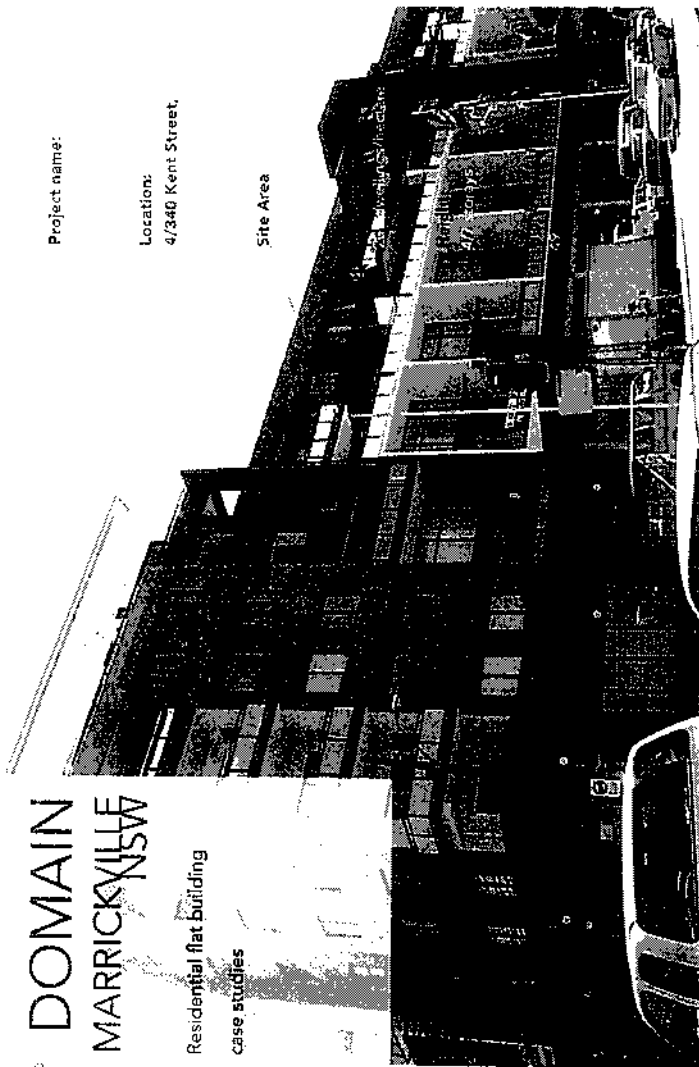
Ground floor uses include retail and entries to serviced apartments. An awning and colonnade provide protection for pedestrians and add interest to the building.

The landscaped central courtyard provides private outdoor space for residents, creating an escape from the city. The courtyard also provides the surrounding apartments with a pleasant outlook and greater amenity.

Mixed Use
Apartments

DOMAIN
MARRICKVILLE NSW

Residential flat building
case studies



Project name:

Location:
4/340 Kent Street

Site Area

Domain is a mixed-use development, comprising shops and offices at a street level, and apartments grouped around a common, secure, light-filled courtyard above.

Domain is situated on the main shopping street through Marrickville, close to transport, shops and the city.

The building has been designed to fit comfortably into its main street context of low-rise shops. The design also optimised orientation, outlook and cross ventilation for apartments.

The ground floor is given to retail and commercial uses that activate the main shopping street of Marrickville. An awning provides shelter for pedestrians.

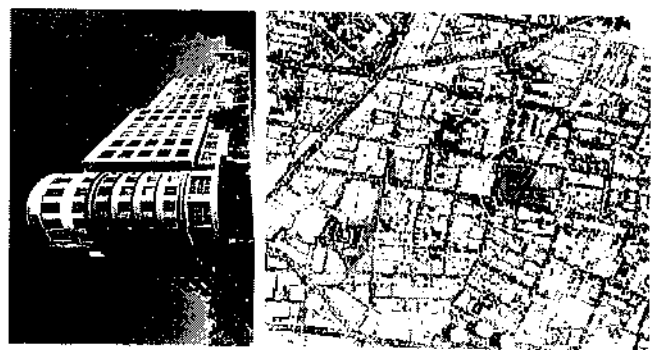
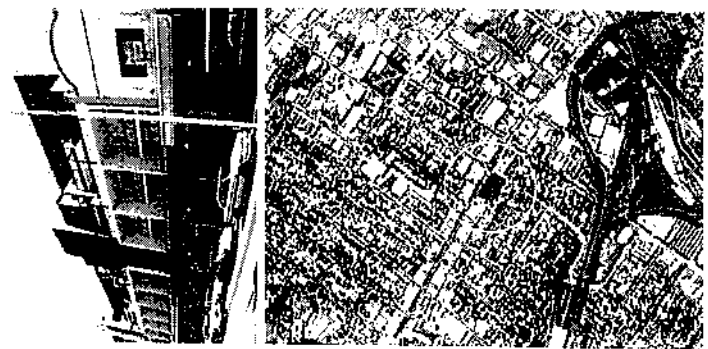
The development consists of three connected buildings wrapped around a central courtyard.

The maximum height of 7 storeys at the corner. Here, the upper 2 floors are set back to reduce the apparent scale of the building.

The use of white, double height balcony structures help to continue the strong pattern of two storey shops along the street.

Ground floor apartments each have an individual private entry and outdoor terrace space, opening directly to the central courtyard.

Upstairs, the main bedroom opens to a smaller private balcony. Good cross ventilation is achieved through the slender plan. Both the bathroom and ensuite have been located adjacent to external walls to benefit from natural light and ventilation.



ADD



A model affordable housing project that has been designed with a strong emphasis on issues of sustainability.

The building is of a scale sympathetic to the surrounding buildings and sits well within the existing streetscape of warehouses and terraces.

It has been designed in two sections with a larger, six-storey building fronting MacArthur Street with a smaller two-storey building addressing a rear lane. Between the two parts of the building is a north-facing courtyard overlooked by apartments. The design ensures that a majority of apartments have north-facing living spaces and balconies.

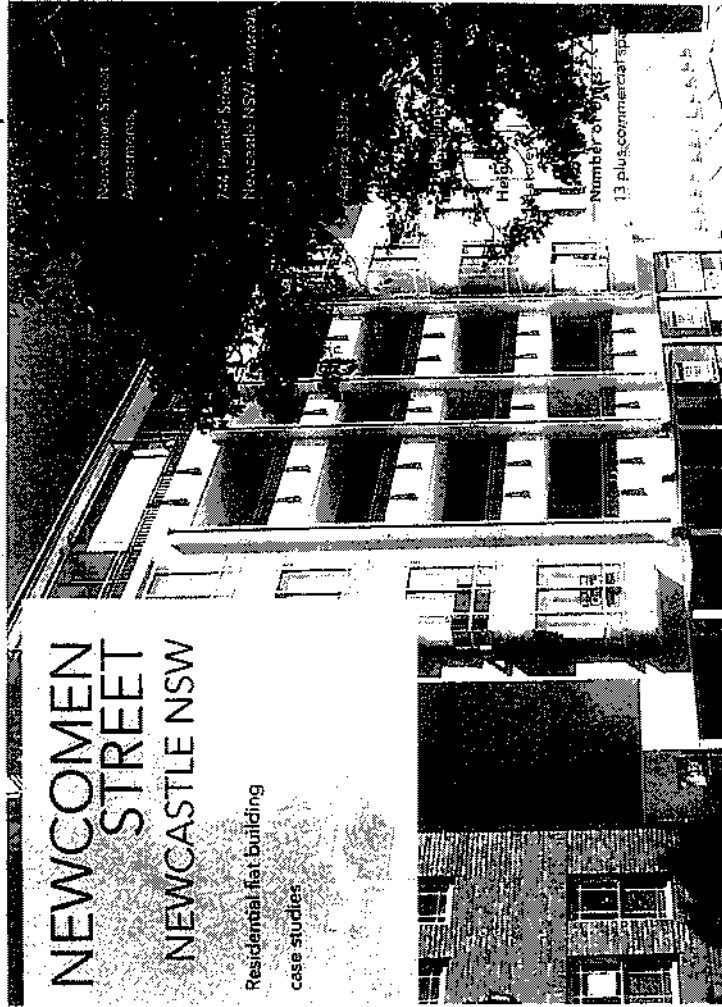
The building uses solar collectors to generate hot water and has been designed utilising sustainable materials, fixtures and fittings.

