



Mowbray Road Precinct, Lane Cove North
Master Planning Study
Prepared for Department of Planning and Infrastructure and Lane Cove Council

December 2011 ■ 11455

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This report has been prepared by: Bernard Gallagher

December 2011

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Executive Summary

This Master Plan Study has been prepared by JBA Planning on behalf of Lane Cove Council and the New South Wales Department of Planning and Infrastructure (DoPI). It relates to the Mowbray Road Precinct at Lane Cove North. The objective of this Study is to assist in establishing the likely dwelling yield of the Precinct under different planning control scenarios after considering the various constraints.

Mowbray Road Study Area

The Study Area is located in the suburb of Lane Cove North within the Lane Cove Local Government Area between Mowbray Road West (to the north) and Batten Reserve (to the south). The Study Area is located 1.3km west of Lane Cove Village, 2.5km west of Chatswood CBD, 4.5km south-east of Macquarie Park, 6km north-west of North Sydney CBD and 8.5km north-west of Sydney CBD. There are numerous public and private recreational and community facilities within the local context of the Study Area (i.e. 2km), including various parks and walking tracks.

Planning Context

The Metropolitan Plan for Sydney 2036 and draft Inner North Subregional Strategy identify key principles and actions for growth within the Lane Cove LGA. Relevant actions encourage new development within existing urban areas, particularly within walking catchments of centres, a mix of housing types and the redevelopment/regeneration of NSW Housing stock.

The draft Inner North Subregional Strategy also identifies Epping Road, bounding the site to the south-west, as a Strategic Bus Corridor with public transport connections to the Sydney CBD, North Sydney, Macquarie Park, Castle Hill and Parramatta. The Study Area is not within the walking catchment of any nominated centres, however, the entire Study Area is within walking distance (i.e. 400m) of a bus stop with regular services.

Planning Controls

The Lane Cove Local Environmental Plan 2009 (LEP 2009) is the primary planning instrument applicable to the Study Area. The Study Area is currently predominantly zoned R4 High Density Residential (permitting residential flat buildings and multi-dwelling housing) and partly zoned RE1 Public Recreation and Environmental Conservation. The Study Area currently permits a maximum FSR of 2.1:1 and building height of 12m.

Lane Cove Council has submitted a Planning Proposal to the DoPI to rezone the land currently zoned R4 to a mix of R4 High Density Residential, R3 Medium Density Residential, R2 Low Density Residential and E4 Environmental Living. The Planning Proposal also includes a reduced building height to 9.5m for land zoned R3, R2 and E4 and FSR to a mix of 0.5:1, 0.6:1 and 0.7:1.

Eight (8) development applications for residential flat buildings and one (1) for townhouse development, have been submitted under the current planning controls. Five (5) of the residential flat building developments have been approved. The remainder of the DAs had either been determined by the Joint Regional Planning Panel by way of refusal or are currently being considered by Council.

Site Conditions

Overall, there are no major site conditions or constraints that would preclude higher density housing within the majority of the Study Area. The existing conditions affecting redevelopment of the Study Area are:

- The Study Area has a south facing aspect with a slope between 0 to 10 degrees with some portions ranging up to 20-25 degrees. Whilst the later is considered steep, such topography does not preclude the construction of residential flat buildings. All roads within the Study Area are generally within the accepted maximum gradients for roadways.
- There is no evidence of any significant geotechnical constraints within the Study Area that would preclude residential flat development.
- The Study Area comprises a mix of dwelling houses and strata titled apartments, both of varying age, quality and style. The Study Area also currently includes four dispersed retail shops and two small public open space areas.
- The existing road conditions would not preclude the redevelopment of the Study Area for higher density housing.
- The Study Area is accessible to a range of bus services that provide access to surrounding centres and employment areas.
- There are no known European or Aboriginal heritage items or sites.

- The likely capacity of the utility services, in their current form, will be limited and is insufficient for high density development. It is expected that subject to the required investigations and augmentation by the relevant service providers, there is unlikely to be constraints to redeveloping the precinct for higher density residential development.

- Aside from potential blocking of pits and pipes there are no constraints to development with respect to stormwater management and flooding. It is recommended that stormwater outlets into Batten Reserve be upgraded to control stormwater discharging into the reserve, gross pollutant traps be provided and revegetation undertaken.
- The Stringybark Creek riparian constraints only affect a very small part of the Study Area and would most likely limit the development potential of only one lot.
- Based on flora and fauna mapping/surveys undertaken by NPWS and on behalf of Council, and the JPPP's findings in relation to the DA for 76-82 Gordon Crescent, there is unlikely to be any substantial flora and fauna constraints within the Study Area or Batten Reserve that would preclude the redevelopment of the Study Area for higher density residential development.
- Bush fire risk is the most significant condition that imposes constraints of the redevelopment potential of the Study Area. A number of lots within the southern extent of the Study Area are not considered developable for residential flats due to the impact of APZ requirement under Planning for Bush Fire Protection 2006.

Residential Development Assumptions and Yield Estimates

A number of assumptions have been used to calculate the residential development yield of the study area. These assumptions include gross and net developable area definitions, average gross dwelling size, take up rate and floor space ratios. The residential yields represent a maximum that may not be achieved in full due to the difficulty of redeveloping sites subject to some development constraints (eg. part of the land is subject to APZ). The yield assumptions are discussed in detail at Section 4.1.

A residential yield analysis of the controls under LEP 2009 and Council's Planning Proposal 2011 are identified below. Under the current LEP 2009, a yield of some 1,260 additional dwellings could be expected (1,650 dwellings in total). Under the Planning Proposal 1/2011, a yield of 435 additional dwellings (820 in total) could be expected. Given the expected development timeframe or minor variations to the assumptions, it is not unreasonable to assume the estimated yields could vary 10% in either direction.

	LEP 2009	Planning Proposal 1/2011
Total potential dwelling yield*	1,212	150
Total approved DA dwelling yield**	244	244
Total proposed DA dwelling yield***	0	131
Existing dwellings retained	194	296
TOTAL DWELLINGS	1,650	820
Net Increase	1,263	434
Total Population	2,870	1,580

* Potential increased yield factors in constraints as outlined in Section 3.0
 ** Net approved RFS DAs as at 31 October 2011
 *** Net proposed RFS DAs as at 31 October 2011

Bush Fire Risk and Evacuation

Bushfire evacuation risk within the Study Area is 'low' along Kullah Parade and Gordon Crescent and 'medium' in Merinda Street and Pinaroo Place and on-site refuge is the most appropriate evacuation method for the Study Area where new development occurs.

The Study Area is capable of accommodating future high density residential development subject to providing appropriate mitigation measures such as asset protection zone along the lots adjoining or facing Stringybark Creek, passing bays of at least 20m in length every 200m (this is not required for Kullah Parade and Gordon Crescent) and minor branch pruning on the bushland interface side of Kullah Parade and Gordon Crescent.

Timely mass bush fire evacuation is not viable and on-site refuge is considered appropriate, subject to appropriate building design and maintenance and the adoption of an on-site refuge/bushfire response plan for each building.

Study Recommendations

The following recommendations are made regarding proposed works within the Study Area and amendments to planning instruments relevant to the Study Area.

Impacts on Batten Reserve

- Stormwater outlets into Batten Reserve be upgraded to control stormwater discharging into the reserve, gross pollutant traps be provided and revegetation undertaken.
- Pruning of branches, to 4m above the kerb height, on the bushland interface side of Kullah Parade and Gordon Crescent.

Zoning

- Retain the R4 zoning across the majority of the Study Area.
- Rezone to retain single dwelling housing (R2 Low Density Residential) on land that is substantially affected at APZ requirements.
- Rezone the existing corner shops at the corner of Mowbray Road and Willandra Street to B1 Neighbourhood Business.

Building Height

- The maximum building height in the four storey areas be increased to 14.5m (from 12m) to allow for basement extrusions and roof features / plant.
- Revise Part C of DCP 2010 to be explicit as to the maximum number of storeys that may be accommodated within the 14.5m height limit.

- Increase the height limit at the north-western end of the Study Area to 17.5m to accommodate a partial 5th storey.

- Revise Part C of DCP 2010 to ensure that the 5th storey is recessed (i.e. max 50% of the area of the floor below) and setback generally 3m from the facade.

- The maximum building height in the low density residential areas to be 9.5m.

Floor Space Ratio

- The maximum floor space ratio for the 5 storey apartment areas is 1.8:1;
- The maximum floor space ratio for the 4 storey apartment areas is 1.6:1;
- The maximum floor space ratio for the 3 storey apartment areas is 1.4:1; and
- The maximum floor space ratio for the single dwellings areas is 0.5:1.

Open Space and Pedestrian Connections

- Consolidate the open space within the Study Area into a more useable park at the between Pinaroo Place and Kullah Parade.
- Improve the pedestrian linkage between Merinda Street and the pedestrian overbridge at Epping Road.
- Upgrade the pedestrian connection between Mindarie Street and Kullah Parade. This may include realignment as part of any future redevelopment of adjacent sites.
- Investigate the potential for a new pedestrian connection / steps between Mowbray Road West and Gordon Crescent.

Site Coverage and Deep Soil Planting

- Revise Section 3.17 of DCP 2010 to require a minimum 40% of a site area for deep soil planting.

Tree Retention and Replacement

- Revise DCP 2010 to provide greater emphasis on the tree retention of existing trees and the planting of new trees within development sites.

Interface between Residential Flats and Dwelling Houses

- Revise DCP 2010 to include a provision to require the consideration of the interface between residential flat buildings and dwelling houses.

Building Materials and Finishes

- Revise Part C of DCP 2010 to provide more design guidance as to the external materials and finishes of buildings.

Residential Yield

The estimated residential yield under the recommended scenario is identified below.

	Recommended scenario
Total potential dwelling yield*	1,151
Total approved DA dwelling yield**	244
Existing dwellings retained	183
TOTAL DWELLINGS	1,580
Net Increase	1,200
Total Population	2,730

1.0 Introduction

This Master Plan Study has been prepared by JBA Planning on behalf of Lane Cove Council and the New South Wales Department of Planning and Infrastructure (DoPI). It relates to the Mowbray Road Precinct at Lane Cove North.

The Precinct (referred to as the "Study Area" - see **Figure 1**) was rezoned to R4 High Density Residential in February 2010 as part of Lane Cove Council's (Council) comprehensive Local Environment Plan 2009 (LEP 2009). In early 2011, Council lodged a Planning Proposal (Planning Proposal 1/2011) to down zone a substantial part of the Precinct.

The objective of this Study is to assist in establishing the likely dwelling yield of the Precinct under different planning control scenarios after considering the various constraints. A copy of the study brief is included at **Appendix A**.

The Study will assist in identifying any necessary infrastructure works to complement the above mentioned planning control scenarios (if required) and will inform a strategic review of the planning framework of the Mowbray Road Precinct.

The Study Team

The study team comprises:

- JBA Planning: Urban Planning and Design
- Eco Logical Australia: Bushfire
- Diversi Consulting: Civil Infrastructure
- Davis & Langdon: Property Economics

The preparation of this Study has been undertaken in consultation with SMEC, the authors of the Strategic Transport Study and officers from Council and the DoPI.

Various site inspections were undertaken by all members of the study team.

Structure of this Study

This Study is structured as follows:

- Section 2: sets out an overview of the planning context relevant to the precinct.
- Section 3: provides a summary of the existing site conditions.
- Section 4: sets out the residential yield assessments under both the LEP 2009 and Planning Proposal 1/2011 scenarios.
- Section 5: outlines the Study recommendations.

Background Document Review

The documents and studies listed at **Appendix B** have been reviewed during the preparation of this Study.

1.1 The Mowbray Road Precinct

The Study Area is located in the suburb of Lane Cove North (within the Lane Cove Local Government Area) between Mowbray Road West (to the north) and Batten Reserve (to the south). The Study Area is located:

- 1.3km north-west of Lane Cove Village;
- 2.5km south-west of Chatswood CBD;
- 4.5km south-east of the Macquarie Park Corridor;
- 6km north-west of the North Sydney CBD; and
- 8.5km north-west of the Sydney CBD.

The site is bound by:

- Mowbray Road West, also being the LGA boundary between Lane Cove and Willoughby Councils, and the residential suburb of Chatswood West to the north;
- Centennial Avenue and the residential suburb of Lane Cove North to the east (with the Pacific Highway approximately 1.2km to the east);
- Willandra Street, the residential suburb of Lane Cove North and Epping Road to the west, and the Lane Cove West Industrial Area to the south-west; and
- Batten Creek Reserve, Epping Road and the residential suburb of Lane Cove to the south.

There are a number of public and private recreational and community facilities within the local context (i.e. within a 2km radius), including:

- Mowbray Public School (opposite the Study Area across Mowbray Road West);
- Lane Cove West Public School;
- Lane Cove Public School;
- St Michael's Catholic School;
- Chatswood High School;
- Batten Creek Reserve;
- Tantaloon Oval;
- Blackman Park;
- Pottery Green;
- Mowbray Park and other Lane Cove River foreshore parks and reserves;
- Chatswood Golf Club;
- Mowbray West Tennis Club; and
- Lane Cove Bowling and Recreation Club; and
- various walking tracks and pedestrian connections along the Lane Cove River and tributaries.



KEY
Study Area

Figure 1 – The Study Area

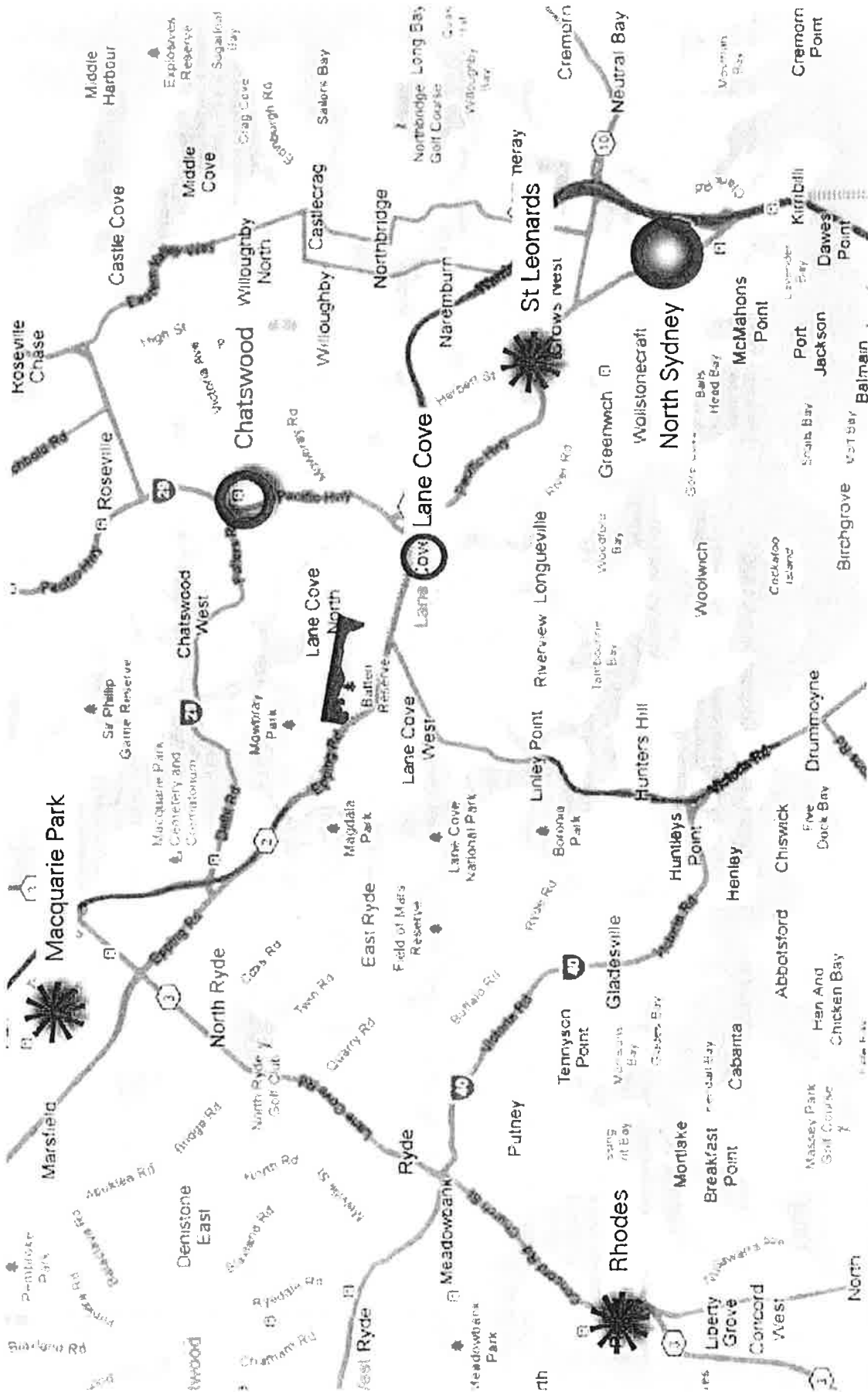


Figure 2 - Local Context of the Study Area

2.0 Planning Context

The following section provides an overview of the strategic and statutory planning context relevant to the Study Area.

2.1 Relevant Legislation

There are a number of legislative frameworks which apply to the Study Area, each of which is summarised below:

- Environmental Planning and Assessment Act 1979 (EPA Act);
- Threatened Species Conservation Act 1995 (TSC Act);
- Rural Fires Act 1997 (RF Act); and
- Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).

Environmental Planning and Assessment Act 1979

The EPA Act is the principal statute which governs the development of land in NSW. The main parts of the EPA Act that are relevant to the development of land within the Study Area are:

- Part 3: governs the making and amendment of environmental planning instruments and development control plans;
- Part 4: prescribes the development assessment process required for development that needs consent including matters that must be considered in section 79C when determining a development application. These include SEPPs, LEPs and DCPs (see sections 2.3, 2.5 and 2.7 of this report); and
- Part 5: relevancy applies where Housing NSW proposes to carry out an activity (such as the erection of a building) that does not require development consent under Part 4, but is not exempt development (for example, residential development under clause 40 of State Environmental Planning Policy (Affordable Rental Housing) 2009). In some circumstances an Environmental Impact Statement is required to carry out a activity.