The site is also well served by public transport with good pedestrian connections to the city and Central Station.

All apartments have been designed to have a dual aspect, overlooking both the street and the central courtyard.

Large north-facing balconies have been provided, often with pergolas for additional sun shading. Balconies provide private open space adjacent to internal living areas, and overlook the landscaped internal courtyard.

The narrow floor plan ensures solar access and good cross ventilation for all apartments. A 'sunroom' links the internal living areas with the outdoor space of the courtyard, allowing residents to control the degree of enclosure and exposure. Smaller balconies provide private open space for bedrooms.



A small boutique development located in the heart of the central business district.

The development offers large two and three bedroom apartments, as well as three bedroom sub penthouses designed for family living.

All apartments have generous balconies taking advantage of the northeasterly aspect and views down Newcomen Street.

Car parking is provided on two lower levels, entry to the carpark is discreet and separate from pedestrian entries. These lower levels also contain commercial and retail spaces that enliven Newcomen Street.

The development is located in a dense urban area, where buildings are typically built to the street edge.

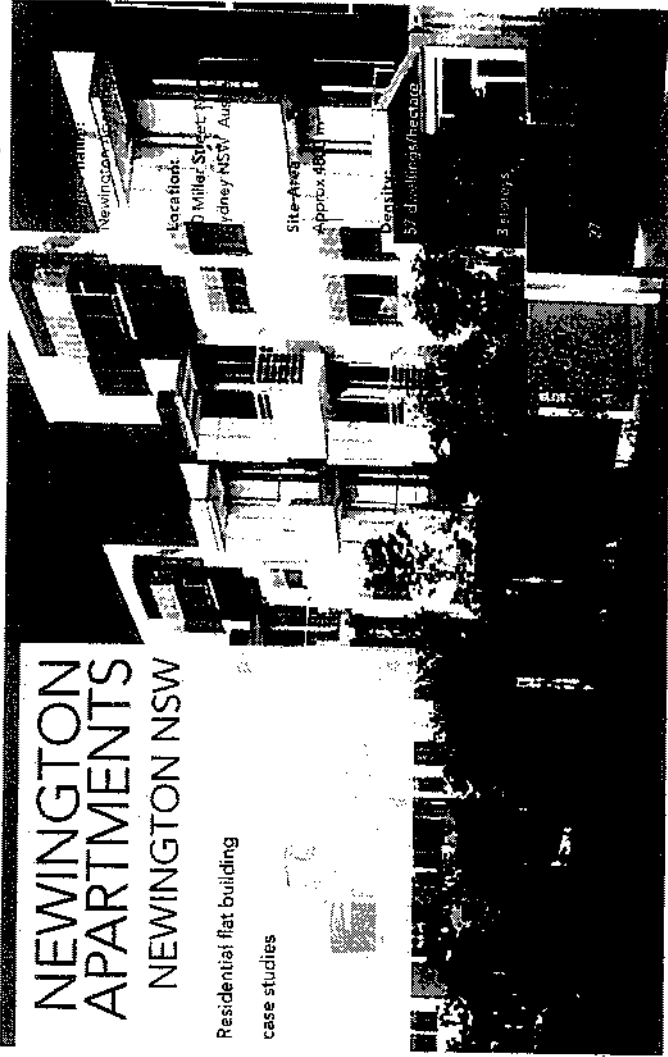
The building's elevations have been composed using deep recessed balconies and projected bay windows.

At the top of the building, double height penthouses are set back for improved privacy and to reduce the apparent bulk of the building.

The Newcomen Street apartments provide both living and office space within close proximity to central facilities, cultural attractions, parks and beaches.

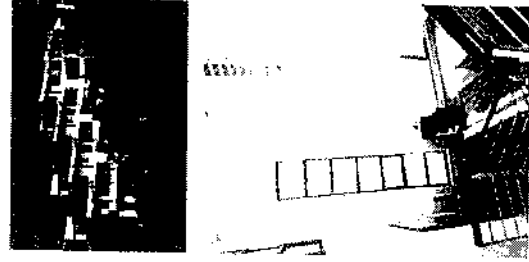


Low Rise Apartments



JUNE 2009
DATE

FINAL DRAFT VERSION 2
VERSION



The terraced apartments define the edge of Newington and have been set back from the environmentally sensitive wetland.

The stepped building form related to the sloping topography, and maintains a low building height appropriate to the surrounding residential development.

Building entries are defined as important elements and are emphasised through the use of massing and colour. In this way the bold coloured common stairs read as strong, easily identified elements.

All apartments have dual frontage, ensuring good cross ventilation. Efficient planning has eliminated the need for internal corridors.

Large, usable balconies have access to sunlight and views, and are provided with well-detailed sun shading screens and louvered pergolas to control privacy and sunlight.

Bathrooms and ensuites are located deeper into the plan for efficiency. Generously proportioned balconies are located adjacent to living areas. Narrow floor plans achieve good cross ventilation and access to natural light. In this case with windows on three sides of these apartments.

A double volume room with generous windows creates living space in the apartments.

A34

Typologies

TYPOLGIES

Based on Development Area 10,000

BUILDING RESPONSE	BLOCK COVERAGE %	INTERNAL ACCESS LANE %	INTERNAL OPEN SPACE %	NET DEV. AREA m ²	BUILDING COVERAGE %	BUILDING FOOTPRINT m ²	HEIGHT floors	EFFICIENCY %	GFA m ²	COMMERCIAL or RETAIL %	GFA m ²	COMMERCIAL EMPLOYMENT AS A % OF NET DEV. AREA	EMPLOYMENT RATE Emp/ha	RESIDENTIAL GFA m ²	LOT UNIT SIZE	HRU PER HA (#/ha)
SEMI DETACHED 40m ² 30m ²	70	10	20	7,600	100	7,000	1	120	7,000	0	0	0%	0	7,000	400	18
	70	10	20	7,300	100	7,000	1	100	7,000	0	0	0%	0	7,000	300	23
TERRACE OR ROW HOUSE 35m ² 25m ² 20m ²	70	10	20	7,000	100	7,000	1	100	7,000	0	0	0%	0	7,000	350	20
	70	10	20	7,000	100	7,000	1	100	7,000	0	0	0%	0	7,000	250	28
	70	10	20	7,000	100	7,000	1	100	7,000	0	0	0%	0	7,000	200	35
	70	10	20	7,000	100	7,000	1	100	7,000	0	0	0%	0	7,000	200	35
WALK-UP APARTMENTS 3 storey 3 storey mixed use	65	10	25	6,500	40	2,600	3	80	6,240	0	0	0%	0	6,240	100	62
	65	10	25	6,500	40	2,600	3	80	6,240	0	0	10%	133	6,240	100	56
PERIMETER APARTMENTS 3 storey 4 storey 5 storey 6 storey	65	10	25	6,500	50	3,250	3	80	7,000	0	0	0%	0	7,000	100	74
	65	10	25	6,500	50	3,250	4	80	10,400	0	0	0%	0	10,400	100	104
	65	10	25	6,000	50	3,000	5	80	15,000	0	0	0%	0	15,000	100	150
	65	10	25	6,000	50	3,000	6	80	15,000	0	0	0%	0	15,000	100	150
	65	10	25	6,500	50	3,250	6	80	15,000	0	0	0%	0	15,000	100	150
	65	10	25	6,500	50	3,250	6	80	15,000	0	0	0%	0	15,000	100	150
Mixed Use 3 storey 4 storey 5 storey 6 storey	65	10	25	6,500	50	3,250	3	75	7,319	10	781	11%	133	6,581	100	66
	65	10	25	6,500	50	3,250	4	75	9,750	10	975	15%	140	8,775	100	88
	65	10	25	6,500	50	3,250	5	75	12,188	10	1,219	18%	140	10,969	100	110
	65	10	25	6,500	50	3,250	6	75	14,625	10	1,463	23%	153	13,163	100	132
	65	10	25	6,500	50	3,250	6	75	14,625	10	1,463	23%	153	13,163	100	132
	65	10	25	6,500	50	3,250	6	75	14,625	10	1,463	23%	153	13,163	100	132
VERTICAL APARTMENTS Residential Only Mixed Use Commercial 3 storey 4 storey 5 storey 6 storey 7 storey 8 storey 9 storey Tower - 12 storey Podium Apartments Tower - 22 storey Podium Apartments Tower - 30 storey Podium Apartments	60	10	30	6,000	50	3,000	3	75	6,750	0	0	0%	0	6,750	100	66
	60	10	30	6,000	50	3,000	4	75	9,000	0	0	0%	0	9,000	100	90
	60	10	30	6,000	50	3,000	5	75	11,250	0	0	0%	0	11,250	100	112
	60	10	30	6,000	50	3,000	6	75	13,500	0	0	0%	0	13,500	100	135
	60	10	30	6,000	50	3,000	7	75	15,750	0	0	0%	0	15,750	100	158
	60	10	30	6,000	50	3,000	8	75	18,000	0	0	0%	0	18,000	100	180
	60	10	30	6,000	50	3,000	9	75	20,250	0	0	0%	0	20,250	100	203
	60	10	30	6,000	50	3,000	3	75	6,750	35	2,363	39%	133	4,388	100	44
	60	10	30	6,000	50	3,000	4	75	9,000	25	2,250	38%	133	6,750	100	66
	60	10	30	6,000	50	3,000	5	75	11,250	18	2,025	34%	140	9,225	100	92
	60	10	30	6,000	50	3,000	6	75	13,500	15	2,025	34%	140	11,475	100	115
	60	10	30	6,000	50	3,000	7	75	15,750	10	1,575	26%	153	14,175	100	142
60	10	30	6,000	50	3,000	8	75	18,000	8	1,440	24%	153	16,560	100	166	
60	10	30	6,000	50	3,000	9	75	20,250	6	1,215	20%	164	19,035	100	190	
55	10	35	5,500	70	3,850	3	80	9,240	100	9,240	188%	140	0	100	0	
55	10	35	5,500	50	2,750	3	60	18,000	0	0	0%	0	19,800	100	198	
55	10	35	5,500	50	2,750	3	60	18,000	0	0	188%	140	19,800	100	198	
55	10	35	5,500	70	3,850	4	80	12,320	100	12,320	224%	153	0	100	0	
55	10	35	5,500	40	2,200	18	80	31,680	0	0	0%	0	31,680	180	317	
55	10	35	5,500	40	2,200	18	80	31,680	0	0	224%	153	31,680	180	317	
55	10	35	5,500	70	3,850	5	80	15,400	100	15,400	280%	164	0	100	0	
55	10	35	5,500	30	1,650	25	80	33,000	0	0	0%	0	33,000	100	330	
55	10	35	5,500	30	1,650	25	80	33,000	0	0	280%	164	33,000	100	330	
Commercial	80	10	30	6,000	80	4,800	1	80	3,940	100	3,940	38%	213	0	0	0