Threatened Species Conservation Act 1995

The TSC Act identifies and protects threatened species, populations and ecological communities that are endangered, vulnerable or presumed to be extinct.

If development is proposed on land within or adjacent to the Study Area that is 'likely to significantly affect' any threatened species or ecological communities, then:

- a development application must be accompanied by a Species Impact Statement (section 78A of the EPA Act);
- development consent cannot be granted without the concurrence of the Director-General of the Department of Environment, Climate Change or Water or the Minister for Environment (section 79B(3) of the EPA Act); and
- where the proponent is Housing NSW and where Part 5 of the EPA Act applies, an Environmental Impact Statement would be required (section 112 of the EPA Act).

Refer to Section 3.10 for more discussion.

Rural Fires Act 1997

Division 8 of Part 4 of the Rural Fires Act 1997 deals with development of bush fire prone land. Part of the Study Area is bush fire prone land according to Council's Bush Fire Prone Land Map (see Figure 22).

Relevant provisions include the following:

- section 100B requires a 'bush fire safety authority' to be obtained before subdividing bush fire prone land on which residential development is permitted, or developing bush fire prone land for a 'special fire protection purpose' (the definition of which does not include residential development);
- section 100C(1) states that an environmental planning instrument cannot prohibit, require development consent for or otherwise restrict the doing of certain bush fire hazard reduction work;
- section 100(4) allows bush fire hazard reduction work to be carried out on land despite any requirement for approval under another Act, if the work is carried out in accordance with a bush fire risk management plan and any bush fire hazard reduction certificate in force in respect of the work.

An authorisation under section 100B is 'integrated development' under section 91 of the EPA Act. This means that before granting development consent, the consent authority must obtain from the Commissioner of the NSW Rural Fire Service the general terms of any approval proposed to be granted by the Commissioner in relation to the development. Furthermore, the consent must be consistent with the general terms of the Commissioner's approval. However, these requirements do not apply to development by or on behalf of the Crown (which includes Housing NSW).

Finally, section 79BA of the EPA Act states that development consent cannot be granted for the carrying out of development for any purpose on bush fire prone land (except subdivision of residential land or development for a 'special fire protection purpose') unless the consent authority:

- is satisfied that the development conforms to the relevant requirements of Planning for Bush Fire Protection; and
- has been provided with a certificate by a qualified bush fire risk assessment consultant stating that the development conforms to the relevant requirements.

Refer to Section 3.11 for more discussion.

Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act is Commonwealth legislation which requires Commonwealth assessment and approval for (among other things) the carrying out of an 'action' (such as development) that will or is likely to have a significant impact on a 'matter of national environmental significance'. As far as we are aware, the only potential matter of national environmental significance is 'threatened species and communities'.

2.2 Strategic Planning Framework

New South Wales 2021 (The State Plan)

NSW 2021 is a 10 year plan to rebuild the economy, provide quality services, renovate infrastructure, restore government accountability, and strengthen our local environment and communities.

The Plan sets out 5 strategies which include goals such as 'Improving the performance of the NSW Economy', 'Increasing the Competitiveness of Doing Business in NSW', 'Building Liveable Centres' and 'Placing downward pressure on the cost of living'.

In relation to the last goal, one of the 'priority actions' that has been identified to deliver that goal is 'Partner with local councils to ensure that targets for housing and growth and the priorities within subregional plans and regional plans are reflected in relevant planning proposals and in local planning instruments (local environmental plans)'. The relevant subregional plan to the Study Area is the Draft Inner North Subregional Strategy which is addressed below.

Metropolitan Plan for Sydney 2036

The Metropolitan Plan for Sydney 2036 was released by the NSW Department of Planning in 2011 to manage Sydney's growth and identify a vision for 2036. The Metropolitan Plan updates the Sydney Metropolitan Strategy (which was released by the Department of Planning in 2005) and incorporates the Metropolitan Transport Plan 2010.

The Metropolitan Plan includes actions to guide future growth, including:

- locate at least 70% of new homes in existing suburbs and up to 30% in greenfield areas;
- provide 80% of new housing within the walking catchment of existing and planned centres;
- plan for 770,000 additional homes with a range of housing types, sizes and affordability levels for a growing and ageing population; and
- ensure local planning controls include more low rise medium density housing in and around smaller local centres.

The Metropolitan Plan identifies 10 subregions within the Sydney Metropolitan Region. Lane Cove North is within the Inner North Subregion. All subregions across Sydney are required to accommodate population growth through the provision of additional dwelling targets. The Inner North Subregion is allocated a housing target of 44,000 additional dwellings to be provided by 2036.

Draft Inner North Subregional Strategy

The Draft Inner North Subregional Strategy was released in 2007. The subregional strategy builds onto the strategic direction provided within Metropolitan Plan with detailed directions and actions for the Lane Cove, North Sydney, Mosman, Willoughby, Ryde and Hunters Hill LGAs.

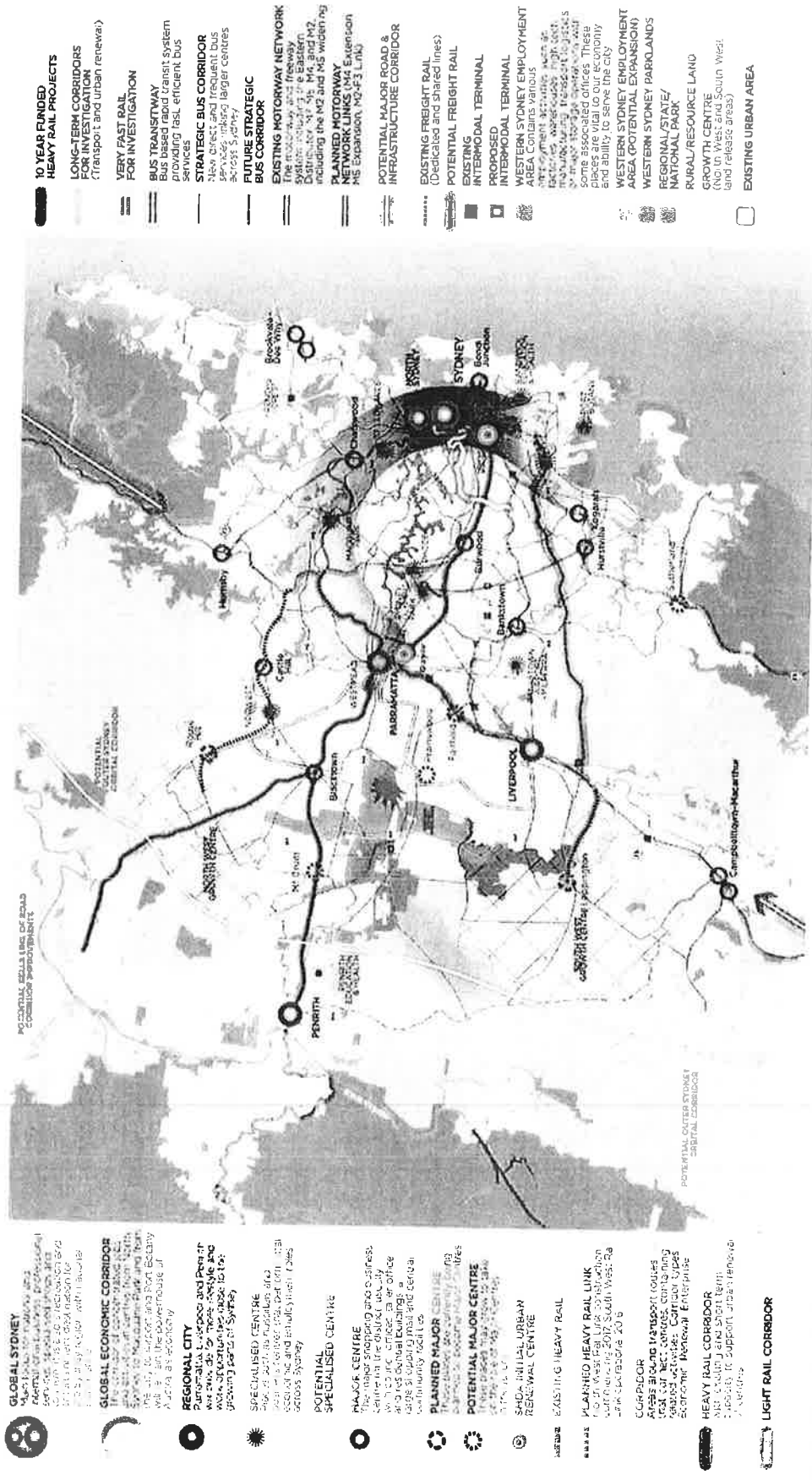
Relevant directions within the subregional strategy for the study area include:

- plan for sufficient zoned land to accommodate 3,900 additional dwellings within the Lane Cove LGA;
- focus residential development around centres, town centres, villages and neighbourhood centres;
- provide a mix of housing; and
- redevelop and regenerate Department of Housing stock.

The Study Area abuts Epping Road, identified as part of two strategic bus corridors, linking the study area to the City, North Sydney, Macquarie Park, Castle Hill and Parramatta.

The nearest centre identified in the draft subregional strategy, Mowbray Road Shops, Lane Cove, is classified as a neighbourhood centre (with a walking catchment of 150m) and located approximately 250m to the west of the Study Area. The Draft Subregional Strategy does not classify the shops within the Study Area, on the corner of Mowbray Road West and Willandra Street, however these shops may be considered a small neighbourhood centre within the Inner North Subregion.

The draft subregional strategy was released prior to the Metropolitan Plan for Sydney 2036 and reflects the housing target identified for the Inner North Subregion under the Sydney Metropolitan Strategy (i.e. 30,000 additional dwellings). The Metropolitan Plan for Sydney has since updated this target to 40,000 dwellings. The housing target for the Lane Cove LGA may be increased as the LGA targets are revised to accommodate the increased subregional dwelling target.



- 10 YEAR FINISHED HEAVY RAIL PROJECTS**
- LONG-TERM CORRIDORS FOR INVESTIGATION** (Transport and urban renewal)
- VERY FAST RAIL FOR INVESTIGATION**
- BUS TRANSITWAY** Bus based rapid transit system including fast, efficient bus services
- STRATEGIC BUS CORRIDOR** New express and frequent bus services linking larger centres across Sydney
- FUTURE STRATEGIC BUS CORRIDOR**
- EXISTING MOTORWAY NETWORK** The motorway and freeway system including the Eastern Sydney Motorway and M2 including the M2 and M5 widening
- PLANNED MOTORWAY NETWORK LINKS** M4 Extension M5 Extension M2+3 LNU
- POTENTIAL MAJOR ROAD & INFRASTRUCTURE CORRIDOR**
- EXISTING FREIGHT RAIL** (Dedicated and shared lines)
- POTENTIAL FREIGHT RAIL**
- EXISTING INTERMODAL TERMINAL**
- PROPOSED INTERMODAL TERMINAL**
- WESTERN SYDNEY EMPLOYMENT AREA** Contains various employment activities such as warehousing, light industry, manufacturing, distribution, and some associated offices. These places are vital to our economy and ability to serve the city
- WESTERN SYDNEY EMPLOYMENT AREA (POTENTIAL EXPANSION)**
- WESTERN SYDNEY PARKLANDS REGIONAL/STATE NATIONAL PARK**
- RURAL/RESOURCE LAND**
- GROWTH CENTRE** (Not in West and South West land release areas)
- EXISTING URBAN AREA**

Figure 3 - Metropolitan Plan for Sydney 2036

2.3 State Environmental Planning Polices

The following relevant State Environmental Planning Policies (SEPPs) apply to the Study Area:

- State Environmental Planning Policy No 19 – Bushland in Urban Areas (SEPP 19);
- State Environmental Planning Policy No 55 – Remediation of Land (SEPP 55);
- State Environmental Planning Policy No 65 – Design Quality of Residential Flat Development (SEPP 65);
- State Environmental Planning Policy (Affordable Rental Housing) 2009 (SEPP Affordable Rental Housing); and
- State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 (SEPP Seniors Housing).

Table 1 summarises the key provisions from these SEPPs.

Table 1 – Overview of relevant SEPP provisions

SEPP	Relevance
SEPP 19	Requires consideration of the impact of development on urban bushland at both the plan making and development application stage. See Section 5.4 for more discussion on this issue
SEPP 55	Requires consideration of contamination at both the plan making and development application stage
SEPP 65	Applies to residential flat development and requires consideration of the design quality principles and the Residential Flat Design Code at both the plan making and development application stage
SEPP Affordable Rental Housing	Provides a floor space bonus for the provision of affordable housing (if undertaken on or behalf of the Housing NSW)
SEPP Seniors Housing	Includes provisions and design principles for the development of seniors housing

2.4 Section 117 Directions

Section 117(2) of the Environmental Planning and Assessment Act 1979 allows the Minister for Planning and Infrastructure to direct a local council to prepare an LEP in accordance with principles specified in the direction, and to include provisions which will achieve or give effect to such principles. On 1 July 2009, the Minister made a series of relevant directions. Table 2 summarises the relevant directions.

Table 2 – Overview of relevant section 117(2) directions

Direction	Relevance
2.1: Environment Protection Zones	Requires a planning proposal to include provisions that facilitate the protection and conservation of environmentally sensitive areas, and not to reduce the environmental protection standards that apply to the land. The planning proposal can be inconsistent with this direction provided certain criteria are met.
3.1: Residential Zones	Requires a planning proposal to contain provisions that will encourage: <ul style="list-style-type: none"> the provision of housing that will broaden the choice of housing types and locations; make more efficient use of existing infrastructure and services; and be of good design. Also requires a planning proposal to: <ul style="list-style-type: none"> contain a requirement that residential development is not permitted until land is adequately serviced; and not contain provisions which will reduce the permissible residential density of land.
3.4: Integrating Land Use and Transport	Requires a planning proposal to locate zones for urban purposes and include provisions that give effect to: <ul style="list-style-type: none"> Improving Transport Choice – Guidelines for planning and development (DUAP 2001); and The Right Place for Business and Services – Planning Policy (DUAP 2001).
4.4: Planning for Bushfire Protection	Requires a planning authority to consult with the Commissioner of the NSW Fire Service following receipt of a gateway determination and prior to undertaking community consultation. Requires a planning proposal to: <ul style="list-style-type: none"> have regard to Planning for Bushfire Protection 2006; introduce controls that avoid placing inappropriate developments in hazardous areas; ensure that bushfire hazard reduction is not prohibited within the Asset Protection Zone (APZ); provide an APZ complying with specified requirements in the Direction or, where an APZ cannot be achieved, an appropriate performance standard; contain provisions for two-way access roads which links to perimeter roads and/or fire trail networks; contain provisions for adequate water supply for firefighting purposes; minimise the perimeter of the area of land interfacing the hazard which may be developed; and introduce controls on the placement of combustible materials in the Inner Protection Area.

2.5 Lane Cove Local Environmental Plan 2009

The Lane Cove Local Environmental Plan 2009 (LEP 2009) is the primary planning instrument applicable to the Study Area. The key relevant provisions of LEP 2009 are summarised in **Table 3**. The Land Zoning, Maximum Floor Space Ratio and Maximum Height Maps at included at **Figures 5 to 7**.

Table 3 – Summary of Key Provisions from Lane Cove Local Environmental Plan 2009

Provision	Control
2.2 & 2.3 Zoning	The Mowbray Road Precinct is primarily zoned R4 High Density Residential, and partly zoned RE1 Public Recreation and E2 Environmental Conservation (see Figure 5) The R4 High Density Residential permits, amongst other things, 'multi dwelling housing' and 'residential flat buildings' whilst prohibits 'dwelling houses' and 'dual occupancies' (see definitions at Table 5 below) Residential development is prohibited in both the RE1 Public Recreation and the E2 Environmental Conservation Zone
4.1 Lot Size	Partly a minimum lot size of 550m ² and partly, no minimum lot size
4.3 Height	Maximum 12m
4.4 FSR	Maximum 2:1:1
5.1 Land Reserved for Acquisition	N/A
5.10 Heritage	N/A
6.3 Riparian Land	The southern side of the Study Area includes some riparian land. This issues is addressed at Section 3.7

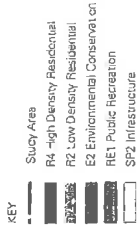


Figure 5 – LEP 2009 Land Zoning Map

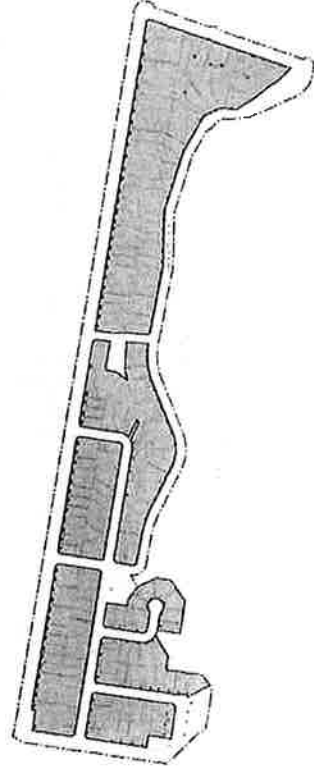


Figure 6 – LEP 2009 Maximum FSR Map

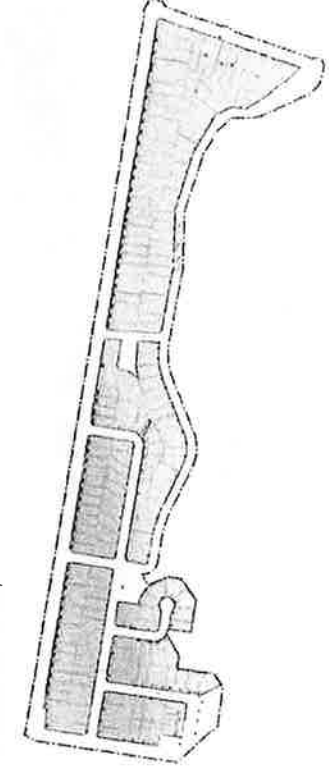


Figure 7 – LEP 2009 Maximum Height Map

2.6 Lane Cove Planning Proposal 1/2011

On 31 March 2011, Council submitted a Planning Proposal for the Study Area (Planning Proposal 1/2011) to the DCP1 for consideration by the Gateway. The Planning Proposal seeks to:

- rezone the majority of the R4 High Density Residential Zone to a combination of zones including E4 Environmental Living, R2 Low Density Residential, R3 Medium Density Residential, R4 High Density Residential and RE1 Public Recreation (see **Figure 8**);
- reduce the maximum height limit from 12m to 9.5m for the majority of the Study Area (some areas will retain the 12m height limit) (see **Figure 9**); and
- reduce the maximum FSR from 2.1:1 to a combination of 0.5:1, 0.7:1 and 0.8:1 (see **Figure 10**).