Note 1

Note 2

Note 3

Note 4

Note 5

Note 6

Assumptions

- 1 More loading and open space is required as density increases - this is to ensure adequate light penetration between living spaces
- 2 Building coverage applies to multi-level apartments - individual lots are calculated at 100%. High Rise type apartments have lower coverages for their lower components
- 3 Height in floors applies to multi-level apartments - individual lots are calculated as a single level
- 4 Efficiency is a calculation to determine the amount of non-habitable common area within a building. Mixed use buildings have a lower efficiency due to the doubling up of services
- 5 Podiums are calculated at 100% commercial since even parking will generate a yield
- 6 The relative percentage of commercial within a mixed use building decreases with height, as does the percentage of commercial at a block level

135

NEW LYNN YIELD MODEL

SCENARIO 1: **URBAN FRAMEWORK PLAN**

BLOCK NUMBER	AREA m ²	% OF BLOCK	NET DEVELOPMENT AREA m ²	BUILDING RESPONSE	HEIGHT Floors	% OF BLOCK DEVELOPMENT	FLOORPLATE AREA m ²	VEGETATY APPLIED From Typology	YIELD RESIDENTIAL HHU	ESTIMATED POPULATION 2.5 people per HHU	YIELD COMMERCIAL m ²	EMPLOYMENT RATE Emp/Ha	ESTIMATED EMPLOYERS	THEORETICAL OPEN SPACE
MERCHANTS QUARTER														
1	26,635	100	26,635	Terrace Housing (250m ²) Walk-up Apartments MU Commercial Commercial	1 3 4 2	10% 39% 55% 100%	2,663 6,390 10,322 26,635	25 62 68 0	5 54 66 0	27 155 198 0	0 0 10,737 5,485	0 0 139 213	0 0 140 117	573 2,117 3,306 2,117 7,874
2	1,099	100	1,099	Commercial	2	100%	1,099	0	0	0	844	213	18	320
3a	9,874	100	9,874	MU Walk-up Apartments MU Commercial MU Commercial Commercial Public Building - Library	3 3 4 3 3	10% 19% 15% 25% 43%	987 987 1,481 2,469 4,254	56 44 68 0 0	8 4 10 0 0	16 15 29 0 0	65 432 555 2,844 0	135 135 135 210 0	1 0 7 61 0	247 298 298 741 1,728
3b	8,765	100	8,765	MU Walk-up Apartments MU Commercial MU Commercial MU Commercial Commercial	3 3 3 4 3	10% 30% 20% 39% 21%	877 2,630 1,758 3,427 1,852	56 68 44 68 0	5 17 8 12 0	14 50 22 750 0	34 288 560 657 2,019	140 0 0 213 0	1 0 0 61 0	219 657 596 526 3,262
4	12,846	100	12,846	MU Walk-up Apartments MU Commercial MU Commercial Commercial Public Building - Community Centre	3 3 4 3 3	20% 20% 20% 10% 30%	2,569 2,569 5,138 1,285 3,854	56 44 68 0 0	22 11 17 0 0	63 30 63 0 0	370 1,012 363 1,480 0	233 183 133 213 0	5 13 13 32 0	881 771 771 385 2,854
5	10,164	100	10,164	MU Commercial MU Commercial Commercial Commercial	3 4 4 5	25% 16% 20% 39%	2,541 1,626 2,031 3,927	44 68 0 0	11 17 0 0	27 49 0 0	95 847 4,859 3,889	133 139 213 213	15 15 98 82	728 785 909 806 3,031
Resultant Residential Density 32														

BLOCK NUMBER	AREA m ²	% OF BLOCK	NET DEVELOPMENT AREA m ²	BUILDING RESPONSE	HEIGHT Floors	% OF BLOCK DEVELOPMENT	FLOORPLATE AREA m ²	VEGETATY APPLIED From Typology	YIELD RESIDENTIAL HHU	ESTIMATED POPULATION 2.5 people per HHU	YIELD COMMERCIAL m ²	EMPLOYMENT RATE Emp/Ha	ESTIMATED EMPLOYERS	THEORETICAL OPEN SPACE
TRANSIT INTERCHANGE														
6	9,430	100	9,430	MU Commercial MU Commercial 12 Storey Tower Commercial Public Building - Transit Centre	4 5 12 4 4	10% 20% 30% 10% 30%	1,415 1,886 2,829 942 2,836	58 92 198 0 0	18 17 95 0 0	28 30 162 0 0	500 837 4,753 1,448 0	133 140 213 213 0	7 9 99 31 0	424 566 990 283 2,263
Resultant Residential Density 88														

BLOCK NUMBER	AREA m ²	% OF BLOCK	NET DEVELOPMENT AREA m ²	BUILDING RESPONSE	HEIGHT Floors	% OF BLOCK DEVELOPMENT	FLOORPLATE AREA m ²	VEGETATY APPLIED From Typology	YIELD RESIDENTIAL HHU	ESTIMATED POPULATION 2.5 people per HHU	YIELD COMMERCIAL m ²	EMPLOYMENT RATE Emp/Ha	ESTIMATED EMPLOYERS	THEORETICAL OPEN SPACE
AXIS														
7	9,442	100	9,442	MU Walk-up Apartments MU Commercial MU Commercial	2 3 4	10% 30% 60%	1,415 2,833 5,734	58 92 0	18 17 55	28 30 161	500 837 3,788	133 140 138	7 9 26	424 566 2,263
8	3,092	100	3,092	MU Commercial MU Commercial Commercial	3 4 4	30% 55% 15%	2,428 1,451 1,214	44 68 0	11 30 0	34 67 0	956 1,669 4,854	133 133 213	15 22 40	728 1,335 364 2,426
9	5,497	100	5,497	MU Commercial MU Commercial	3 4	55% 45%	3,023 2,474	44 68	13 17	38 48	1,190 929	133 133	16 12	907 742 1,649
10	28,684	100	28,684	MU Commercial 22 Storey Tower Commercial	4 20 3	20% 20% 60%	7,721 7,737 23,210	68 317 0	52 246 0	151 67 0	2,801 17,395 36,788	133 133 213	39 285 570	2,321 2,708 5,883 11,892
Resultant Residential Density 89														

BLOCK NUMBER	AREA m ²	% OF BLOCK	NET DEVELOPMENT AREA m ²	BUILDING RESPONSE	HEIGHT Floors	% OF BLOCK DEVELOPMENT	FLOORPLATE AREA m ²	VEGETATY APPLIED From Typology	YIELD RESIDENTIAL HHU	ESTIMATED POPULATION 2.5 people per HHU	YIELD COMMERCIAL m ²	EMPLOYMENT RATE Emp/Ha	ESTIMATED EMPLOYERS	THEORETICAL OPEN SPACE
MAIN STREET QUARTER														
11	7,515	100	7,515	Commercial	2	100%	7,515	0	0	0	5,764	213	123	2,252
12	26,947	100	26,947	Terrace Housing (250m ²) Commercial	2	100%	26,947	28	8	26	0	0	0	539
13	7,130	100	7,130	Commercial	2	100%	7,130	0	0	0	5,428	213	117	2,136
14	16,443	100	16,443	Commercial	2	100%	16,443	0	0	0	12,630	213	289	4,589
15	3,967	100	3,967	Commercial	2	100%	3,967	0	0	0	3,047	213	66	1,330
16	7,615	100	7,615	Commercial	2	100%	7,615	0	0	0	5,772	213	123	2,252
17a	17,485	40	6,992	Commercial	7	100%	6,992	0	0	0	5,370	213	114	2,388
17b	14,101	100	14,101	MU Commercial Commercial	5 2	20% 80%	7,832 11,825	44 0	12 0	30 0	1,115 6,701	133 213	15 165	659 3,989
19a	9,748	70	6,823	MU Commercial Commercial	3 2	10% 90%	862 6,140	44 0	3 0	9 0	286 4,718	133 213	4 100	205 1,842
19b	15,138	20	3,039	Commercial	8	100%	3,039	0	0	0	4,884	213	104	2,047
21	24,622	100	24,622	MU Commercial Commercial	3 2	40% 60%	9,949 14,773	44 0	43 0	125 0	3,678 11,255	133 213	52 242	2,955 4,452
22	10,820	100	10,820	Commercial	2	100%	10,820	0	0	0	8,256	213	104	2,047

A36

FIELD MODEL REPORT - NEW LYNN

NEW LYNN YIELD MODEL

WALKERBERRY CITY COUNCIL

JUNE 2005

FINAL DRAFT VERSION 21

FRAMEWORK MODEL YIELD SPREADSHEET

FRAMEWORK Model

				MU Commercial	3	40%	1,200	44	18	64	1,857	153	22	1,252
				Commercial	2	60%	6,332	0	0	0	4,824	213	103	1,234
						100%	10,240	0	18	64	6,681	266	125	3,486
23	6,282	100	6,282	MU Commercial	3	30%	1,878	44	8	24	740	133	10	564
				MU Commercial	6	70%	4,383	115	50	146	1,479	140	21	1,315
						100%	6,261	159	58	170	2,219	273	31	1,879
24	9,418	100	9,418	MU Commercial	3	20%	1,864	44	5	24	742	183	10	565
				MU Commercial	4	40%	3,767	88	25	74	1,413	180	19	1,130
				MU Commercial	6	20%	1,684	115	45	45	636	140	8	545
				Commercial	4	20%	1,864	0	0	0	2,895	219	52	585
						100%	9,418	247	55	160	3,683	502	89	2,825
25a	10,746	20	2,151	Commercial	2	100%	2,151	0	0	0	1,652	213	30	645
						100%	2,151	0	0	0	1,652	213	30	645
26a	10,213	80	3,244	Commercial	2	100%	3,244	0	0	0	2,491	212	58	873
						100%	3,244	0	0	0	2,491	212	58	873
27a	11,284	30	3,379	MU Commercial	5	80%	2,703	92	25	72	915	140	13	811
				Commercial	3	20%	616	0	3	0	778	213	17	263
						100%	3,319	92	28	72	1,693	213	30	1,074
28	10,647	100	10,647	Walk-up Apartments	3	20%	2,129	62	13	39	0	0	0	532
				Apartment	4	40%	4,259	104	44	128	0	0	0	1,065
				MU Walk-up Apartments	3	20%	2,129	62	12	39	204	133	3	532
				MU Commercial	4	20%	2,129	62	14	42	190	133	11	539
						100%	10,647	248	84	243	1,694	403	13	1,278
28a	15,175	60	9,105	Terrace Housing (250m2)	2	10%	911	26	3	7	0	0	0	182
				MU Walk-up Apartments	3	20%	911	56	5	15	87	123	1	228
				MU Commercial	4	25%	2,270	68	15	43	854	153	11	633
				12 Storey Tower	12	25%	2,270	159	45	131	3,894	140	54	787
				Commercial	2	15%	1,364	0	0	0	1,049	213	22	410
				Commercial	4	15%	1,364	0	0	0	2,098	213	45	410
						100%	9,105	245	68	197	7,812	502	133	2,708
30	14,815	100	14,815	Commercial	1	50%	7,408	0	0	0	2,808	218	68	2,192
				Commercial	2	30%	4,485	0	0	0	3,267	213	72	1,316
				Commercial	3	20%	2,922	0	0	0	2,097	213	72	877
						100%	14,815	0	0	0	8,172	644	212	4,385
31	20,414	100	20,414	MU Commercial	5	25%	5,104	44	22	65	2,010	133	27	1,551
				Commercial	1	20%	6,124	0	0	0	2,382	213	50	1,837
				Commercial	2	25%	7,145	0	0	0	5,467	213	117	2,142
				Commercial	5	15%	2,041	0	0	0	2,918	213	83	812
						100%	20,414	44	22	65	12,768	572	277	5,121
32	30,861	100	30,861	MU Commercial	3	40%	12,024	44	53	153	4,735	133	63	3,687
				Commercial	1	15%	4,589	0	0	0	1,722	213	37	783
				Commercial	2	20%	7,215	0	0	0	5,172	213	123	2,295
				Commercial	5	20%	6,032	0	0	0	11,543	213	246	1,604
						100%	30,861	44	53	153	25,281	572	469	6,018
33	8,158	100	8,158	MU Commercial	3	100%	5,711	41	25	71	2,249	133	30	1,713
				Commercial	5	30%	2,447	0	0	0	4,698	211	130	734
						100%	8,158	41	25	71	6,947	444	139	2,447
							253,126		476	1,375	173,467		3,478	75,220