Table 4 below summarises the permissibility of the main residential housing forms under the Planning Proposal 2011 land uses zones. **Table 5** sets out the definitions (from LEP 2009) of these residential housing forms.

The Planning Proposal states that the “...downzoning is proposed on the grounds of excessive traffic generation, inadequate public transport connectivity, low road network capacity, stormwater runoff, bushfire, topography, gradient and other constraints, distance from shops and community facilities and the need for maximum protection for Batten Reserve’s significant environmental character.”

Table 4 – Comparison of proposed zones in Lane Cove Planning Proposal 2011

Zone	Dwelling houses	Dual occupancies	Attached dwellings	Multi dwelling housing	Seniors housing	Residential flat buildings
R2 Low Density Residential	✓	✓	✗	✓	✗	✗
R3 Medium Density Residential	✗	✗	✓	✓	✓	✗
R4 High Density Residential	✗	✗	✗	✓	✗	✓
E4 Environmental Living	✓	✗	✗	✗	✗	✗



Figure 8 – Planning Proposal 2011 Land Zoning Map

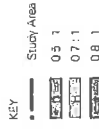


Figure 9 – Planning Proposal 2011 Maximum FSR Map



Figure 10 – Planning Proposal 2011 Maximum Height Map

Table 5 – LEP 2009 definitions of key residential housing forms

Housing Form	Definition
Dwelling house	A building containing only one dwelling
Dual occupancy	A dual occupancy (attached) or a dual occupancy (detached)
Dual occupancy (attached)	2 dwellings on one lot of land that are attached to each other, but does not include a secondary dwelling
Dual occupancy (detached)	2 detached dwellings on one lot of land, but does not include a secondary dwelling
Attached dwelling	A building containing 3 or more dwellings, where: <ul style="list-style-type: none"> (a) each dwelling is attached to another dwelling by a common wall, and (b) each of the dwellings is on its own lot of land, and (c) none of the dwellings is located above any part of another dwelling.
Multi dwelling housing	3 or more dwellings (whether attached or detached) on one lot of land, each with access at ground level, but does not include a residential flat building
Seniors housing	A building or place that is: <ul style="list-style-type: none"> (d) a residential care facility, or (e) a hostel within the meaning of clause 12 of State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004, or (f) a group of self-contained dwellings, or (g) a combination of any of the buildings or places referred to in paragraphs (a)-(c), and that is, or is intended to be, used permanently for: <ul style="list-style-type: none"> (h) seniors or people who have a disability, or (i) people who live in the same household with seniors or people who have a disability, or (j) staff employed to assist in the administration of the building or place or in the provision of services to persons living in the building or place, but does not include a hospital
Residential flat building	A building containing 3 or more dwellings, but does not include an attached dwelling or multi dwelling housing

2.7 Lane Cove Development Control Plan 2010

The Lane Cove Development Control Plan (DCP) 2010 is the only DCP which applies to development within the Study Area. The principal parts of DCP 2010 that are applicable to residential use are:

- Part B General Controls;
- Part C Residential Development;
- Part F Access and Mobility;
- Part H Bushland Protection;
- Part J Landscaping;
- Part O Stormwater Management; and
- Part Q Waste Management and Minimisation.

Table 6 summarises the key provisions from Part C of DCP 2010 applicable to both multi dwelling housing and residential flat buildings. Council proposes to amend DCP 2010 including a number of amendments to Part C. Where a provision in Part C is proposed to be amended or a new provision added, the relevant amendment/provision is shown in italics in **Table 6**.

Table 6 – Key residential provisions from DCP 2010

	Clause C.2 Attached and Multi-Dwelling Housing (Townhouses and Villas)	Clause C.3 - Residential Flat Buildings
Front Setbacks	<p>2.4.1 Street</p> <ul style="list-style-type: none"> ▪ Min 6m (balconies can intrude 600mm within this setback) <p>2.4.2 Front</p> <ul style="list-style-type: none"> ▪ Min 2m (eg from communal open space within the development) ▪ <i>New provision: secondary setback for multi-dwelling housing on corner allotments to be 2m.</i> ▪ Amendment for multi-dwelling housing: min. 7.5m street setback in R2 Zone. 	<p>3.5.1 Front/Street</p> <ul style="list-style-type: none"> ▪ Consistent with prevailing setback or min 7.5m ▪ <i>New provision: secondary setback for corner allotments to be the same as the side setback</i>
Side/Rear Setbacks	<p>2.4.3 Side</p> <ul style="list-style-type: none"> ▪ 1.2m for single storey dwelling <p>2.4.4 Rear</p> <ul style="list-style-type: none"> ▪ 1.5m for two storey townhouse ▪ 3m 	<p>3.5.2 Side and Rear</p> <ul style="list-style-type: none"> ▪ To boundary within R4 Zone: <ul style="list-style-type: none"> - 6m up to 4 storeys - 9m for 5-8 storeys - 12m for 9 storeys and above ▪ To boundary with R2 and R3: <ul style="list-style-type: none"> - Min 9m if habitable rooms/balconies to this side
Density	<p>2.2 Site Area and Frontage</p> <ul style="list-style-type: none"> ▪ Min site area – 1,000m² ▪ Min street frontage of 20m ▪ For cul-de-sac sites or sites with curvilinear street frontages: <ul style="list-style-type: none"> - Min site area of 750m² - Min site width at front building line of 17m - Controls for curvilinear street frontages and cul-de-sacs removed. ▪ <i>New provision: min. site area 250m² per attached dwelling or multi-dwelling unit</i> ▪ <i>New provision: if located west of Girraween St in the Stringybark Precinct (Locality 6), attached dwelling and multi dwelling housing proposals require:</i> <ul style="list-style-type: none"> - A minimum site area of 750sqm per development; and - A minimum site width at the front building line of 17m 	<p>3.2 Density</p> <ul style="list-style-type: none"> ▪ Min site area – 1,500m²
Building Depth	n/a	<p>3.3 Building Depth</p> <ul style="list-style-type: none"> ▪ Max 18m (exclusive of balconies)
Building Width	n/a	<p>3.4 Building Width</p> <ul style="list-style-type: none"> ▪ Max 40m (greater may be permissible if articulation is satisfactory)

Clause C.2 Attached and Multi-Dwelling Housing (Townhouses and Villas)		Clause C.3 - Residential Flat Buildings	
Building Separation	<p>2.8.1 Privacy</p> <ul style="list-style-type: none"> Min 12m habitable Min 9m habitable / non-habitable Min 3m non-habitable 	<p>3.6 Building Separation (within developments)</p> <ul style="list-style-type: none"> 4 storeys/12m: <ul style="list-style-type: none"> Min 12m habitable Min 9m if habitable / non-habitable Min 6m non-habitable rooms 5-8 storeys/25m: <ul style="list-style-type: none"> Min 18m habitable Min 13m if habitable / non-habitable Min 9m non-habitable rooms 	
Size of Dwellings	<p>2.7 Building Design</p> <ul style="list-style-type: none"> Min dwelling width is 5m 	<p>3.8 Size of Dwellings</p> <ul style="list-style-type: none"> Min 40m² studio net <p>Excludes balconies, corridors, lobbies, car spaces, storage areas outside the dwelling, private and communal open space, lift and other services shafts</p>	
Dwelling mix	n/a	<ul style="list-style-type: none"> <i>New provision: Min. 10% of each dwelling type (1, 2, 3 bed) to be provided to ensure dwelling mix</i> 	
Landscaped Area	<p>2.6 Landscaped Area</p> <ul style="list-style-type: none"> Min 35% with minimum width of 3m <p>Amendment for attached dwellings: landscaping requirement per dwelling site, not whole development site</p>	<p>3.17 Landscaped Area</p> <ul style="list-style-type: none"> Min 25% and further 15% planting on structures or landscaped area (podiums and internal courtyards) 	
Height	<p>2.7 Building Design</p> <ul style="list-style-type: none"> Townhouses: max 2 storeys Villas: max 1 storey <p>Min floor to ceiling height on ground floor 2.7m and on first floor 2.4m</p>	<p>3.11 Ceiling Heights</p> <ul style="list-style-type: none"> Min 2.4m to 2.7m 	
Private Open Space	<p>2.8.3 Private and Communal Open Space</p> <ul style="list-style-type: none"> Min 4m dimensions Min unbuild upon area of 50m² per 2 or 3 bedroom dwelling Min unbuild upon area of 75m² per 4 or more bedroom dwelling Up to 50% may be partially located above vehicle parking structure Min paving of 10m² per dwelling Not permitted within front setback area 	<p>3.9 Private Open Space (balconies and terraces)</p> <ul style="list-style-type: none"> Min 2m depth Min 10m² area Min 4m depth and 16m² for ground floor dwellings 	
Communal Open Space	<p>2.8.3 Private and Communal Open Space</p> <ul style="list-style-type: none"> Required for more than 5 townhouses or villas Min 10% of site area <i>New provision for townhouses: garage/carport roof to be non-trafficable (therefore cannot use as communal open space)</i> 	<p>3.16 Communal Open Space</p> <ul style="list-style-type: none"> Min 25% site area 	
Car Parking	<p>2.9 Number of Car Parking, Motorcycle and Bicycle Spaces</p> <ul style="list-style-type: none"> 2 or 3 bed dwelling – 1 space 4 or more bed dwelling – 2 spaces Visitors – 1 space per 4 dwellings Motorcycle – 1 space per 25 car spaces 1 bike locker per 10 dwellings 1 bike rack per 12 dwellings Amendment for multi-dwelling housing: same parking rates as RFBs (incl. for studios & 1 beds) Amendment for attached dwellings: requirements for multi-unit housing to apply, except for visitor parking Amendment for townhouses: rates for bike lockers/racks increased (new rate unknown) 	<p>3.10 Number of Car Parking, Motorcycle and Bicycle Spaces</p> <ul style="list-style-type: none"> Studio – 0.5 space 1 Bed – 1 space 2 Bed – 1.5 spaces 3+ Bed – 2 spaces Visitor – 1 space per 4 dwellings Motorcycle – 1 space per 25 car spaces 1 bike locker per 10 dwellings 1 bike rack per 12 dwellings <i>New provision: 1 bike locker per 4 dwellings and 1 rail/rack per 10 dwellings (with a min of 4 rail/racks)</i> 	

2.8 Relevant Development Applications

As at 31 October 2011, eight (8) development applications (DAs) for residential flat development and one DA for 4 x townhouses at 26 Pharos Place have been lodged within the Study Area. The locations of the DAs are shown at **Figure 11**.

- As at 31 October 2011, the following five (5) DAs (244 apartments) had been approved by either the Land and Environment Court or the Joint Regional Planning Panel (JRP2):
- 9 - 13 Mindarie Street (32 apartments);
 - 554 - 560 Mowbray Road West (58 apartments);
 - 532 - 534 Mowbray Road West and 72 -74 Gordon Crescent (46 apartments);
 - 31 - 39 Mindarie Street (60 apartments), and
 - 76-82 Gordon Crescent (48 apartments).

The remainder of the DAs had either been determined by the by way of refusal or were currently being considered by Council.

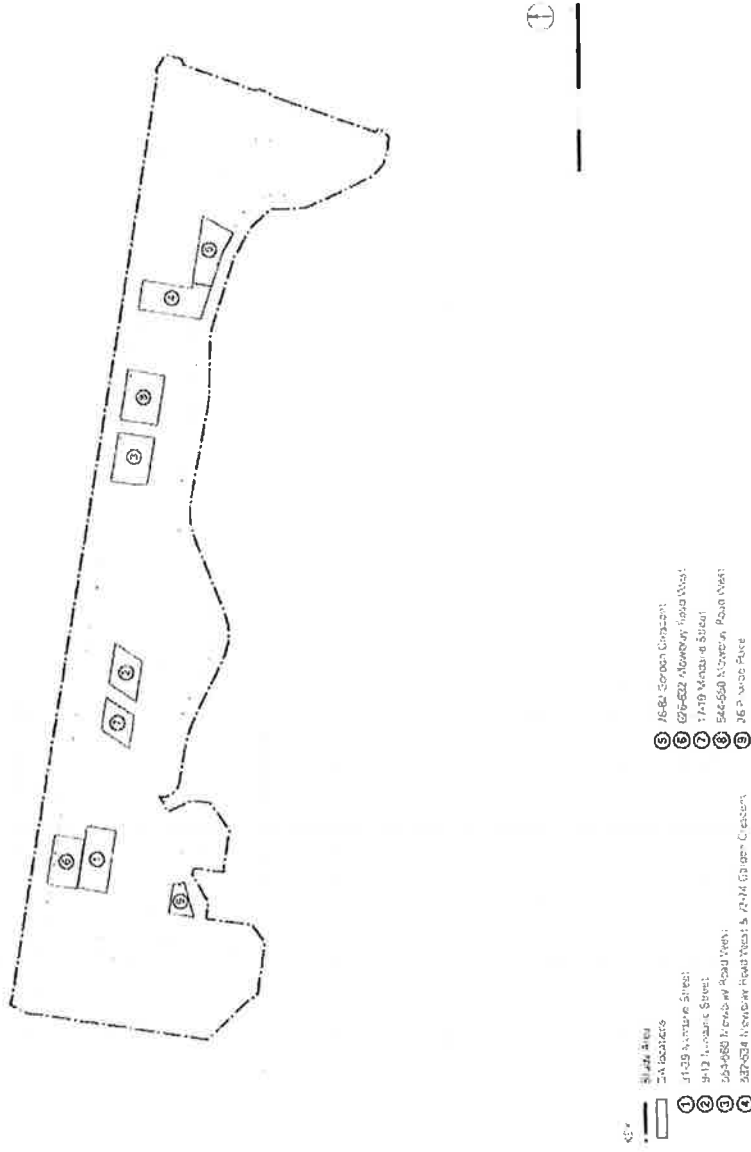


Figure 11 - Location of Development Applications

3.0 Existing Site Conditions

The following section summarises the existing conditions of the Study Area, relevant to its redevelopment potential.

3.1 Topography

Mowbray Road West sits generally on the crest of an east - west running ridge line. The Study Area is on the south facing slope of this ridge line which falls towards Stringybark Creek, to the south of the Study Area. **Figure 12** illustrates a slope analysis of the Study Area with various north-south cross sections at **Figures 13** to **15**.

The slope within the majority of the Study Area is between 0 and 10 degrees. A steeper section runs east west through the central portion of the Study Area with slopes between 10 and 25 degrees. The western portion of the Study Area is generally less steep than the eastern portion.

3.2 Geotechnical Conditions

Based on a review of geotechnical reports submitted with several of the DAs within the Study Area:

- the soil profile generally consists of sandy loam material and underlain by bedrocks generally consisting of medium strength Hawkesbury sandstone;
- the regional groundwater table is expected to be located closer to Stringybark Creek and is unlikely to affect the development area; and
- there is unlikely to be any significant geotechnical constraints to high density residential redevelopment within the Study Area.

3.3 Existing Development

The existing development within the Study Area is set out below:

- there are 387 dwellings within the Study Area comprising 203 apartments and 184 dwelling houses;
- the dwelling houses are a mix of single and double storey of varying ages, styles and quality;
- the average lot size within the Study Area is 630m²;
- the existing gross density (inclusive of surrounding roads) is approximately 18.5 dwellings per ha;
- the eastern end of the Study Area (ie 1A Centennial Avenue and 508 - 530 Mowbray Road West) comprises 2-3 storey, walk-up residential flat buildings, the vast majority of which have been strata titled;
- Housing NSW are a significant land owner within the western portion of the Study Area with 50 lots (approximately 110 dwellings);
- four (4) small retail shops (cafe/ pizzeria and speciality deli) are dispersed within the Study Area;
- A caterer/takeaway shop, framer and other small retail outlets are located at 536A Mowbray Road West, opposite a community centre in Willoughby; and
- two (2) small public open spaces are located within the Study Area.

Figure 16 illustrates the typical character of the existing development within the Study Area.

3.4 Road Conditions

Diversi Consulting (**Appendix C**) has undertaken high a level review of the road infrastructure within the Study Area. The findings are summarised below. **Figure 17** illustrates the typical character of the streetscapes within the Study Area.

Mowbray Road West is a regional road with a carriageway width of about 12-13m and comprises a concrete road shoulder on the northern side and an asphalt pavement on the central pavement and southern road shoulders. Based on a visual inspection of the road, the condition of the pavement appears to be in fair condition with some isolated pavement defects and failures. Concrete footpaths are also provided both sides of the road. Elsewhere in the Study Area are local streets and access places of varying widths with carriageways generally 7.5m-9m wide.

Based on a visual inspection, the condition of these roads is generally fair with some localised defects and failures. In particular there is some longitudinal cracking in Gordon Crescent which indicates some lateral movement of the road and possibly slippage or movement of the steep embankments sloping into Batten Reserve and Stringybark Creek.

It is likely that some of the roads in the eastern portion of the Study Area will need to be either reconstructed, patched and sealed with asphalt or cement stabilised and sealed with asphalt to rehabilitate the existing pavements. It is likely the most cost effective method would be to stabilise and seal subject to detail pavement investigations and design being undertaken.