Resultant Residential Density 18

FRAMEWORK MODEL YIELD SPREADSHEET

CROWN LYNN														
25b	10,756	80	8,605	Walk-up Apartments	3	25%	2,151	62	13	34	0	0	0	598
				Apartment	4	30%	2,581	80	23	58	0	0	0	774
				Apartment	5	20%	7,581	118	28	70	0	0	0	774
				MU Walk-up Apartments	3	100%	8,605	56	7	18	724	173	2	323
								75	182	124		2	2,409	
26b	10,812	70	7,569	Walk-up Apartments	3	20%	1,514	62	9	24	0	0	0	378
				Apartment	4	40%	3,028	90	27	68	0	0	0	808
				MU Walk-up Apartments	3	20%	1,514	56	9	21	146	133	2	378
				MU Commercial	4	20%	1,514	65	10	26	568	133	3	454
						100%	7,569	273	55	139	713	169	5	2,115
27b	11,264	70	7,885	MU Walk-up Apartments	3	15%	1,163	56	7	19	114	133	2	298
				Apartment	5	25%	1,517	113	32	54	0	0	0	991
				MU Commercial	3	20%	2,385	64	10	30	931	133	17	710
				MU Commercial	4	30%	2,385	68	16	46	892	133	12	716
						100%	7,885	287	55	160	1,932	403	26	2,702
28b	15,175	40	6,070	Terrace Housing (250m2)	2	40%	2,428	28	7	20	0	0	0	466
				Walk-up Apartment	3	25%	1,518	62	9	27	0	0	0	378
				Commercial	5	35%	2,124	0	0	0	1,632	213	36	637
						100%	6,070	90	16	47	1,632	403	36	1,502
34	8,616	100	8,610	Terrace Housing (200m2)	2	20%	1,722	35	3	14	0	0	0	344
				Terrace Housing (250m2)	3	40%	3,444	28	10	28	0	0	0	688
				Terrace Housing (300m2)	3	30%	2,583	20	7	21	0	0	0	517
				Walk-up Apartments	3	10%	861	62	5	16	0	0	0	215
						100%	8,610	145	25	79	0	0	0	1,765
35	48,385	100	48,382	Terrace Housing (200m2)	3	20%	915	35	27	79	0	0	0	1,935
				Terrace Housing (250m2)	2	30%	16,834	28	47	138	0	0	0	3,247
				Terrace Housing (300m2)	2	15%	1,513	20	11	178	0	0	0	2,903
				Commercial	2	15%	2,267	0	0	0	5,574	213	119	2,177
						100%	48,382	143	112	324	5,787	545	119	10,462
36	10,855	100	10,855	Terrace Housing (200m2)	3	30%	3,267	35	9	27	0	0	0	657
				Terrace Housing (250m2)	2	40%	4,389	28	12	35	0	0	0	876
				Walk-up Apartments	3	30%	3,267	62	21	58	0	0	0	822
						100%	10,923	125	42	122	0	0	0	2,355
37	4,627	100	4,627	Terrace Housing (200m2)	3	40%	925	35	3	6	0	0	0	185
				Terrace Housing (250m2)	2	20%	860	28	3	8	0	0	0	185
				Walk-up Apartments	3	40%	1,651	62	12	33	0	0	0	463
				Apartment	4	20%	925	60	8	24	0	0	0	378
						100%	4,627	125	26	71	0	0	0	1,210
38	4,954	100	4,954	Terrace Housing (200m2)	3	70%	951	35	3	8	0	0	0	188
				Walk-up Apartments	2	30%	1,486	62	9	27	0	0	0	372
				Apartment	4	30%	1,486	60	13	39	0	0	0	448
				MU Walk-up Apartments	3	20%	951	58	6	16	95	133	1	248
						100%	4,864	115	31	80	95	1	1,292	
39	4,175	100	4,176	Terrace Housing (200m2)	3	20%	815	35	2	7	0	0	0	167
				Terrace Housing (250m2)	2	20%	815	28	2	7	0	0	0	167
				Walk-up Apartments	3	30%	1,253	62	8	23	0	0	0	315
				Apartment	4	30%	1,253	60	11	33	0	0	0	378
						100%	4,173	125	24	69	0	0	0	1,023
40	4,305	100	4,305	Apartment	4	100%	4,305	93	38	97	0	0	0	1,282
						100%	4,305	93	39	97	0	0	0	1,282
41	8,308	100	8,308	Terrace Housing (200m2)	2	60								

FRAMEWORK MODEL YIELD SPREADSHEET

W4-up Apartments		3		40%		1,025		R2		5		21		C		D		D		331			
		100%		6,834		8,359				13		35		0		0		0		726			
42	6,834	100	6,834	Terrace Housing (200m2)	5	10%	1,960	35	6	14	0	0	0	0	0	0	0	0	0	380			
				Terrace Housing (250m2)	2	29%	3,317	28	9	21	0	0	0	0	0	0	0	0	0	0	0	863	
				Walk-up Apartments	3	43%	1,557	52	23	58	0	0	0	0	0	0	0	0	0	0	0	332	
				100%	6,834				29	58											1,352		
43	8,334	100	8,334	Perimeter Apartments	4	60%	5,010	104	52	139	0	0	0	0	0	0	0	0	0	0	1,250		
				Perimeter Apartments	5	40%	3,324	120	43	102	0	0	0	0	0	0	0	0	0	0	0	533	
						100%	8,334					95	236										
44	12,798	100	12,798	Terrace Housing (200m2)	5	25%	2,560	35	7	16	0	0	0	0	0	0	0	0	0	0	512		
				Terrace Housing (250m2)	2	21%	2,560	28	7	16	0	0	0	0	0	0	0	0	0	0	0	512	
				Walk-up Apartments	3	13%	1,260	68	4	23	0	0	0	0	0	0	0	0	0	0	0	300	
				Semi-Detached (400m2)	2	50%	6,299	35	15	46	0	0	0	0	0	0	0	0	0	0	0	0	1,250
						100%	12,798					56	101										
						147,211				675	1,497		10,089					182	0	34,574			

Resultant Residential Density: 49. Note: A lower average household size of 2.5 has been used for the Living 8

PORTAGE BUSINESS		17a		17,480		60		10,484		Commercial		2		100%		10,488		C		D		2		5,655		213		172		3,146				
		9,746		30		2,924				Commercial		2		100%		2,924		0		0		0		2,925		213		48		877				
20a	15,195	80	12,156	Commercial	2	100%	10,458	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
						100%	10,458																											
45	20,618	100	20,618	Walk-up Apartments	3	20%	4,723	NP	29	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,184			
				Commercial	1	20%	4,723	80	43	123	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,417	
				Commercial	2	20%	4,723	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,417
				Commercial	3	20%	4,723	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,417
						100%	23,816																											
46	79,762	100	79,762	Commercial	1	70%	15,879	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
				Commercial	2	20%	23,229	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
						100%	79,762																											
47	17,794	130	17,794	Commercial	1	70%	12,455	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
				Commercial	2	30%	5,339	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
48	15,209	100	15,209	Commercial	1	70%	10,716	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
				Commercial	2	20%	3,493	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
						100%	14,209																											
49	12,743	100	12,743	Commercial	1	70%	8,920	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
				Commercial	2	30%	3,823	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
							174,791																											

Resultant Residential Density: 4

REWAREWA		50		52,110		100		52,110		Semi-Detached (400m2)		1		40%		20,844		35		66		169		C		D		0		4,769				
51	52,931	100	52,931	Terrace Housing (200m2)	3	30%	15,833	35	35	44	127	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
				Terrace Housing (250m2)	2	30%	15,833	28	44	127	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
						100%	31,666																											
52	13,312	100	13,312	Semi-Detached (400m2)	1	40%	15,472	35	37	107	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
				Terrace Housing (200m2)	2	30%	9,879	35	29	80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
				Terrace Housing (250m2)	2	30%	9,879	38	35	89	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
53	29,706	100	29,706	Semi-Detached (400m2)	1	40%	5,525	35	15	43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
				Terrace Housing (200m2)	3	30%	4,904	28	11	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
				Terrace Housing (250m2)	2	30%	3,984	28	11	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
							128,079																											

Resultant Residential Density: 28

TOTALS	842,654	842,654	842,654	2,315	6,579	376,708	7,493	774,256	15,493	34
				Net Resultant Residential Density	27	115,493				
				RNI per Ha	20m ²					
							Open Space per Ha	100		

- NOTES:
 1. Theoretical Open Space is the area determined within the typology models as being provided within a block - there is no determination as to whether this is private or public
 2. Manual Square or the spaces around the Community Centre have not been included within Existing Open Space provisions.
 3. Resultant residential density is determined by the total yield outcome divided by the total block area
 4. Some areas (Pawmua) have been calculated as an estimated outcome within the current zoning rule

OPEN SPACE PROVISION		Area (m ²)
EXISTING		
Block and Reserve		37,745
Ambrosia Place		210
Park		31810
Triangle Park	0	466
Maw 2	0	863
Other		23,622
ADDITIONAL OPEN SPACE AS PER MODEL		
7 Park		2030
8 Park		2164
9 Park		1855
20 Plaza		1548
25 Pond and park		1525
35 Park		2088
Total Open Space Provision on a model		14781
		11,130
Theoretical Open Space		224,256
Difference: Additional Open Space provided within blocks		113,055