As the road pavements in the western part of the Study Area appear to have been recently repaired in selected areas, the condition of the pavements are generally better than the eastern portion of the Study Area. As such it is likely that some patching of pavements and sealing with asphalt may be sufficient to rehabilitate the pavements. It is envisaged that these pavement works would be undertaken as part of Council's annual works program.

Diversi Consulting conclude that based on the likely future yield of the area it is likely that many of the existing road pavements will need to be rehabilitated or upgraded to cater for the additional traffic volumes and loads. However, the overall road conditions do not preclude the redevelopment of the Study Area for higher density housing.

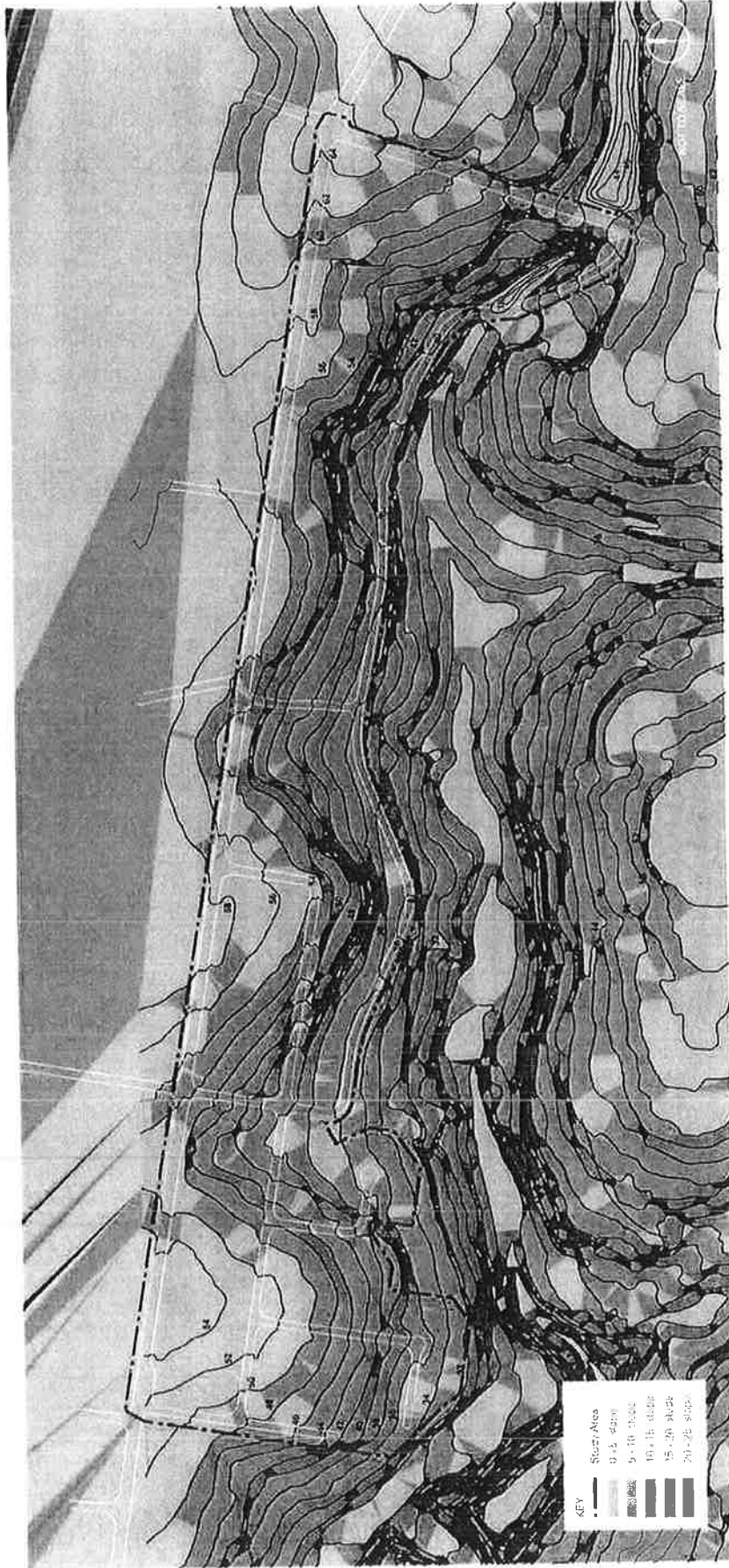


Figure 12 - Study Area Slope Analysis



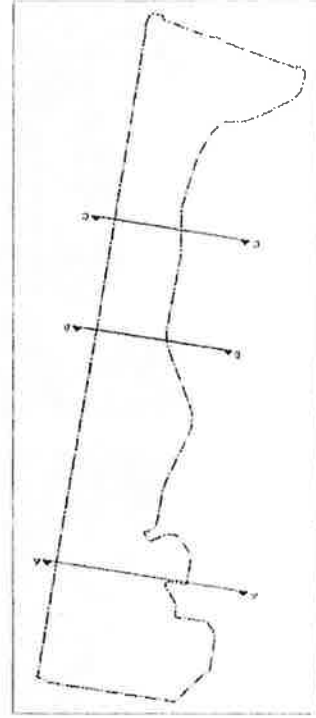
Figure 13 – Section A-A



Figure 14 – Section B-B



Figure 15 – Section C-C



Key Plan

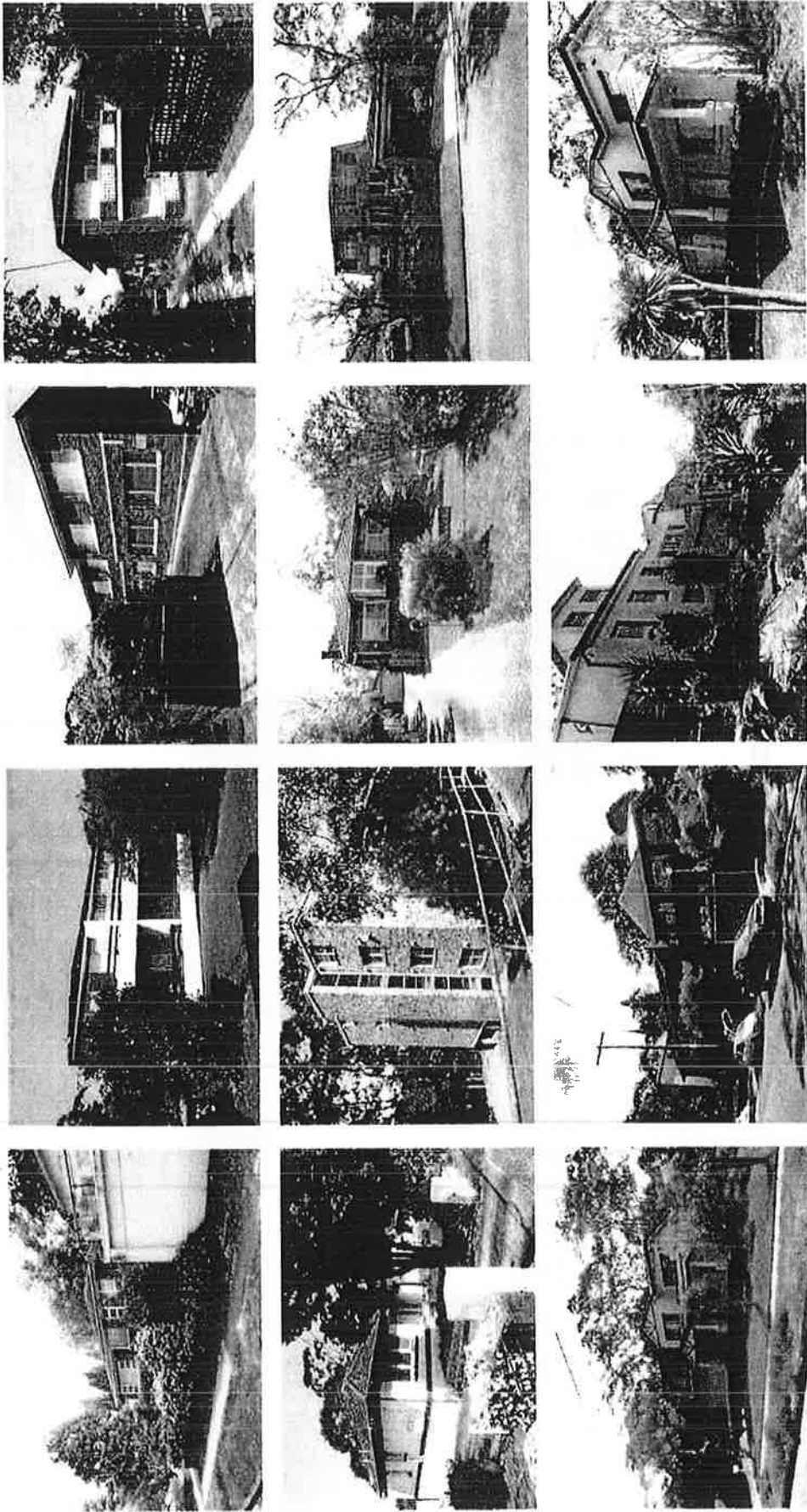


Figure 16 – Photographs of various existing development within the Study Area



Figure 17 - Photographs of the typical streetscape character within the Study Area

3.5 Accessibility to Public Transport

The Study Area is accessible by public and private bus networks. Bus routes are provided along Mowbray Road West, Epping Road and Centennial Avenue (see Figure 18). Sydney Buses services (summarised in Table 7) link the Study Area with the Sydney CBD, Chatswood, Epping, Ryde and Sydney Olympic Park. The Hillisbus services stop on Epping Road (corner Sam Johnson Way) provides access to Rouse Hill, Dural/Castle Hill and the Sydney CBD.

Figure 18 illustrates the accessibility to the lots within the Study Area to the bus stops for the above services. The hatched areas indicate the lots that are within 400m walking distance to the bus stops. In summary, all lots within the Study area are within 400m walking distance of the various bus stops. Lots at both the eastern and western ends of the Study Area are within 400m of two separate routes therefore, increasing their accessibility to public transport.

Table 7 - Bus services accessible to the Study Area

Bus Route	Destinations	Weekday AM Peak		Weekday PM Peak	
		East bound	West Bound	East bound	West Bound
Routes Servicing Mowbray Road West					
533	Monday to Friday peak hour service between service between Sydney Olympic Park, Rhodes, Ryde, North Ryde, Mowbray Rd and Chatswood		Every 15 mins	Every 15 mins	
534	Daily daytime and early evening service between Ryde, North Ryde, Mowbray Rd and Chatswood	Every 15 mins			Every 15 mins
258	Monday to Friday limited peak hour service between Chatswood, Chatswood West and Lane Cove Industrial area				2 services only (1 hour apart)
Routes Servicing Centennial Avenue					
258	Monday to Friday limited peak hour service between Chatswood, Chatswood West and Lane Cove Industrial area				2 services only (1.5 hours apart)
Routes Servicing Epping Road (Sam Johnson Way Bus Stop)					
285	Monday to Friday peak hour service between Lane Cove Industrial area, Lane Cove and City-QVB	Every 30 mins	Every 30 mins	Every 30 mins	Every 30 mins
286/287	Monday to Friday peak hour services between Denistone East (286), Ryde (287), North Ryde, Lane Cove, St Leonards, North Sydney, Milsons Point (287) and City - QVB (286)	Every 15 mins			Every 30 mins
288/290	Daily full time service between Epping, Macquarie University, Macquarie Centre, Kent Road (288), North Ryde, Lane Cove and City - QVB via Freeway (288) or via North Sydney (290)	Every 10 mins	Every 30 mins	Every 10 mins	Every 30 mins
292	Daily full time service between Marsfield, Macquarie University, Macquarie Centre, Macquarie Park, North Ryde, Lane Cove and City - QVB	Every 10 mins	Every 30-45 mins	Every 45-60 mins	Every 30 mins
294	Monday to Friday peak hour service between Macquarie Centre, Talavera Road, Lane Cove and City via Freeway	Every 15 mins	Limited	Limited	Limited

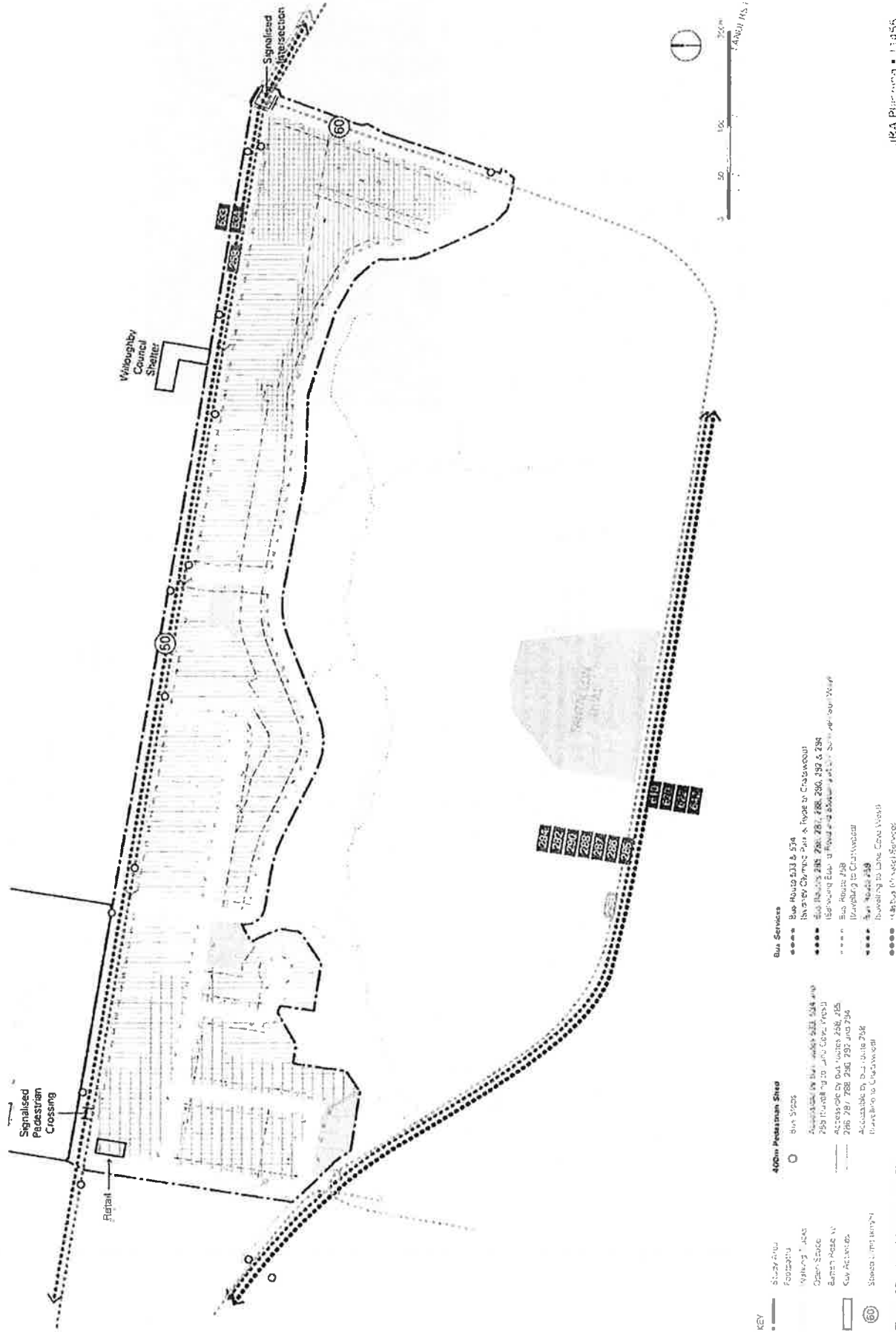


Figure 18 - Local Accessability Plan

3.6 Heritage

European Heritage

There are no heritage items or heritage conservation areas within the Study Area or in close proximity to the Study Area.

Aboriginal Heritage

No known Aboriginal heritage sites are located within the Study Area. A number of Potential Archaeological Deposits (PADs) are located adjacent to the Study Area within Batten Reserve.

3.7 Existing Utility Services

Diversi Consulting were engaged to provide a high level assessment of civil infrastructure available to the Study Area. A copy of the Diversi report is included at **Appendix C** and its key findings are summarised below.

Sewer

The Study Area is serviced by gravity sewer mains ranging from 150-300mm in diameter and typically running at the back or front of properties.

Water

The Study Area is serviced by a 100mm diameter water reticulation network branched off from a 200mm diameter water pipe located on the northern side of Mowbray Road West.

Electricity

Electricity is supplied from above ground cables distributed around the Study Area. There are also some underground high and low voltage cables on the southern side of Mowbray Road West under the footpath, and an existing electrical kiosk substation in the north-eastern corner of 520 Mowbray Road West.

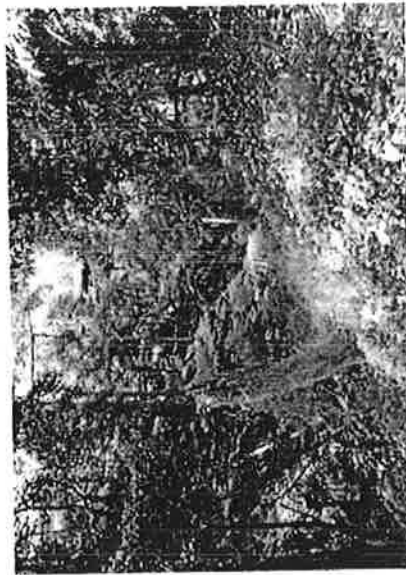
Gas

The Study Area is serviced by natural gas comprising nylon pipes ranging from 32mm to 75mm in diameter.

3.9 Stringybark Creek Riparian Corridor

The Lane Cove LEP 2009 identifies a small portion of Study Area as being Riparian Land, associated with Stringybark Creek (see **Figure 19**). This affectation does not preclude development on this land, rather it requires the consideration of the impacts of development on the land and any opportunities for rehabilitation of aquatic and riparian vegetation and habitat on that land.