Note: Park size is different from that indicated in zone plans

A08

NEW LYNN YIELD MODEL

SCENARIO 2: FUTURE CASTING

BLOCK NUMBER	AREA m2	% OF BLOCK	NET DEVELOPMENT AREA m2	BUILDING RESPONSE	HEIGHT Feet	% OF BLOCK DEVELOPMENT	FOOTPLATE AREA m2	DENSITY APPLICABLE (From Typology)	YIELD RESIDENTIAL HHU	ESTIMATED POPULATION 2.5 people per HHU	YIELD COMMERCIAL m2	EMPLOYMENT RATE Emp/Ha	ESTIMATED EMPLOYEES	THEORETICAL OPEN SPACE
MERCHANTS QUARTER														
1	28,633	100	28,633	Walk-up Apartments Apartments MU Commercial Commercial	3 4 5 4	20% 10% 35% 25%	5,727 2,825 10,662 7,156	E2 90 112 E8	3d 2d 3d d	89 84 81 109	0 0 0 19,737	0 0 0 133	0 0 0 143	1,439 859 859 3,909
2	1,098	100	1,098	Commercial	4	100%	1,098	0	0	0	21,732	213	317	3,305
3a	9,874	100	9,874	MU Walk-up Apartments MU Commercial Commercial Public Building - Library	3 4 3	50% 25% 40%	897 2,469 2,469	56 88 0	5 17 0	1c 42 0	95 925 2,664	133 133 213	1 12 61	247 741 741
3b	8,765	100	8,765	MU Walk-up Apartments MU Residential Apartments MU Commercial Commercial	3 4 4 3	15% 30% 35% 25%	871 2,636 3,008 3,131	56 88 68 0	6 23 21 5	12 58 52 8	84 354 1,150 2,624	123 149 133 213	1 6 15 34	219 857 920 657
4	12,846	100	12,846	Apartments MU Commercial Commercial Public Building - Community Centre	5 4 5	30% 40% 10% 20%	3,854 5,134 1,285 2,569	113 88 0 0	43 35 0 0	108 57 0 0	0 1,927 2,466	0 133 213	0 26 53	1,156 1,542 365
5	10,104	100	10,104	MU Commercial Commercial Commercial	8 4 5	50% 10% 20%	5,052 3,031 2,021	115 3 0	58 0 0	145 8 3	1,705 4,856 2,880	149 213 213	24 99 33	1,516 369 399
			71,321	check			71,321		369	251	46,072		247	18,430
Resultant Residential Density 32														

BLOCK NUMBER	AREA m2	% OF BLOCK	NET DEVELOPMENT AREA m2	BUILDING RESPONSE	HEIGHT Feet	% OF BLOCK DEVELOPMENT	FOOTPLATE AREA m2	DENSITY APPLICABLE (From Typology)	YIELD RESIDENTIAL HHU	ESTIMATED POPULATION 2.5 people per HHU	YIELD COMMERCIAL m2	EMPLOYMENT RATE Emp/Ha	ESTIMATED EMPLOYEES	THEORETICAL OPEN SPACE
TRANSIT INTERCHANGE														
6	12,189	100	12,189	MU Commercial MU Commercial 12 Storey Tower Commercial Public Building - Transit Centre	5 4 12 4	15% 20% 30% 10% 25%	1,828 2,428 3,657 1,219 3,047	92 115 198 0 0	17 26 72 0 0	42 76 181 0 0	617 823 6,143 1,872	140 140 140 213	0 12 96 40	549 731 1,250 360
			12,189	check			12,189		117	292	9,453		148	2,425
Resultant Residential Density 96														

BLOCK NUMBER	AREA m2	% OF BLOCK	NET DEVELOPMENT AREA m2	BUILDING RESPONSE	HEIGHT Feet	% OF BLOCK DEVELOPMENT	FOOTPLATE AREA m2	DENSITY APPLICABLE (From Typology)	YIELD RESIDENTIAL HHU	ESTIMATED POPULATION 2.5 people per HHU	YIELD COMMERCIAL m2	EMPLOYMENT RATE Emp/Ha	ESTIMATED EMPLOYEES	THEORETICAL OPEN SPACE
AXIS														
7	9,442	100	9,442	Apartments MU Commercial MU Commercial	6 4 6	15% 20% 65%	1,416 2,833 5,193	113 69 115	10 15 48	48 48 149	0 1,062 1,758	0 133 140	0 14 25	425 850 1,558
8	8,002	100	8,002	MU Commercial MU Commercial Commercial	2 6 6	80% 5% 15%	2,428 4,457 1,117	88 115 0	16 51 0	41 124 0	910 1,502 1,854	133 140 213	12 21 47	729 1,336 384
9	5,487	100	5,487	MU Commercial MU Commercial	4 5	45% 55%	2,474 3,013	68 115	17 35	42 67	828 1,020	133 140	12 14	746 867
10	38,684	100	38,684	MU Commercial 12 Storey Tower Commercial (res)	6 20 4	30% 30% 40%	11,665 11,865 15,474	115 317 0	133 368 3	323 318 0	3,917 25,898 23,751	140 155 213	35 398 504	3,482 4,282 4,642
			61,715	check			61,715		714	1,752	62,720		1,097	19,895
Resultant Residential Density 115														

BLOCK NUMBER	AREA m2	% OF BLOCK	NET DEVELOPMENT AREA m2	BUILDING RESPONSE	HEIGHT Feet	% OF BLOCK DEVELOPMENT	FOOTPLATE AREA m2	DENSITY APPLICABLE (From Typology)	YIELD RESIDENTIAL HHU	ESTIMATED POPULATION 2.5 people per HHU	YIELD COMMERCIAL m2	EMPLOYMENT RATE Emp/Ha	ESTIMATED EMPLOYEES	THEORETICAL OPEN SPACE
MAIN STREET QUARTER														
11	7,503	100	7,503	MU Commercial MU Commercial	4 6	30% 70%	2,259 5,244	88 115	28 38	63 103	1,407 2,074	133 140	19 36	1,126 2,252
12	26,947	100	26,947	Perimeter Apartments Apartments MU Commercial	8 8 8	30% 20% 50%	8,084 5,388 13,474	153 100 115	168 97 155	345 243 387	0 0 2,567	0 0 140	0 0 84	2,041 1,677 4,042
13	7,120	100	7,120	Commercial	6	100%	7,120	0	0	0	2,738	213	58	2,130
14	8,192	100	8,192	Commercial	3	100%	8,192	0	0	0	2,738	213	58	2,130
14a	15,845	100	15,845	Commercial	4	100%	15,845	0	0	0	24,482	213	82	4,784
15	3,967	100	3,967	30 Storey Tower	30	100%	3,967	330	131	327	11,188	160	182	1,360
16	7,515	100	7,515	MU Commercial 30 Storey Tower	6 30	50% 50%	3,758 3,758	115 330	45 124	48 318	1,268 10,521	140 160	18 178	1,127 1,816
17	17,430	100	17,430	MU Commercial Commercial	6 4	60% 40%	10,459 6,971	115 0	120 0	301 0	3,640 17,740	140 213	58 229	3,145 2,039
18	14,161	100	14,161	MU Commercial 12 Storey Tower Commercial	6 12 4	50% 30% 20%	7,081 4,248 2,832	115 198 0	81 84 0	283 210 0	2,330 7,137 4,350	140 140 213	53 100 55	2,124 1,487 890
19	9,745	100	9,745	MU Commercial Commercial	6 4	60% 40%	5,847 3,898	115 0	85 82	224 224	2,631 2,354	140 213	17 84	2,303 85
20	15,185	100	15,185	MU Commercial Commercial	5 4	40% 60%	6,073 9,112	115 0	76 0	174 0	2,351 14,804	140 213	20 298	1,859 2,735