For the purposes of the Water Management Act 2000 (WMA), Stringybark Creek is likely to be considered a 'third order' watercourse meaning that a core riparian zone (CRZ) of 20-40m and a 10m vegetated buffer - measured from the top of the highest bank of the watercourse, may be required by the NSW Office of Water. Such a requirement would most likely to apply to a small part of the eastern end of the Study Area (see **Figure 19**) and would most likely preclude development on 1 lot being No. 15 Centennial Avenue.



Stringybark Creek (near intersection of Centennial Avenue, Elizabeth Parade and Gordon Crescent)

Future Capacity

In summary, the Study Area is well serviced by utilities. The existing capacity of services is unknown and further investigations are required with Sydney Water. Ausgrid and Jemena to determine the extent of upgrades required to accommodate future development.

Diversi notes that it is likely the capacity of these networks, in their current form, will be insufficient for high density development. It is expected that subject to the required investigations and augmentation by the relevant service providers, there is unlikely to be constraints to redeveloping the precinct for higher density residential development.

3.8 Flooding and Stormwater Management

Diversi Consulting has been engaged to provide a high level assessment of stormwater and flooding conditions within the Study Area. A copy of the Diversi report is included at **Appendix C** and its key findings are summarised below.

Flooding

As Stringybark Creek is located in a deep valley in Batten Reserve, it is unlikely that flooding due to rising waters would occur in the Study Area. Flooding would be more likely to occur due to limited capacity of pipes, blocked pits and pipes or no dedicated/formed overland flow paths.

Stormwater Management

Stormwater drainage in the Study Area generally consists of a pit and pipe system which drains to Stringybark Creek via local street drainage pipelines, inter-allowment drains and natural channels. Recent approvals in the Study Area have also proposed on site detention (OSD) systems. It is recommended that stormwater outlets into Batten Reserve be upgraded to control stormwater discharging into the reserve, gross pollutant traps be provided and revegetation undertaken.

In summary, aside from potential blocking of pits and pipes there are no constraints to development with respect of stormwater management and flooding.

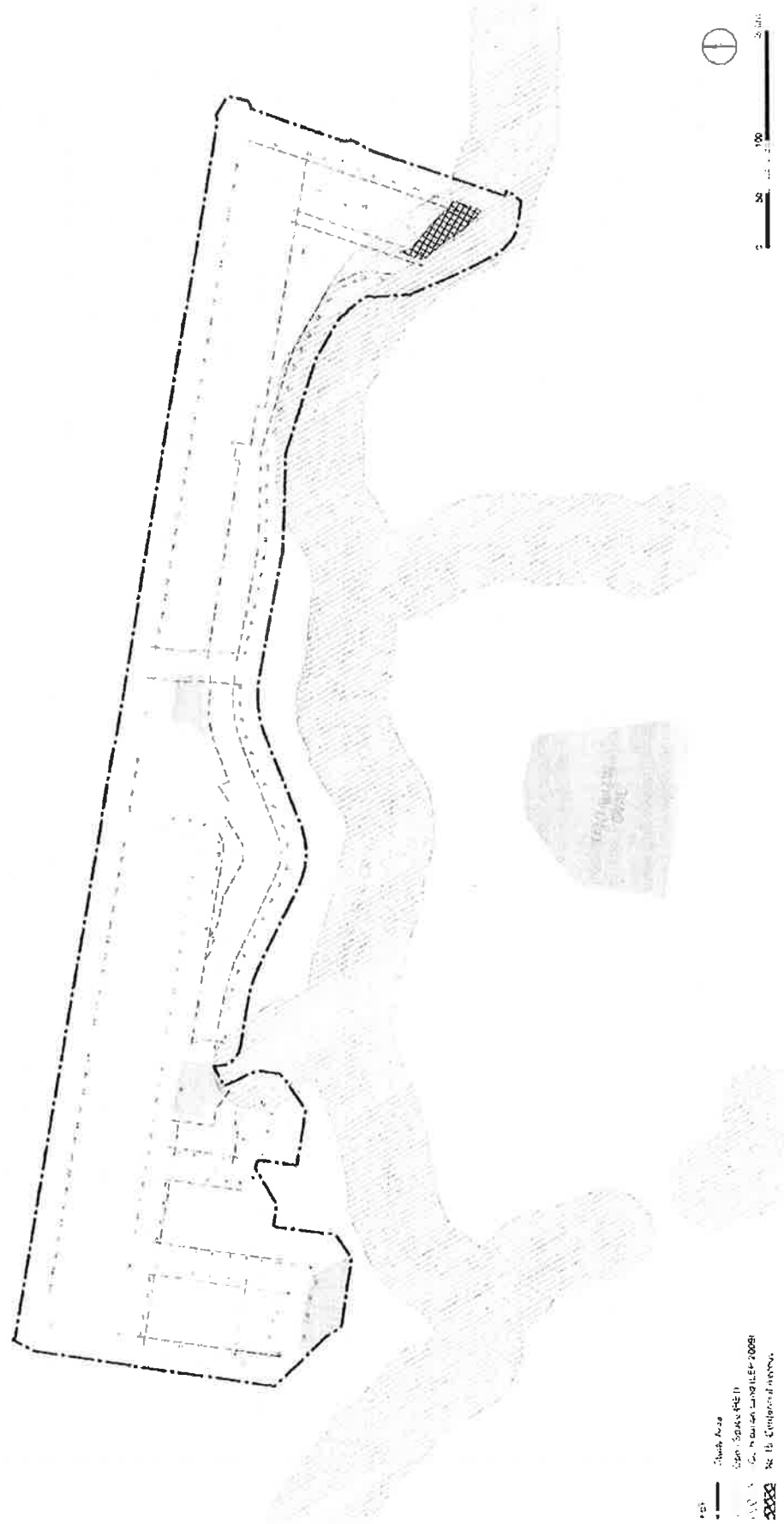


Figure 19 – Stringybark Creek Riparian Corridor

3.10 Flora and Fauna

Within the Study Area

Broad scale vegetation mapping has been undertaken by the National Parks and Wildlife Service (see **Figure 20**). This mapping identifies the likely presence of Turpentine-ironbark Margin Forest and Sandstone Ridgetop Woodland within the Study Area. The former is identified as an Endangered Ecological Community (EEC) under the TSC Act.

The presence of an EEC is particularly relevant at the DA stage when impacts of the proposed development must be addressed. In determining a DA, Council is required to consider impacts on the environment including any impacts on EECs (see section 79C(1)(b) of the EPA Act). More specifically, this would require consideration of cumulative environmental impacts such as the cumulative loss of habitat from the Study Area resulting from the proposed development and other approved/proposed development in the surrounding area, and the impacts of this on the viability of the EEC in the locality. Refer to Section 2.1 for more discussion about relevant legislative requirements.

The importance of this issue was highlighted recently in the JRPP's consideration of a DA for a residential flat building at 76-82 Gordon Crescent. The DA was recommended for refusal on the ground that 15 trees within an EEC would be removed. Council commissioned an ecological consultant, Dr Stephen Ambrose, to undertake a peer review of the applicant's ecological assessment. Dr Ambrose concluded that the removal of the trees would have no significant and adverse impact on the local environment. The JRPP accepted Dr Ambrose's conclusions and resolved to grant consent.

The presence of an EEC within part of the Study Area is, in itself, not a sufficient reason to warrant the down zoning of the affected part of the Study Area. There is a statutory obligation to assess the impact of development on EEC and this may or may not limit the development potential of certain sites.

We note the following recommendation of the JRPP:

"The Panel recommends to the Council that it considers the potential loss of Endangered Ecological Communities from proposed development in the Mowbray Road Precinct. If considered appropriate, a Policy and Plan should be prepared that establishes a suitable location and cost for a biodiversity offset in or near the Precinct, that can be levied on future development."

Batten Reserve

Figure 21 illustrates the vegetation characteristics within Batten Reserve as mapped by Storm Consulting for Council.

A separate preliminary fauna survey, by Mr Andrew Lothian (for Council), indicated that:

- Batten Reserve is in reasonably good condition as native plant species maintain a dominant presence and provide good habitat for native fauna;
- 40 fauna species were identified, including native mammals, birds, reptiles and amphibian species;
- At least one threatened species is confirmed (Grey-headed Flying-fox) but the presence of two other threatened species (Powerful Owl and Red-crowned Toadlet) is uncertain and future surveys should focus on confirming this; and
- Large trees (both native and planted) are present along Kullah Parade and Gordon Crescent, which form linkages between Batten Reserve and the large number of trees in the block to the north of the Reserve, and have the effect of increasing the functional size of the Reserve

The report emphasises that only preliminary surveys were undertaken and that more thorough surveys should be undertaken over an extended period of time. It is noted that the report does not make any conclusions about the potential impact of residential development within the Study Area on Batten Reserve.

3.11 Bush Fire

An extract from the Lane Cove Bush Fire Prone Land Map is included at **Figure 22**. The Map identifies a large portion of the Study Area as being within the 100m wide 'Bush Fire Prone Land - Vegetation Buffer'. The vegetation within Batten Reserve is nominated as being 'Bush Fire Prone Land - Vegetation Category 1', meaning an area of land that can support a bush fire or is likely to be subject to bush fire attack.

As part of this Study, Eco Logical Australia has been engaged to produce a 'ground truthed' map indicating the land within the Study Area that is bush fire prone. A copy of the Ecological Australia Report is included at **Appendix D**.

In preparing the map, Eco Logical Australia undertook:

- a site inspection by a bush fire consultant on Wednesday 21 September 2011;
- a desktop analysis of the vegetation and topography within and surrounding the subject land; and
- a review of the requirements of 'Planning for Bush Fire Protection 2006' (PBP) and other related NSW Rural Fire Service (RFS) policy in regards to bushfire planning and design in bushfire prone areas.

Eco Logical Australia has determined the appropriate Asset Protection Zone (APZ) required under Planning for Bush Fire Protection 2006 (see **Figure 23**). An APZ is an area surrounding a development that is managed to reduce the bush fire hazard to an acceptable level. The width of an APZ will vary with slope, vegetation and building construction level.

The vegetation and slope influencing the Study Area are mainly found in Batten Reserve to the south. The vegetation falls into either the PBP category of 'Forest' or 'Low Hazard'. The slope varies from the PBP category of 'Downslope 0-5 degrees' to 'Downslope 15-18 degrees'.

As shown at **Figure 23**, the APZ requirements for any future development in the Study Area will vary from 10m to 60m.

Figure 24 illustrates the lots that are considered no longer developable due to the impact of APZ requirements discussed above. These include:

- lots that are predominantly covered by the APZ to the extent that they no longer have sufficient area to support a reasonable residential flat building envelope;
- lots that are partially covered by the APZ but due to the required setbacks and / or are unable to be reasonably amalgamated with adjoining lots to create a development site; and
- lots (16-18 Mindarie Street) that are not affected by the APZ but as a result of the APZ can no longer be reasonably amalgamated.

The above have been excluded from the part of the Net Developable Area (see Section 4.1).

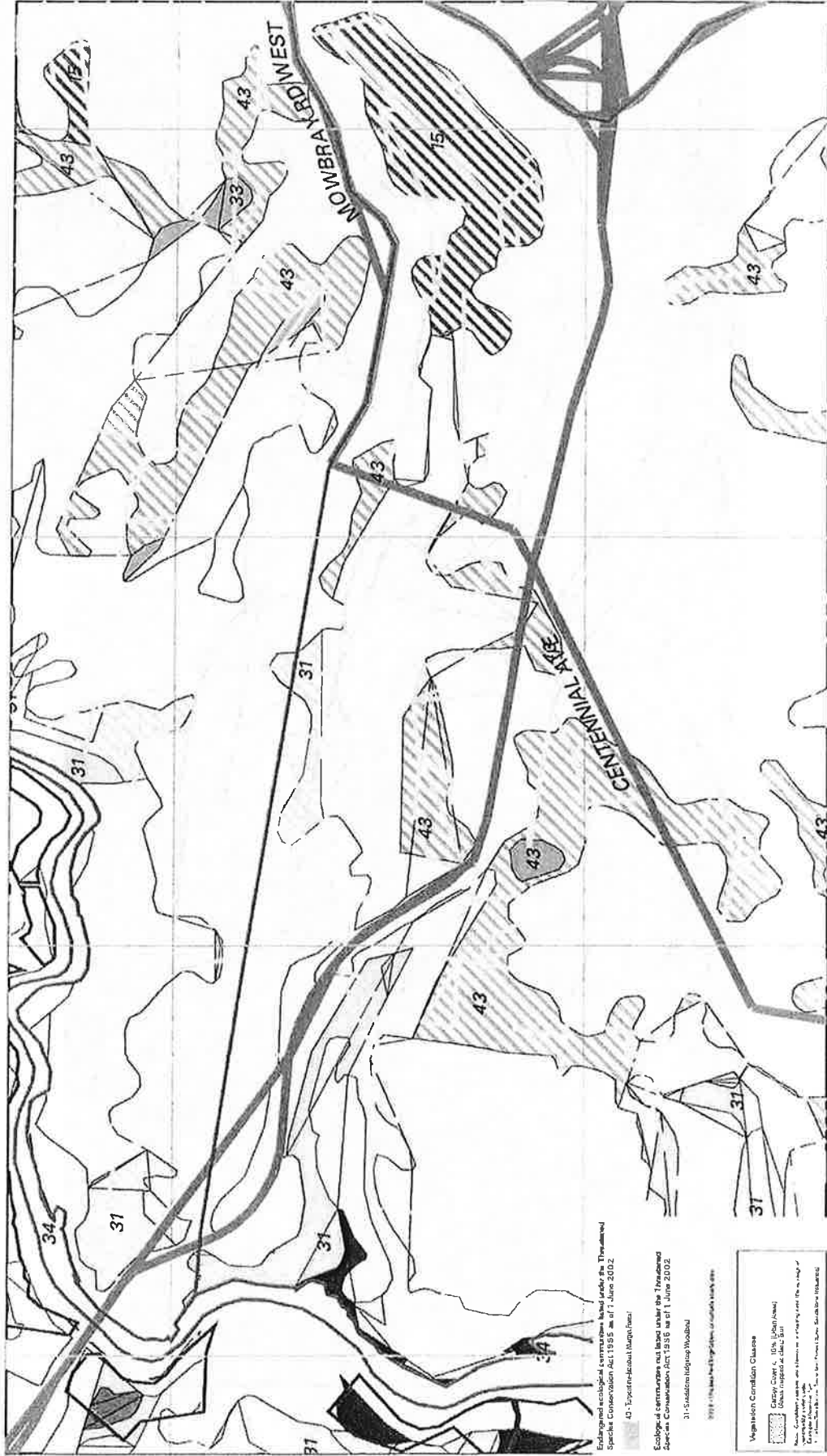


Figure 20 - Native Vegetation of the Lumberland Plan
Source: NSW National Parks and Wildlife Service October 2002