A39

NEW LYNN YIELD MODEL
MAY/LAKE CITY COUNCIL
JUNE 2009
FINAL DRAFT VERSION 2

BOLSTERED MODEL YIELD SPREADSHEET

21	24,822	100	24,822	Perimeter Apartments MU Commercial 12 Storey Tower Commercial	6 6 12 8	30% 20% 30% 20%	7,367 4,874 7,367 4,874	156 115 198 8	115 57 146 0	288 141 266 0	0 1,862 12,403 7,654	0 140 140 213	0 23 174 151	1,847 1,477 2,585 1,477
						100%	24,822		518	705	21,635		358	7,367
22a	7,511	100	7,511	Commercial	4	100%	7,511	0	0	0	3,257	2%	82	733
						100%	7,511		0	0	3,257		82	733
22b	6,851	100	6,851	MU Commercial MU Commercial Commercial	6 8 4	40% 10% 50%	2,760 65 3,326	115 166 3	31 11 0	70 53 0	686 180 5,108	140 153 213	12 2 182	798 230 998
						100%	6,851		42	124	5,185		124	1,359
23	8,845	100	8,845	MU Commercial MU Commercial	5 8	30% 70%	2,654 6,182	82 768	24 122	61 286	865 1,286	140 153	12 23	798 1,357
						100%	8,845		127	319	2,352		35	2,654
24	10,822	100	10,822	MU Commercial MU Commercial MU Commercial Commercial	5 5 8 6	20% 40% 20% 20%	2,064 4,128 2,064 2,064	92 115 165 0	13 47 34 0	48 118 85 0	697 1,491 486 4,758	140 140 153 213	10 20 8 101	619 1,429 619 819
						100%	10,822		161	252	7,342		101	3,097
25a	7,291	100	7,291	Perimeter Apartments	5	100%	7,291	156	126	312	0	0	0	1,298
						100%	7,291		126	312	0	0	0	1,298
25b	16,160	100	16,160	Perimeter Apartments MU Commercial	8 6	50% 50%	8,088 8,088	166 115	96 47	238 117	0 1,372	0 0	0 0	1,694 1,218
						100%	16,160		142	354	1,372		0	2,740
26	15,115	100	15,115	Perimeter Apartments MU Commercial	6 7	80% 20%	9,688 5,428	156 142	141 26	354 214	0 1,567	0 153	0 24	2,287 4,811
						100%	15,115		227	568	1,567		24	4,811
27	16,539	100	16,539	Perimeter Apartments MU Commercial 12 Storey Tower Commercial	5 6 12 6	30% 25% 30% 15%	4,977 4,147 4,977 2,338	100 108 198 3	85 46 89 0	182 119 246 0	0 1,490 8,361 5,733	0 140 140 213	0 20 117 182	1,214 1,244 1,742 747
						100%	16,539		213	527	15,484		259	4,977
28	18,477	100	18,477	MU Commercial 10 Storey Tower Commercial	8 12 4	40% 30% 30%	6,511 4,948 4,913	186 194 0	189 98 0	273 245 0	1,582 3,204 7,295	157 140 213	24 116 182	1,577 1,759 5,485
						100%	18,477		207	518	17,479		322	5,190
29	14,615	100	14,615	Perimeter Apartments MU Commercial 12 Storey Tower Commercial	5 6 12 8	30% 25% 25% 20%	4,385 3,654 3,654 2,923	126 115 198 218	57 42 72 82	142 146 181 269	0 1,233 6,138 9,285	0 0 0 0	0 0 0 87	1,036 1,086 1,279 877
						100%	14,615		234	594	14,136		0	4,328
30	25,629	100	25,629	Apartments Apartments MU Commercial Commercial	6 8 6 4	30% 10% 65% 25%	7,749 2,583 16,655 4,847	135 193 115 0	105 46 74	282 118 189	0 0 2,179	0 0 140 213	0 0 31 211	2,925 775 1,937 1,937
						100%	25,629		225	561	17,967		347	7,249
31	30,061	100	30,061	Apartments MU Commercial Commercial Commercial	3 6 4 5	20% 40% 20% 15%	6,012 12,024 7,615 4,429	140 165 0 0	106 139 0 0	274 348 0 0	0 4,860 11,543 8,668	0 140 213 213	0 57 246 184	1,804 3,507 2,255 1,358
						100%	30,061		246	315	24,259		487	9,018
32	8,158	100	8,158	MU Commercial Commercial	6 4	50% 50%	4,079 4,079	115 0	47 0	117 0	1,377 6,286	140 213	19 133	1,224 1,224
						100%	8,158		47	117	7,862		153	2,447
	331,729						337,729		3,439	8,598	295,655		4,652	92,451

Resultant Residential Density 104

CROWN LYNN															
32	8,610	100	8,610	Apartments MU Commercial	8 6	70% 30%	6,027 2,583	190 116	104 37	271 74	0 872	0 140	0 12	1,809 775	
						100%	8,610		136	345	872		12	2,583	
34a	3,581	100	3,581	Perimeter Apartments	6	100%	3,581	156	58	140	0	0	0	898	
						100%	3,581		58	140	0	0	0	898	
34b	16,402	100	16,402	Perimeter Apartments MU Commercial	6 6	50% 50%	12,862 3,540	156 115	201 37	502 82	0 1,087	0 140	0 15	3,220 382	
						100%	16,402		238	584	1,087		15	4,767	
35	5,644	100	5,644	Perimeter Apartments MU Commercial	5 6	30% 70%	1,693 3,951	156 115	100 78	261 46	0 542	0 140	0 8	1,039 483	
						100%	5,644		119	267	542		8	2,062	
36	6,616	100	6,616	Perimeter Apartments MU Commercial	6 6	30% 70%	1,609 5,007	156 115	100 18	261 46	0 541	0 140	0 8	1,032 483	
						100%	6,616		118	286	541		8	2,084	
37	7,727	100	7,727	Perimeter Apartments MU Commercial	8 8	30% 70%	2,318 5,409	165 115	88 18	241 84	0 622	0 140	0 7	1,545 363	
						100%	7,727		114	265	622		7	2,049	
38	13,012	100	13,012	Apartments Perimeter Apartments MU Commercial MU Commercial	5 5 6 7	35% 25% 30% 30%	4,592 3,253 3,904 1,363	119 156 116 142	22 5 45 55	55 127 112 188	0 0 1,317 1,026	0 0 140 153	0 0 18 16	986 613 1,174 1,171	
						100%	13,012		179	392	2,344		34	3,741	
39	10,541	100	10,541	Perimeter Apartments Apartments MU Commercial	5 6 6	20% 50% 30%	2,108 5,271 3,162	130 126 115	27 71	60 176	0 0 1,087	0 0 140	0 0 15	627 1,581 849	
						100%	10,541		135	337	1,087		15	3,997	
40	9,106	100	9,106	Perimeter Apartments Apartments	6 7	60% 40%	5,464 3,642	130 158	71 57	178 142	0 0	0 0	0 0	1,365 1,063	
						100%	9,106		128	321	0		0	2,428	
41	11,474	100	11,474	Perimeter Apartments Apartments	5 7	50% 50%	6,684 4,790	150 158	89 75	224 181	0 0	0 0	0 0	1,721 1,377	
						100%	11,474		167	404	0		0	3,098	
42	9,127	100	9,127	Perimeter Apartments Apartments	5 8	70% 30%	6,389 2,738	130 195	53 37	202 82	0 0	0 0	0 0	1,097 821	
						100%	9,127		120	300	0		0	1,919	
43	8,527	100	8,527	Perimeter Apartments	6	100%	8,527	156	153	353	0	0	0	2,139	
						100%	8,527		153	353	0	0	0	2,139	

A40

BOLSIERED MODEL YIELD SPREADSHEET

BOLSTERED Model

44	16,127	100	16,137	MU Community Commercial	4	20%	3,227	115	57	63	3,989	163	15	068
					6	80%	12,910	0	0	0	16,829	210	472	3,473
						100%	16,137		57	63	20,816		498	3,841
	130,014						130,014		1,671	4,178	27,897		537	36,598

Resultant Residential Density 129

PORTAGE BUSINESS

45	16,500	100	16,500	Commercial Commercial	4	50%	8,250	0	0	0	14,591	213	3*1	2,830
					6	50%	8,250	0	0	0	21,637	P13	489	8,860
						100%	16,500		0	0	25,478		777	11,690
46	45,405	100	45,405	Commercial Commercial	4	50%	22,703	0	0	0	34,517	213	744	6,826
					6	50%	22,703	0	0	0	52,375	213	1,716	8,820
						100%	45,405		0	0	87,293		1,860	15,646
47	17,792	100	17,792	Commercial Commercial	4	30%	5,338	0	0	0	8,199	213	176	1,601
					6	70%	12,455	0	0	0	28,937	213	811	3,737
						100%	17,793		0	0	36,586		788	5,338
48	15,309	100	15,309	Commercial Commercial	4	30%	4,593	0	0	0	7,054	215	160	1,376
					6	70%	10,716	0	0	0	24,690	210	526	3,215
						100%	15,309		0	0	31,745		679	4,592
49	12,743	100	12,743	Commercial Commercial	4	30%	3,823	0	0	0	5,872	213	135	1,147
					6	70%	8,920	0	0	0	20,862	213	335	2,972
						100%	12,743		0	0	26,424		564	4,119
	110,308						110,308		0	0	218,635		4,621	33,093

Resultant Residential Density 0

REWAREWA

50	52,110	100	52,110	Walk-up Apartments Pavilions Apartments	3	40%	20,844	62	130	325	0	0	0	5,211
					6	60%	31,266	130	203	504	0	0	0	3,368
						100%	52,110	192	333	829	0	0	0	8,579
51	32,931	100	32,931	Walk-up Apartments Pavilions Apartments	3	20%	6,586	62	41	103	0	0	0	1,647
					6	80%	26,345	130	171	428	0	0	0	3,283
						100%	32,931	192	212	531	0	0	0	4,930
52	13,012	100	13,012	Walk-up Apartments Pavilions Apartments	3	30%	3,904	62	25	62	0	0	0	998
					6	70%	9,108	130	96	279	0	0	0	1,391
						100%	13,012	192	121	341	0	0	0	2,389
53	18,246	100	18,246	Walk-up Apartments Pavilions Apartments	3	40%	7,298	62	48	114	0	0	0	1,825
					6	60%	10,948	130	142	356	0	0	0	2,787
						100%	18,246	192	190	470	0	0	0	4,612
	118,588						118,588		1,270	5,179		0		30,798

Resultant Residential Density 108

TOTALS

853,878	853,878	7,581	18,955	500,686	11,850	277,881
		60,000	(1,647)		11,833	276,234
		32				53

Net Resultant Residential Density 32

Open Space per person m²

- NOTES:
- Theoretical Open Space is the area determined within the zoned area as being provided within a block - there is no determination as to whether this is private or public
 - Memorial Square or the plaza around the Community Centre have not been included within Existing Open Space provisions
 - Resultant residential density is determined by the total yield outcome divided by the net block area
 - Some areas (Rewarewa) have been calculated as an estimated outcome within the current zoning rules

OPEN SPACE PROVISION	
EXISTING	
Open Space	37,743
Park	5,181
Triangle Park	464
Other	863
Total Existing	44,251
ADDITIONAL OPEN SPACE AS PER MODEL	
7 Park	2,380
8 Park	2,164
9 Park	1,858
23 Plaza	1,618
26 Lake and Park	2,480
Total Additional	10,500
Total Open Space Provision on model	54,751
Theoretical Open Space	237,881
Difference: Additional Open Space provided within blocks	-183,130

Note: Park size is different from that indicated in zone plans

BOLSTERED MODEL YIELD SPREADSHEET

A41

NEW LYNN YIELD MODEL
 DATE: 11/11/2011
 DRAWN BY: J. COOPER
 DATE: 11/11/2011
 FINAL DRAFT VERSION 2/1
 VERSION

A42

We emphasize creating inspirational environments and imaginative urban planning and public realm design with:



- » A responsive and personal service
- » Creative work in multi-disciplinary teams in conjunction with other professions
- » Generation of sustainable and environmentally responsive developments
- » An understanding of the crucial relationship between building and environment
- » Best practice in contemporary urban design and landscape architecture
- » Designs compatible with surrounding context
- » A robust analysis based approach without pre-conceived ideas
- » A process of collaboration and reconciling conflicting interests and demands on space
- » Consultation with all relevant bodies including residential communities, local businesses, user groups, local government, other professionals and developers.

7/10

Waitemata Harbour Foreshore Reserves in New Lynn Ward

Reserve Name	Reserve Address
Akatea Park	22 Akatea Rd, Kelston
Archibald Park	47 Beaubank Road, Kelston
Aronui Esplanade	14 Aronui Place, Kelston
Cobham Reserve	66 Cobham Crescent, Kelston
Glen Marine Esplanade - Laurieston Park	92 Glen Marine Parade, Glendene
Harbour Reserve	Avenger Place, Glendene
Harmel Reserve	Harmel Road, Glendene
Hepburn Esplanade Reserve	Hepburn Road, Glendene
Kiernan Esplanade	36 Cobham Crescent, Kelston
Renanta Reserve	82 Sabulite Road, Kelston
Span Farm Esplanade	36 Bancroft Crescent, Glendene

Aug 00158

Waitemata Harbour Foreshore Reserves in Massey Ward

Reserve Name	Reserve Address
Berneckers Landing	Marguerita Place, Hobsonville
Brighams Creek Esplanade	Kauri Road, Whenuapai
Brighams Creek Road Recreational Reserve	Brighams Creek Road
Bristol Road Esplanade Reserve	24 Bristol Road
Chorley Reserve	Chorley Ave/Triangle Road, Massey West
Christmas Beach	86 The Terrace, Herald Island
Colwill Esplanade	127 Colwill Road, Massey
Helena Park	1 Sunline Avenue, Massey
Hobsonville Esplanade	Buckley Avenue, Hobsonville
Huruhuru Esplanade Reserve	Huruhuru Road, Massey
Kauri Esplanade	Kauri Road, Whenuapai
Kingsway Reserve	Kingsway Road, Whenuapai
Kowhai Beach Reserve	Ferry Parade, Herald Island
Lagoon Way Reserve	54 Lagoon Way, West Harbour
Landing Reserve	The Terrace, Herald Island
Lowtherhurst Reserve	42 Redwood Drive, Massey
Luckens Reserve	102 Marine Park Drive, West Harbour
Marina Esplanade	38 Seacrest Drive, West Harbour
Marina View Esplanade	40 Marina View Drive, West Harbour
Moire Park	38 Granville Road, Massey
Nimrod Esplanade	Scott Road, Hobsonville
Pahiki Reserve	3 Twin Wharf Road, Herald Island
Pohutukawa Espanande n 1	Pohutukawa Road, Whenuapai
Pohutukawa Espanande n 2	Waimarie Road, Whenuapai
Realm Esplanade	Realm Place, Massey
Reflection Reserve	Reflection Drive, West Harbour
Riverpark Reserve (was Taikato Domain)	12 Bittern Place, Henderson
Ruawaru Esplanade	McKean Road, Whenuapai
Scott Esplanade	Scott Road, Hobsonville
Sunline Esplanade	16 Sunline Avenue, Massey
Taitapu Park	25 Taitapu Street, Massey
West Harbour Esplanade	93 West Harbour Drive, West Harbour
Wickstead Strand	14 Wickstead Place, Massey
Wiseley Reserve	161 Wiseley Road, West Harbour
Woodside Reserve	28 Woodside Road, Massey
Totara Esplanade	Totara Road, Whenuapai

A180

00153

Waitemata Harbour Foreshore Reserves in Henderson Ward

Reserve Name	Reserve Address
Bridge Avenue Reserve	Bridge Avenue, Te Atatu South
Covil Park	56 Covil Ave, Te Atatu South
Dawnhaven Esplanade	28 Dawnhaven Road, Te Atatu Peninsula
Daytona Strand	Daytona Road, Henderson
Habourview-Orangihina	Harbourview Road, Te Atatu Peninsula
Hughes Esplanade	Matipo Road, Te Atatu Peninsula
Jaemont Strand	Jaemont Strand, Te Atatu South
McCleod Esplanade	McCleod Road, Henderson
McLeod Park	196 McLeod Road, Te Atatu South
Meadow Glade	10 Meadow Crescent, Te Atatu South
Roberts Field	103 Roberts Road, Te Atatu South
Spinnaker Strand	49 Spinnaker Drive, Te Atatu Peninsula
Springbank Esplanade	14 Springbank Lane, Te Atatu Peninsula
Taipari Strand	134 Taikata Road, Te Atatu Peninsula
Tawa Esplanade	2 Wharf Road, Te Atatu Peninsula
The Concourse Strand	The Concourse, Henderson
Tioroa Esplanade	Wairata Place, Te Atatu South
Valron Esplanade	14 Valron Road, Te Atatu South
Waimanu Bay Reserve	Waimanu Bay Drive, Te Atatu Peninsula
Chapman Strand	14 Chapman Road, Te Atatu Peninsula

A187 00160