Figure 21 - Vegetation characteristics within Batten Reserve

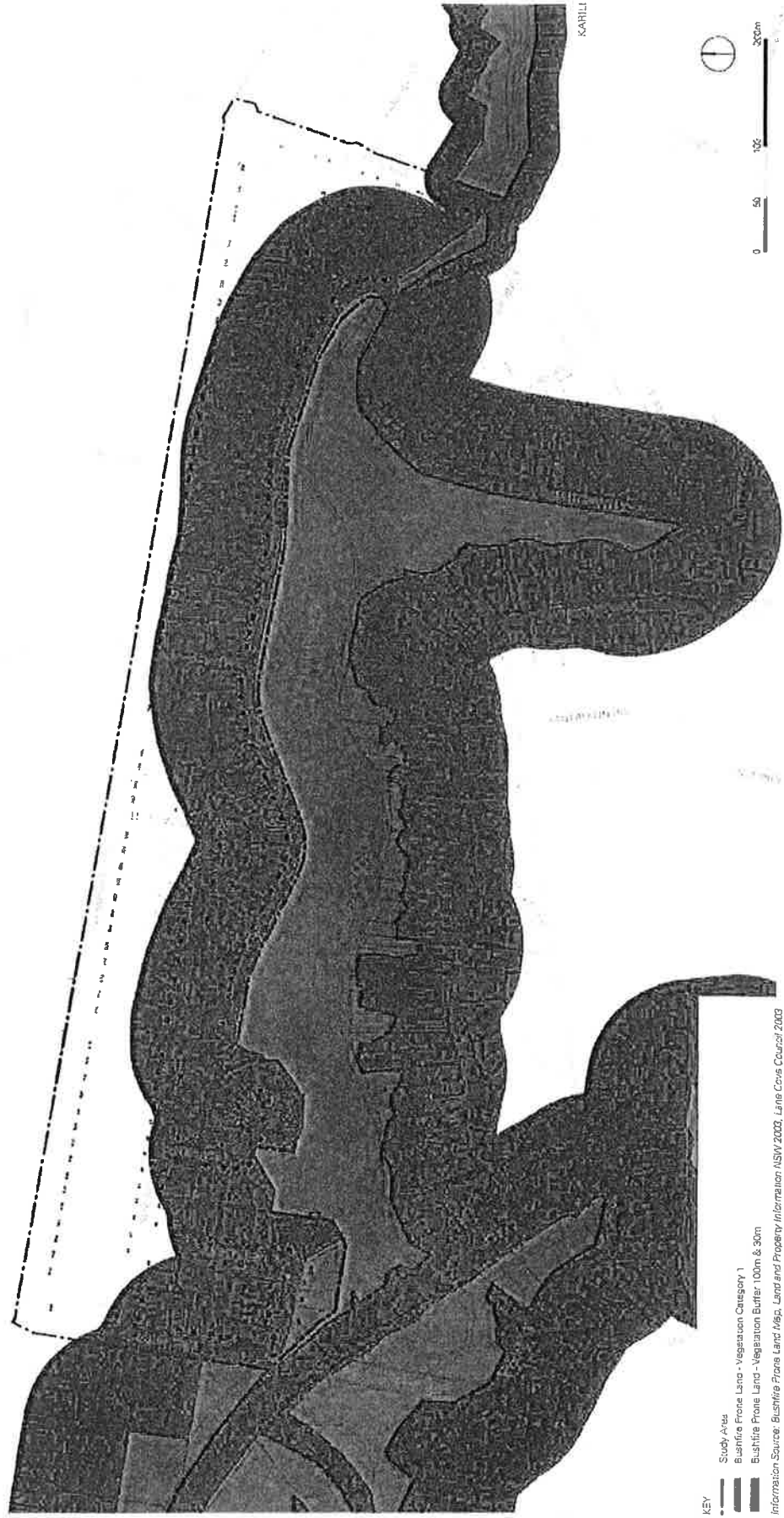


Figure 22 – Lane Cove Council Bushfire Prone Lane Map

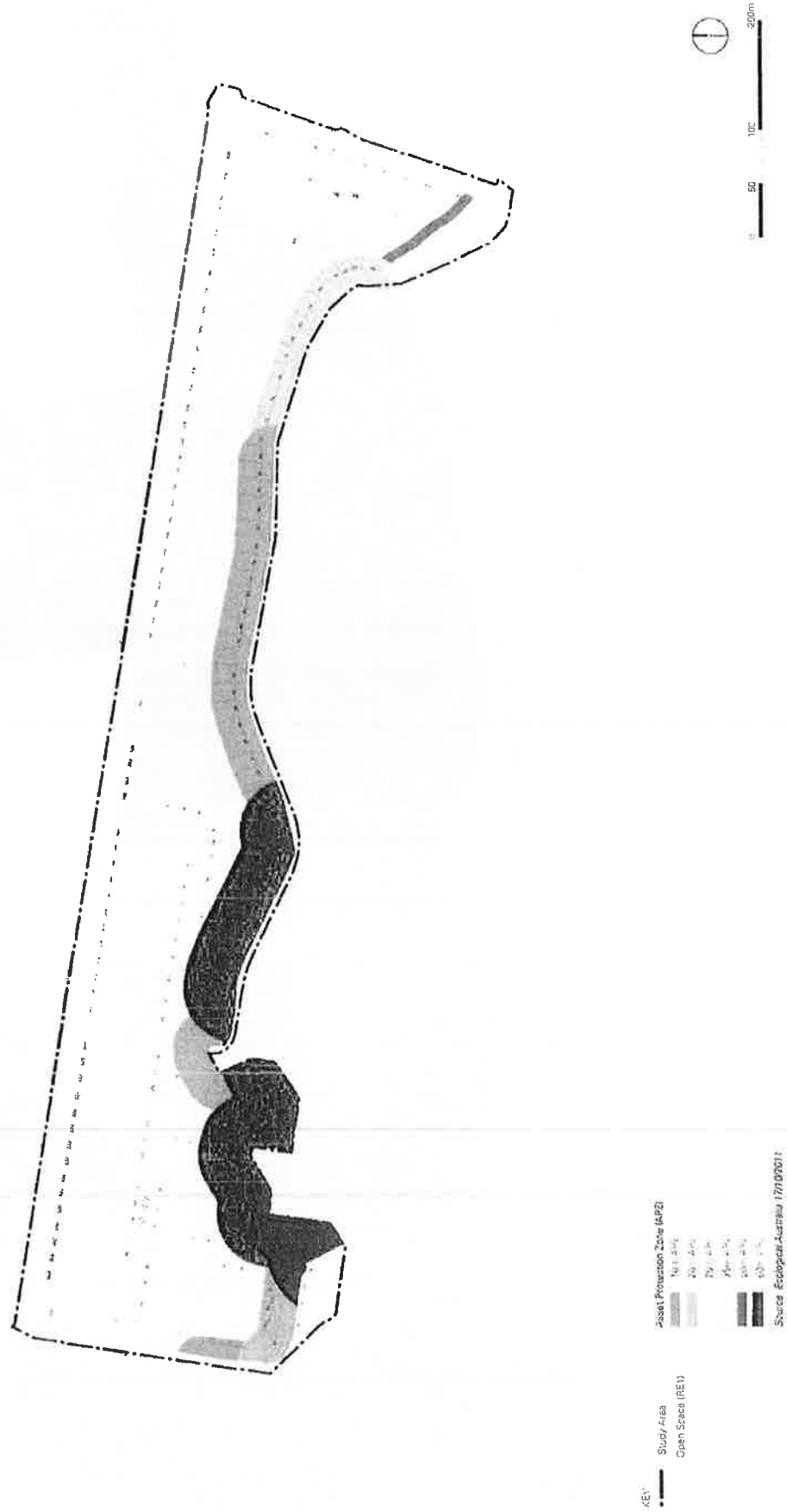


Figure 23 – Required Asset Protection Zone
 Note: This map supersedes the version dated November 2011

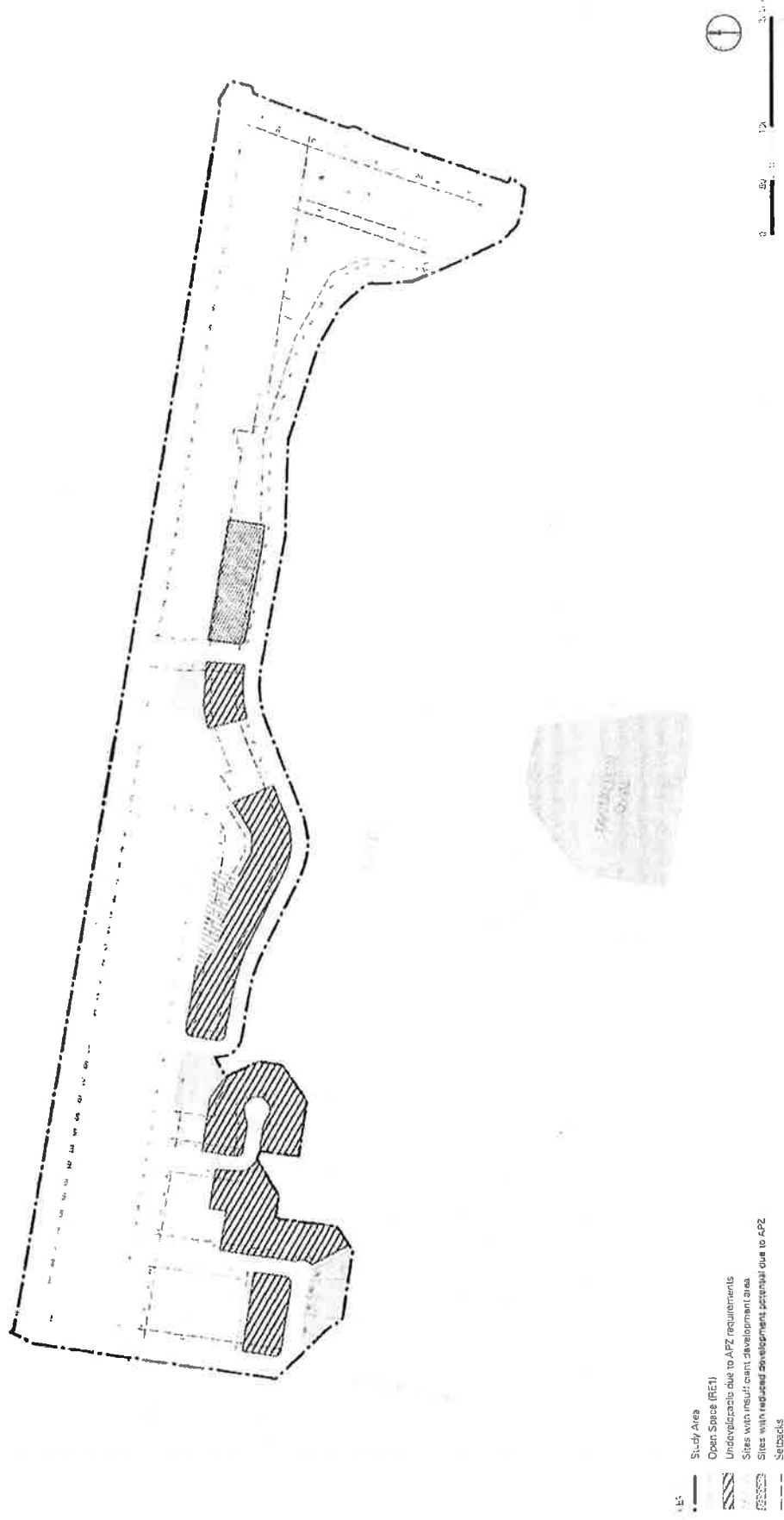


Figure 24 - Impact of APZ Requirements on Nat Developable Area

3.12 Summary

Figure 25 sets out a combined existing conditions map for the Study Area. The existing conditions affecting redevelopment of the Study Area are set out below:

- The Study Area has a south facing aspect with a slope between 0 to 10 degrees with some portions ranging up to 20-25 degrees. Whilst the latter is considered steep, such topography does not preclude the construction of residential flat development. All roads within the Study Area are generally within the accepted maximum gradients.
- There is no evidence of any significant geotechnical constraints within the Study Area that would preclude residential flat development.
- The Study Area comprises a mix of dwelling houses and strata titled apartments, both of varying age, quality and style. The Study Area also currently includes half a dozen small retail shops and two small public open space areas.
- The existing road conditions would not preclude residential flat development with the Study Area.
- The Study Area is accessible to a range of bus services that provide access to surrounding centres and employment areas.
- There are no known European or Aboriginal heritage items or sites.
- The likely capacity of the utility services, in their current form, will be limited and is insufficient for high density development. It is expected that subject to the required investigations and augmentation by the relevant service providers, there is unlikely to be constraints to redeveloping the precinct for higher density residential development.
- Aside from potential blocking of pits and pipes there are no constraints to development with respect to stormwater management and flooding. It is recommended that stormwater outlets into Batten Reserve be upgraded to control stormwater discharging into the reserve, gross pollutant traps be provided and revegetation undertaken.
- The Stringybark Creek riparian constraints only affect a very small part of the Study Area and would most likely limit the development potential of only one lot.

- Based on flora and fauna mapping/surveys undertaken by NPWS and on behalf of Council, and the JRPP's findings in relation to the DA for 76-82 Gordon Crescent, there is unlikely to be substantial flora and fauna constraints within the Study Area or Batten Reserve that would preclude the general redevelopment of the Study Area for higher density residential development.
- Bush fire risk is the most significant condition that imposes constraints of the redevelopment potential of the Study Area. A number of lots within the southern extent of the Study Area are not considered developable for the purposes of residential flat development due to the impact of APZ requirement under Planning for Bush Fire Protection 2006.

Overall, there are no major site conditions or constraints that would preclude higher density housing within the majority of the Study Area.

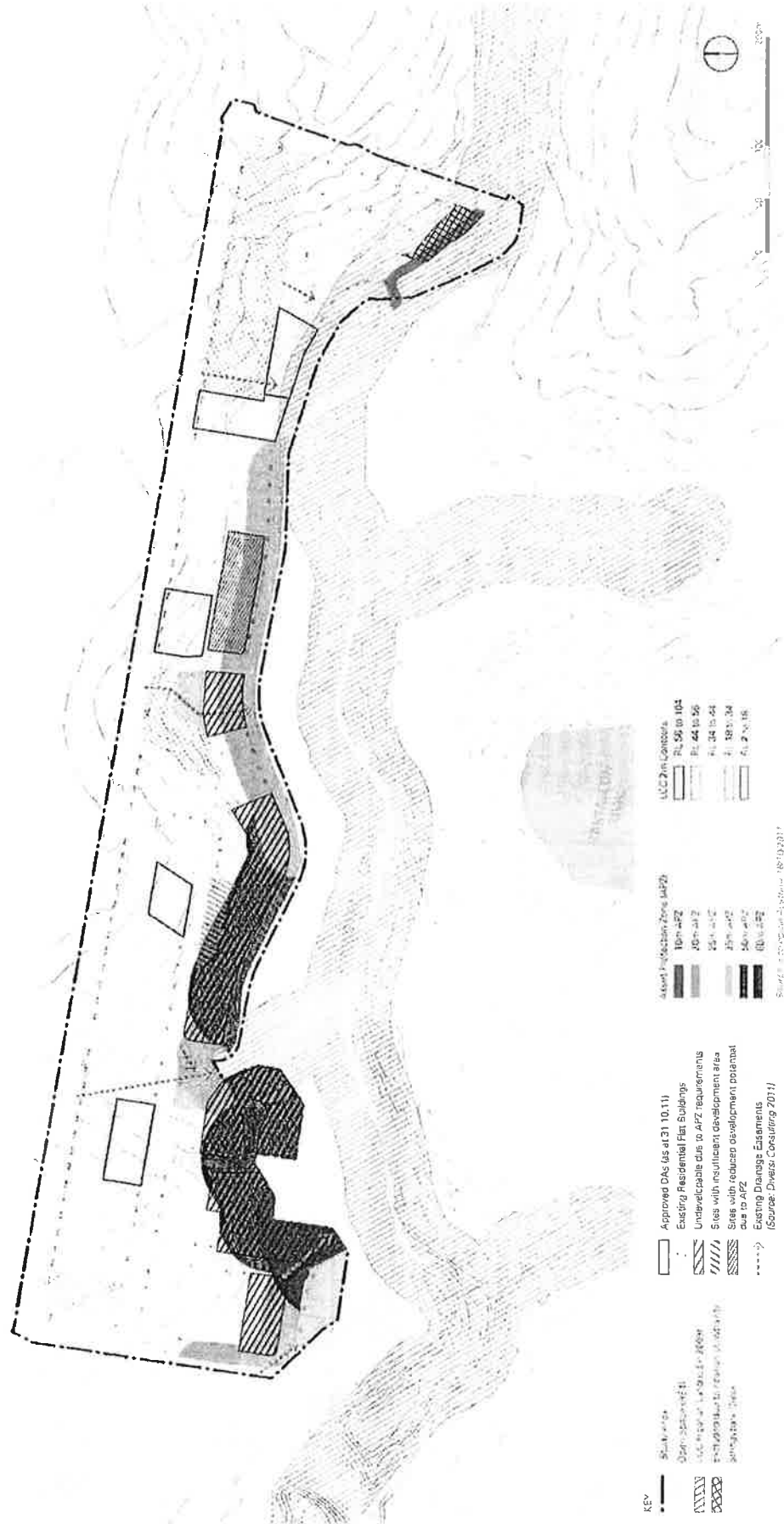


Figure 25 – Combined Existing Conditions Constraints Map

4.0 Residential Yield Estimates

The following section sets out the residential yield of the Study Area under both the LEP 2009 and the Planning Proposal 2011. It also includes the assumptions that have been used to generate the residential yield estimates under either of these scenarios. The assumptions below were developed and refined through consultation within the Project Control Group (PCG) - comprising both officers from DoPI and Council.

4.1 Yield Assumptions

Table 8 summarises the assumptions used in the yield scenarios. Where required, further explanation is included below.

Table 8 – Assumptions used in the Residential Yield Estimates

Element	Assumption
Study Area	<ul style="list-style-type: none"> All land as shown at Figure 1
Existing Residential Yield	<ul style="list-style-type: none"> 387 (being the existing number for dwellings constructed within the Study Area as at September 2011)
Gross Developable Area (GDA)	<ul style="list-style-type: none"> All land zoned R2, R3 or R4, excluding roads and laneways All land zoned and / or proposed to be zoned RE1, E2 and E4 are non-developable with respect to increased dwelling yield (beyond a single dwelling house)
Net Developable Area (NDA) for LEP 2009	<ul style="list-style-type: none"> Equals Gross Developable Area less existing constraints as shown at Figure 25, as follows: <ul style="list-style-type: none"> Approved RFB DA sites (see below) Non viable sites (see below) Land affected by the APZ bush fire requirements (see Section 3.9) Sites with insufficient development area due to APZs (see Section 3.9) Riparian constrained sites (see Section 3.7) LEP 2009 NDA (77,939m²) = <ul style="list-style-type: none"> 136,500m² (GDA) less 58,651m² (above constraints)

Element	Assumption	Element	Assumption
Net Developable Area (NDA) for Planning Proposal 1/2011	<ul style="list-style-type: none"> Equals Gross Developable Area less existing constraints as shown at Figure 25, as follows: <ul style="list-style-type: none"> Approved and Proposed RFB DA sites (see below) Non viable sites (see below) Land affected by the APZ bush fire requirements (see Section 3.9) Sites with insufficient development area due to APZs (see Section 3.9) Riparian constrained sites (see Section 3.7) Planning Proposal 1/2011 NDA (55,856m²) = <ul style="list-style-type: none"> 136,500m² (GDA) less 80,644m² (above constraints) 	Occupancy Rates	<ul style="list-style-type: none"> Dwelling houses: 2.9 persons per dwelling (ppd) Townhouses / villas: 2.1 ppd Apartments: 1.7 ppd
Average Gross Dwelling Size	<ul style="list-style-type: none"> Apartments: 90m² (see below) Townhouse / villas: 130m² 87.5% efficiency (GFA to net floor area for apartments) 	Car Parking	<ul style="list-style-type: none"> Apartments (Lane Cove DCP 2010 rates): <ul style="list-style-type: none"> Studio – 0.5 space 1 Bed – 1 space 2 Bed – 1.5 spaces 3+ Bed – 2 spaces Visitors – 1 space per 4 dwellings Average 1.4 spaces per apartment (based on 8 x RFB DAs submitted to date) Townhouses/ villas (Lane Cove DCP 2010 rates): <ul style="list-style-type: none"> 2 or 3 bed – 1 car space 4 + bed – 2 car spaces Visitors - 1 car space per 4 dwellings Minimum number of car parking spaces (with any number of 0.5 or above rounded to the nearest whole number)
Dwelling Yield	Equals Net Developable Area x FSR / Average Gross Dwelling Size		
Max Floor Space Ratio (FSR)	<ul style="list-style-type: none"> As defined by Lane Cove LEP 2009 LEP 2009: R4: 1.75:1 (see discussion below) Planning Proposal 1/2011: <ul style="list-style-type: none"> R4: 0.8:1 R3: 0.7:1 R2: 0.5:1 (0.4:1 for villas) 		
Max Gross Floor Area (GFA)	Definition as per Lane Cove LEP 2009		
Max Building Height	<ul style="list-style-type: none"> Definition as per Lane Cove LEP 2009 LEP 2009: <ul style="list-style-type: none"> R4: 12m R4: 12m R3: 9.5 R2: 9.5m (multi dwelling housing is 5m) 3m residential floor to floor height Planning Proposal 1/2011: <ul style="list-style-type: none"> R4: 12m R3: 9.5 R2: 9.5m (multi dwelling housing is 5m) 3m residential floor to floor height 		
Dwelling Yield Take up Rate	80% of the Net Developable Area (see below)		

Approved DA Dwelling Yield

The dwelling yield from the approved DAs is taken to be yield as it has been approved (ie 244 apartments (224 net) from the 5 x residential flat building DAs approved as at 31 October 2011).

At the request of the PCG, under the Planning Proposal 1/2011 scenario, the yield from the 8 x (approved and proposed) residential flat building DAs (ie 375 apartments, 345 net) has been included as if all of the DAs were approved as submitted.

Non Viable Sites

The existing residential flats at 508-530 Mowbray Road West and 1A Centennial Ave are not economically viable to redevelop in the medium term in that the sites are strata titled and the development potential provided (under both the LEP 2009 and Planning Proposal 1/2011) is insufficient to warrant redevelopment.

Under Planning Proposal 1/2011, 562 -584 Mowbray Road West and 648-650 Mowbray Road West are not economically viable in that the proposed development potential is less than what currently exists on the land.

Average Gross Dwelling Size

The Lane Cove DCP 2010 does not include any minimal dwelling sizes, except for studios (40m²). The scenarios assume an average gross dwelling size (for apartments) of 90m² with a net area of around 79m² (12.5% of GFA utilised for circulation etc). Often an average gross apartment size of 100m² is utilised when undertaking yield models. The 90m² has been derived from an assessment of the 8 x residential flat building DAs submitted to date within the Study Area. This is a more accurate reflection of what the market is likely to deliver and is consistent with the recommended rules of thumb for apartment sizes under the NSW Residential Flat Design Code.

Floor Space Ratio in the R4 High Density Residential Zone

It is assumed that all sites will be developed to their highest yielding residential form under the applicable LEP provisions. The maximum Floor Space Ratio (FSR) in the R4 High Density Residential Zone is 2.1:1. A review of the 8 x residential flat building DAs submitted to date indicates that the average FSR is 1.7:1. The average FSR of the 4 x approved DAs is 1.72:1.

4.2 Residential Yields under LEP 2009 and Planning Proposal 1/2011

Table 9 summarises the estimated residential yields under both LEP 2009 and Planning Proposal 1/2011. The estimates are based on the set of assumptions outlined above. Given the expected development timeframe or minor variations to the assumptions, it is not unreasonable to assume the estimated yields could vary 10% in either direction. Figures 26 and 27 illustrate the inclusions and exclusions for both the LEP 2009 and Planning Proposal 1/2011 scenarios respectively.

Table 9 - The estimated residential yields under both LEP 2009 and Planning Proposal 1/2011

	LEP 2009	Planning Proposal 1/2011
Total potential dwelling yield*	1,212	150
Total approved DA dwelling yield**	244	244
Total proposed DA dwelling yield***	0	131
Existing dwellings retained	194	296
TOTAL DWELLINGS	1,650	820
Net Increase	1,263	434
Total Population	2,870	1,580

* Potential increased yield factors in constraints as outlined in Section 3.0

** Net approved RFB DAs as at 31 October 2011

*** Net proposed RFB DAs as at 31 October 2011

The developments are not achieving the maximum FSR due to the constraints of other development standards and controls such as building height and setbacks. As such, for the purposes of determining yield under the LEP 2009 scenario, an 'achievable' FSR of, say 1.75:1 is likely to generate a more accurate yield scenario (than the maximum 2.1:1), everything else being equal.

Future Development of the Housing NSW Land

As noted Housing NSW own a large number of sites within the western half of the Study Area. For consistency, the same development assumptions that apply to the remainder of the Study Area (ie apartment size, car parking rates etc) have been applied to this land.

Clause 13 of the Affordable Rental Housing SEPP provides a 0.5:1 FSR bonus for residential flat development within the R4 High Density Residential Zone. It is highly unlikely that the 0.5:1 bonus could be accommodated over the base FSR of 2.1:1 and still meet other controls (DCP 2010 and RFDCL). Therefore, under the LEP 2009 scenario, no allowance for bonus FSR has been factored into the yield model. Should the base FSR be reduced under an alternative scenario, this bonus may need to be factored into the yield.

It is also noted that the savings provisions relevant to Housing NSW development under Part 2 Div 1 of the ARHSEPP 2009 (ie 2 storey RFBs in R2 and R3 Zones) will lapse in May 2013 and will therefore provide minimal additional development yield potential over and above the proposed Planning Proposal 1/2011 controls.

Dwelling Yield Take Up Rate and Time Frame

Not all sites within the Net Developable Area will get developed in the short, medium and long terms for a number of reasons, such as, owners not wishing to sell or sites becoming isolated due to adjacent development. Evidence of the later includes No. 15 Mindarie Street and 552 Mowbray Road West whereby DAs, if constructed will leave these single lot isolated. Therefore a 'take up rate' of 80% is applied under both scenarios. The 80% is a reasonable assumption with 60% being a low range take up and 100% being a high range take up.

Davis and Langdon P/L advise that anecdotal evidence suggests a strong market demand for new residential flat development within the Lane Cove area and the majority of the projects currently being considered within the Study Area should be sold within 6-12 months of completion.

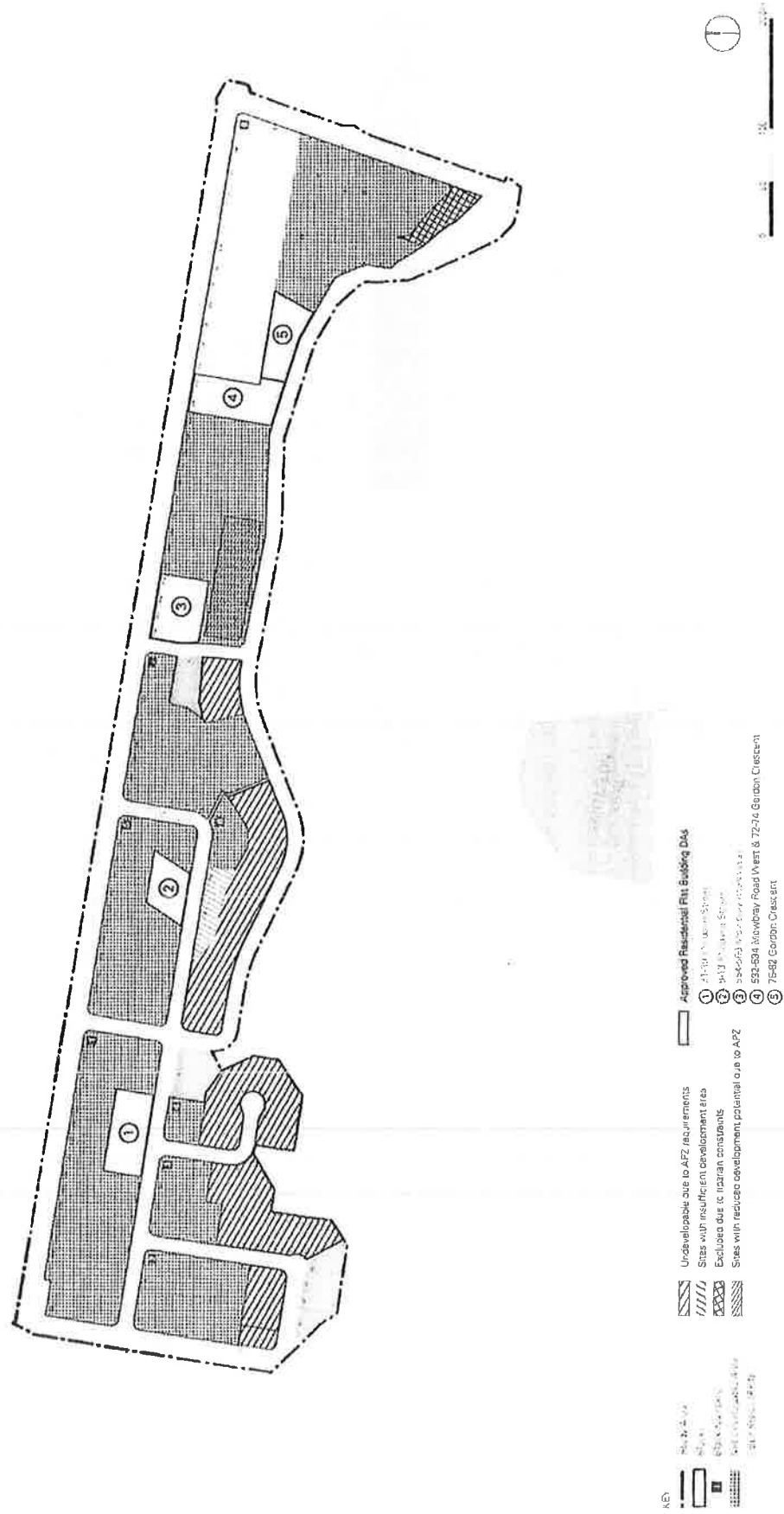


Figure 26 – Residential Yield Inclusions and Exclusions (LEP 2009)

5.0 Study Recommendations

The following section sets out the recommendations of this Study. It is noted that the capacity of the road network from a traffic generation and management perspective is discussed in the SMEC Report (under separate cover).

5.1 Bush Fire Risk and Evacuation

The Ecological Australia Report (**Appendix C**) identifies bush fire planning constraints, controls and necessary infrastructure works required to achieve an adequate level of bush fire protection for high density development.

The assessment concludes that the Study Area is capable of accommodating future high density residential development and associated land use subject to appropriate bush fire protection measures. Appropriate measures required to be implemented include:

- providing asset protection zones (APZ) along the southern side of the Study Area (see Section 3.1);
- the application of building construction standards for bush fire protection;
- providing passing bays of at least 20m in length by restricting parking on one side of the road (eg with sign-posting and line marking) every 200m (this is not required for Kullah Parades and Gordon Crescent); and
- pruning branches to 4m above kerb height on the bushland interface side of Kullah Parade and Gordon Crescent.

Evacuation Assessment

The Ecological Australia Report also includes an assessment of bushfire evacuation points within the Study Area. In understanding the adequacy of the bushfire evacuation options in the Study Area the following matters were considered:

- *The bushfire risk to development adjoining Batten Reserve, including the likelihood and consequence of a bush fire attack:* It was concluded that the bush fire risk was 'low' along Kullah Parade and Gordon Crescent, and 'medium' in Merinda Street and Pinaroo Place. These lower risk ratings do not require the application of specific resources, but it is recommended that each building have an appropriate on-site refuge/bush fire response plan in Kullah Parade, Gordon Crescent (new buildings only), Merinda Street and Pinaroo Place adjoining Batten Reserve;
- *The level and type of evacuation that is likely to be required:* On-site refuge is considered appropriate in this instance given the low-medium bush fire risk and providing buildings are appropriately maintained;
- *The capacity of the access network to cope with the level of evacuation likely to occur:* If residents adopt and comply with an on-site refuge/bush fire response plan, the number of residents who choose to evacuate will be small. The access network is therefore acceptable, and
- *The level of risk to fire fighters and residents associated with the evacuation points:* It is unlikely that the Study Area will be subject to a widespread fire requiring large-scale evacuation. Therefore, the level of risk is low.

The Report makes the following additional comments in relation to evacuation:

- Options for fire control are considered good;
- If mandatory evacuation were to occur, this would only occur from perimeter buildings as the others will not be exposed to bushfire attack; nevertheless, evacuation is not considered the preferred option;
- The risk of an inappropriate evacuation response (eg mass self-evacuation or panic) can be minimised with an evacuation and emergency response plan for each multiple occupancy building; and
- The above evacuation risk will be improved by potential redevelopment as the new buildings will provide a much higher level of on-site refuge capability than the existing housing stock.

The Bushfire Risk Assessment provides the following concluding comments on evacuation:

"Planning for Bushfire Protection 2006 (PBPP) states that the suite of bush fire protection measures are applicable to and sufficient for multi-occupancy residential development, however it is doubtful whether high density residential development, particularly at the bushland interface, was specifically considered in the intent of the document. To complicate things further, in this instance an assessment of high density development is required within an existing area with existing and constrained infrastructure"

Notwithstanding these matters on-site refuge is considered the most probable evacuation response in the event of a bush fire in Batten Reserve. In the authors opinion this will provide an appropriate level of safety for residents and a level consistent with that required by PBPP. It is anticipated that some individual evacuation will occur however this will be at a level that should not compromise firefighter response

If a high intensity bushfire were to occur, the new buildings of the precinct will be designed and constructed to withstand the bush fire attack and shelter its occupants. This is important as mass evacuation would not be viable in the time available"

5.2 Impacts on Batten Reserve

SEPP 19 – Bushland in Urban Areas and Councils planning instruments requires the consideration of impacts on new development on the adjacent bushland (Batten Reserve). With respect to works that may potentially impact upon Batten Reserve, this Study recommends:

- That stormwater outlets into Batten Reserve be upgraded to control stormwater discharging into the reserve, gross pollutant traps be provided and revegetation undertaken; and
- The pruning of branches, to 4m above the kerb height, on the bushland interface side of Kullah Parade and Gordon Crescent.

The works outlined in the above recommendations can be undertaken in a sensitive manner that does not adversely impact upon the ecological significance of Batten Reserve.

5.3 Recommended Planning Principles

Figure 28 illustrates the recommended planning principles for the Study Area. The key aspects are summarised below.

- Retain the R4 zoning across the majority of the Study Area;
- Rezone to retain single dwelling housing (R2 Low Density Residential) on land that is substantially affected at APZ requirements;
- Retain the 4 storey height limit across the majority of the Study Area and permit a partial 5th storey on land at the western end of the Study Area (see Section 5.4 below);
- Provide a 3 storey height limit at 8-14 Mindarie Street to provide a transition in heights between the 2 storey and 4 storey areas;
- Reduce the maximum floor space ratio permitted within the R4 from 2:1 to 1.6 and 1.8:1 (see Section 5.4 below);
- Consolidate the open space within the Study Area into a more useable park at the between Pinaroo Place and Kullah Parade (see 5.6 below);
- Reinforce the corner of Mowbray West Road and Willandra Street as a local neighbourhood centre that can provide an increased range of local retail uses;
- Improve the pedestrian linkage between Merinda Street and the pedestrian overbridge at Epping Road;
- Upgrade the pedestrian connection between Mindarie Street and Kullah Parade. This may include realignment as part of any future redevelopment of adjacent sites; and
- Investigate the potential for a new pedestrian connection / steps between Mowbray Road West and Gordon Crescent generally located in the vicinity as shown at Figure 29.

The recommended LEP land zoning amendments to implement the structure plan is shown at Figure 29.

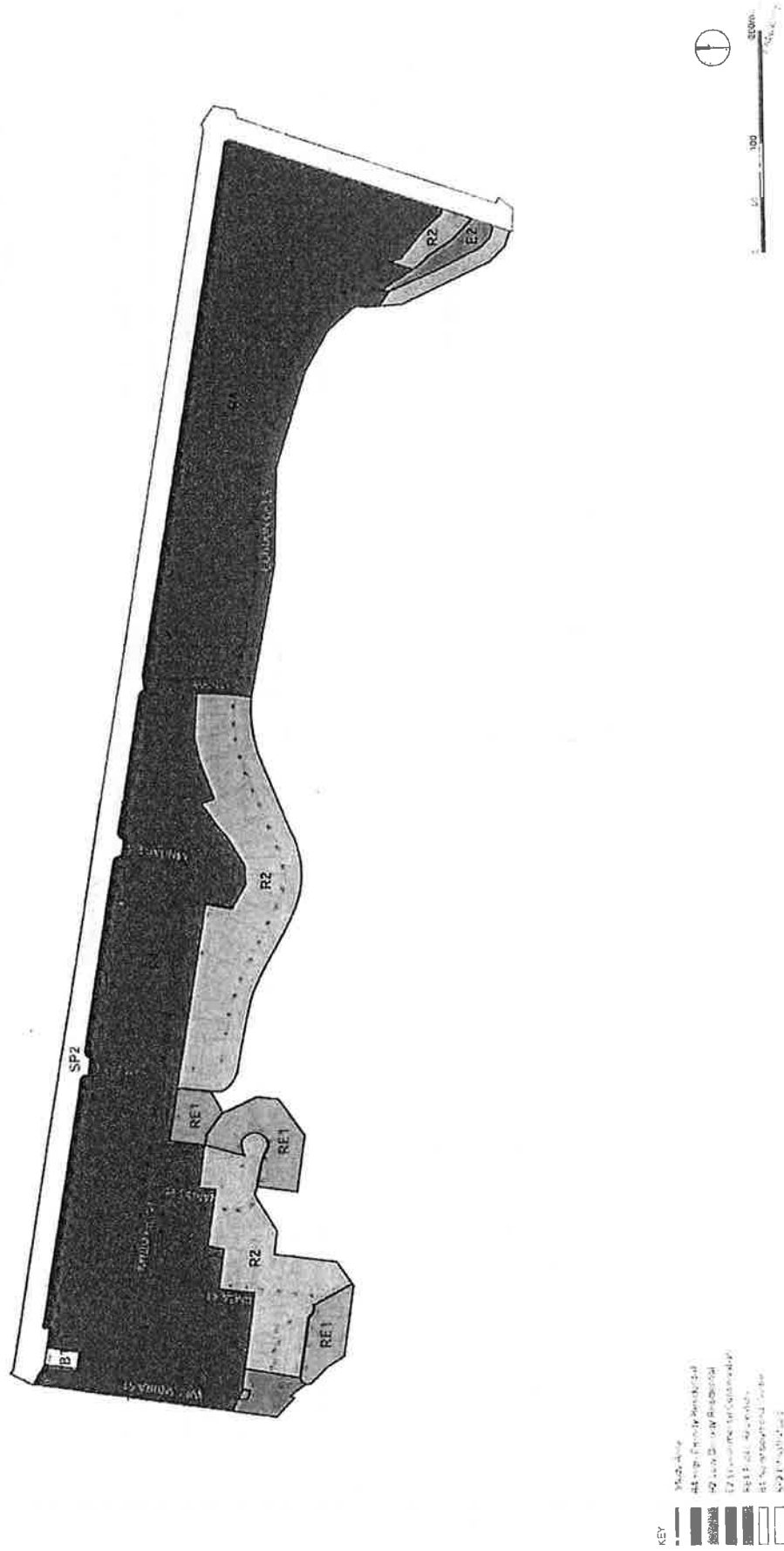


Figure 29 - Recommended LEP Land Zoning Map

5.4 Built Form and Residential Design

Building Heights

LEP 2009 currently provides a 12m building height. This is lower than what typically would be provided for 4 storey residential flat development.

In order to achieve the four residential storeys within this height limit, the residential buildings being proposed within the Study Area are being sited low into the ground often with the lower level apartments below natural ground level and large amounts of excavation. Secondly, in order to avoid non-compliance with the height controls, the tops of the buildings lack articulation or roof features to the detriment of the design quality and streetscape appeal of the buildings (see **Figure 30**).

In order to provide greater design flexibility, a maximum building height of 14.5m is recommended for that part of the Study Area nominated as 4 storeys. The 14.5m allows for 4 residential floors (12m) plus an allowance for basement extrusions and roof features / plant. To ensure a 5th storey is not accommodated, it is recommended that Part C of DCP 2010 be amended to be explicit as to the maximum number of storeys that may be accommodated within the 14.5m height limit.

As noted above, the height limit at the north western end of the Study Area is recommended to be increased to permit a partial 5th storey (17.5m). This portion of the Study Area is the more accessible to a range of amenities such as public transport, local shops and Mowbray School and it is has a more gentle slope than other parts of the Study Area. In this regard, it is well suited for higher density housing.

In is recommended that Part C of DCP 2010 be amended to ensure that the 5th storey is recessed (ie max 50% of the area of the floor below and setback generally 3m from the facade (see **Figure 31**). In this way, potential visual and shadow impacts resulting from the 5th storey can be minimised.

The recommended LEP building heights for the Study Area is shown at **Figure 32**.

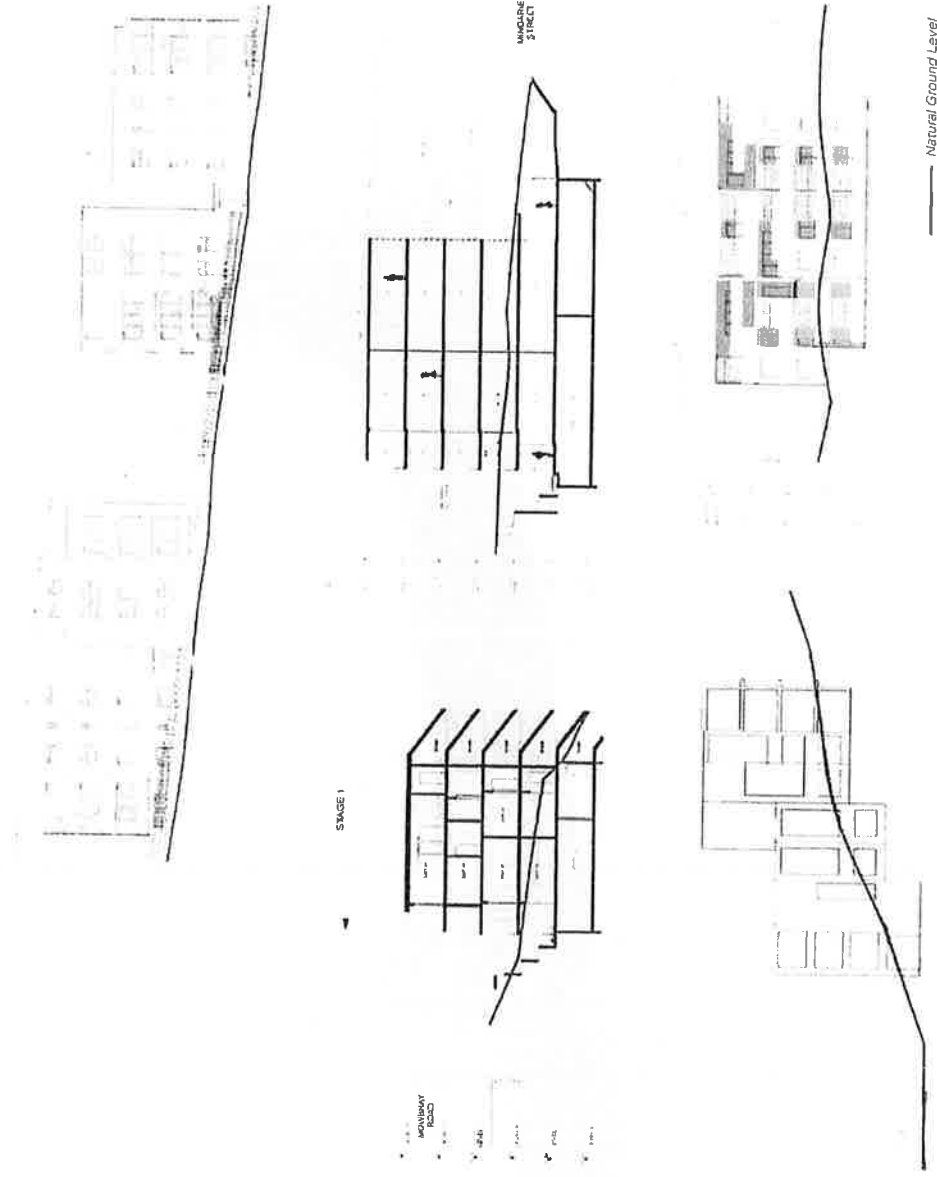
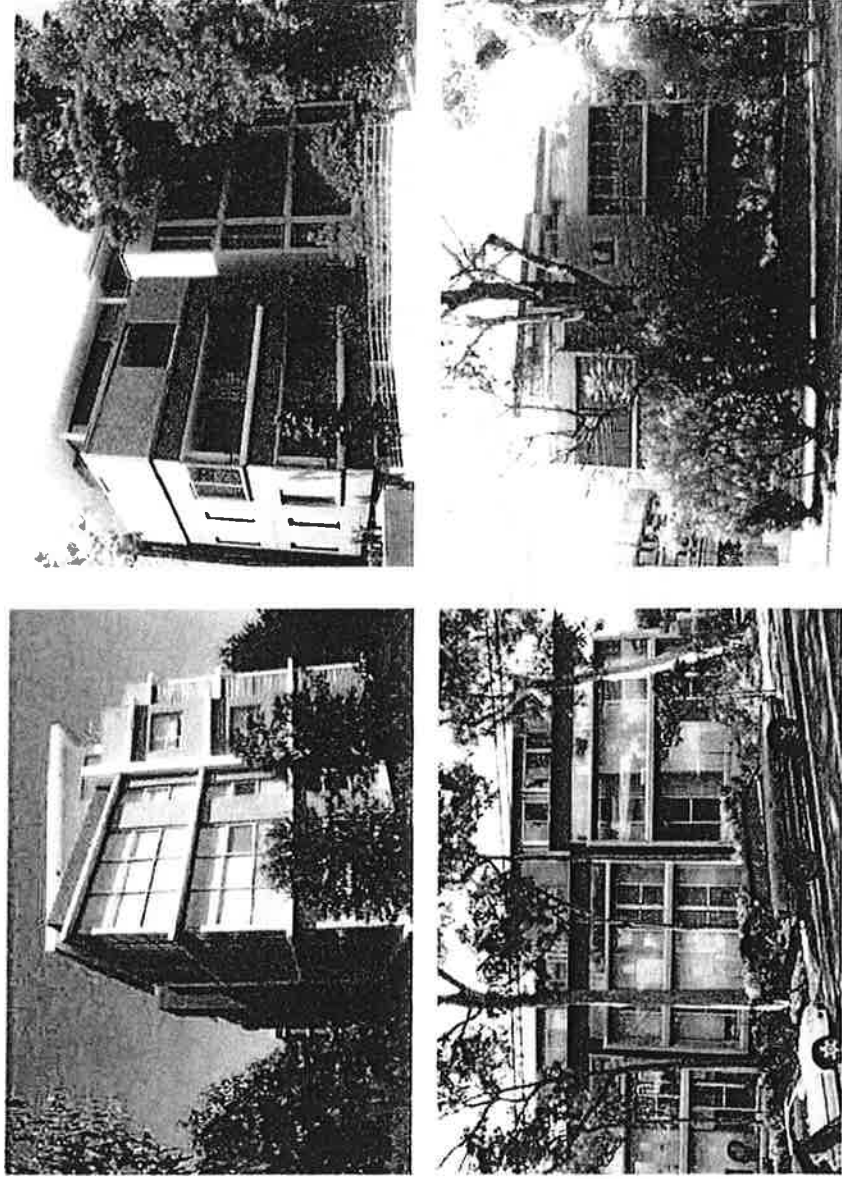


Figure 30 – Extracts from various proposed developments within the Study Area



5th storey
4th storey
3rd storey
2nd storey
1st storey
Existing ground

Figure 31 - Typical cross section and examples of the recessed upper storey

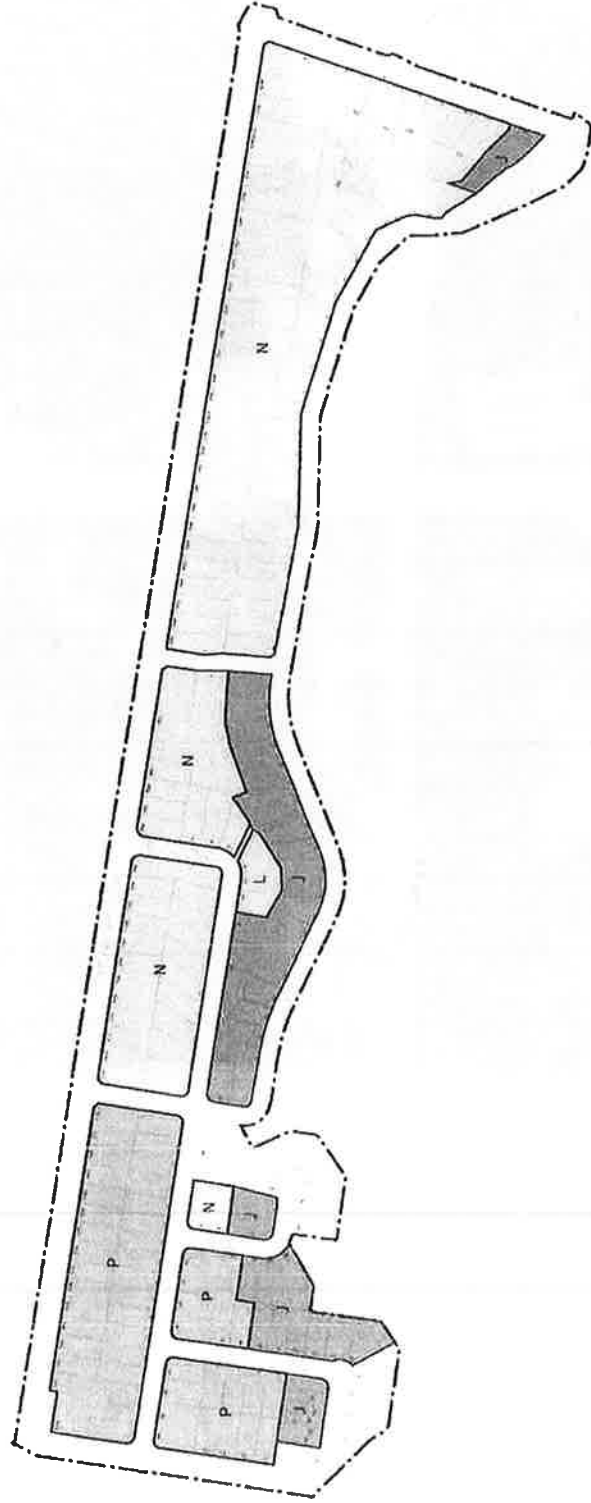


Figure 32 – Recommended LFC Building Heights Map

Floor Space Ratio

LEP 2009 provides an FSR of 2.1:1 in the R4 zone. There is a disconnect with this FSR and the maximum permitted building height of 12m (4 storeys). This is evident in the assessment of the existing DAs that have been submitted within the Study Area which are achieving an average of only 1.7:1.

To provide an FSR that is more consistent with the permitted maximum building heights and the other recommendations of this Study, the following maximum FSRs are recommended, as illustrated at Figure 33:

- 1.6:1 for the 4 storey apartment areas;
- 1.8:1 for the 5 storey apartment areas; and
- 0.5:1 for the single dwelling areas.

Davis and Langdon Pty Ltd has reviewed the feasibility of this development potential (Appendix E)

Based on these assumptions Davis and Langdon P/L consider that a 1.6:1 FSR is a reasonable density to target from a financial perspective. It provides developers scope to acquire sites at prices above \$1,900 m² and maintain project feasibility. Conversely a lower density risks a downturn in market conditions making development marginal and/or would encourage lower quality development.

Site Coverage and Deep Soil Planting

For residential flat development, Council's current DCP requires a minimum of 25% of a site to be landscaped area (ie 'soft landscaping') and a further 15% of a site to include landscaping on structures (ie over basement car parking, on podiums or internal courtyards). The minimum of 25% landscaped area limits the ability for tree retention and the ability for new large tree planting.

It is recommended that Council amend Section 3.17 of DCP 2010 to require a minimum 40% of a site area for deep soil planting (ie unexcavated).

5.5 Estimated Residential Yield

Table 10 summarises the estimated residential yield under the recommended scenario. The estimate is based on the set of assumptions outlined in Section 4.1 above. Given the expected development timeframe or minor variations to the assumptions, it is not unreasonable to assume the estimated yield could vary 10% in either direction. Figure 34 illustrates the inclusions and exclusions for the scenario.

Table 10 – The estimated residential yields (as recommended)

	Recommended scenario
Total potential dwelling yield*	1,151
Total approved DA dwelling yield**	244
Existing dwellings retained	183
TOTAL DWELLINGS	1,580
Net Increase	1,200
Total Population	2,730

* Potential increased yield factors in constraints as outlined in Section 3.0
 ** Net approved RFB DAs as at 31 October 2011



Example of stepping down interface between 5 storey residential flat building and 2 storey dwelling

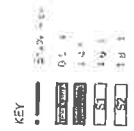
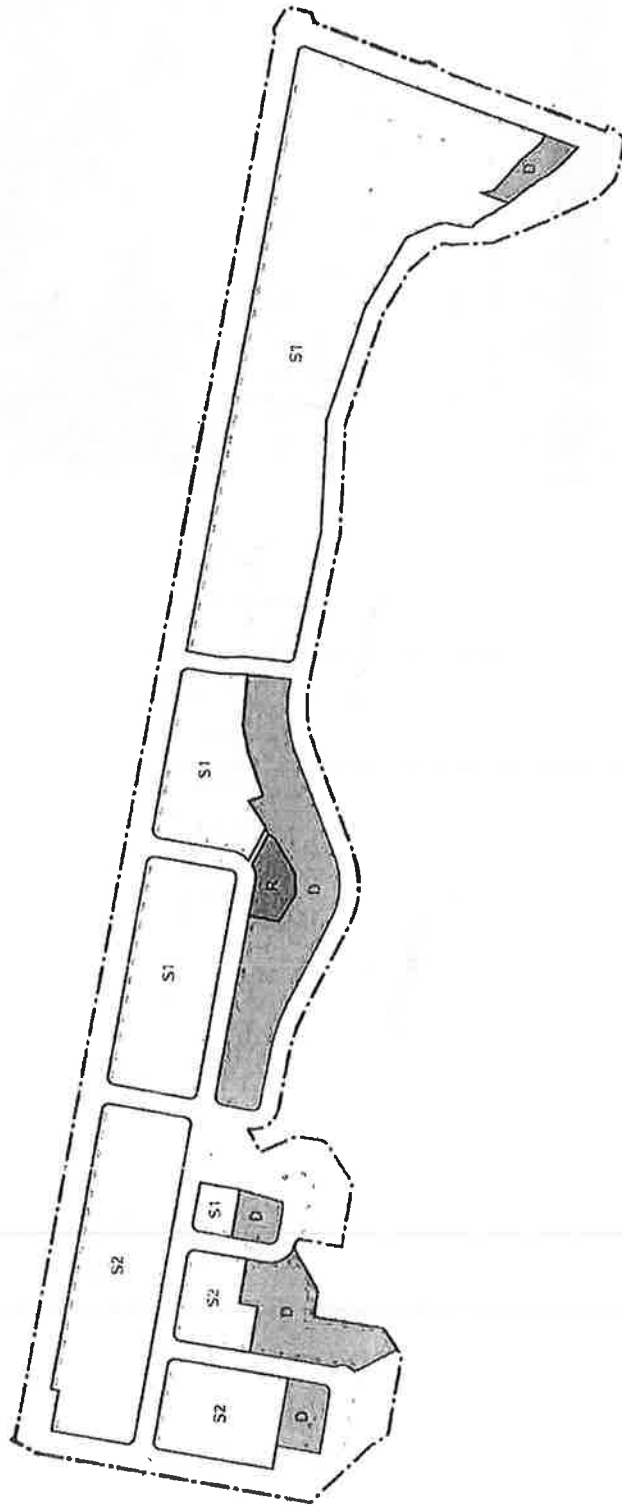


Figure 33 — Recommended LEP Floor Space Ratio Map

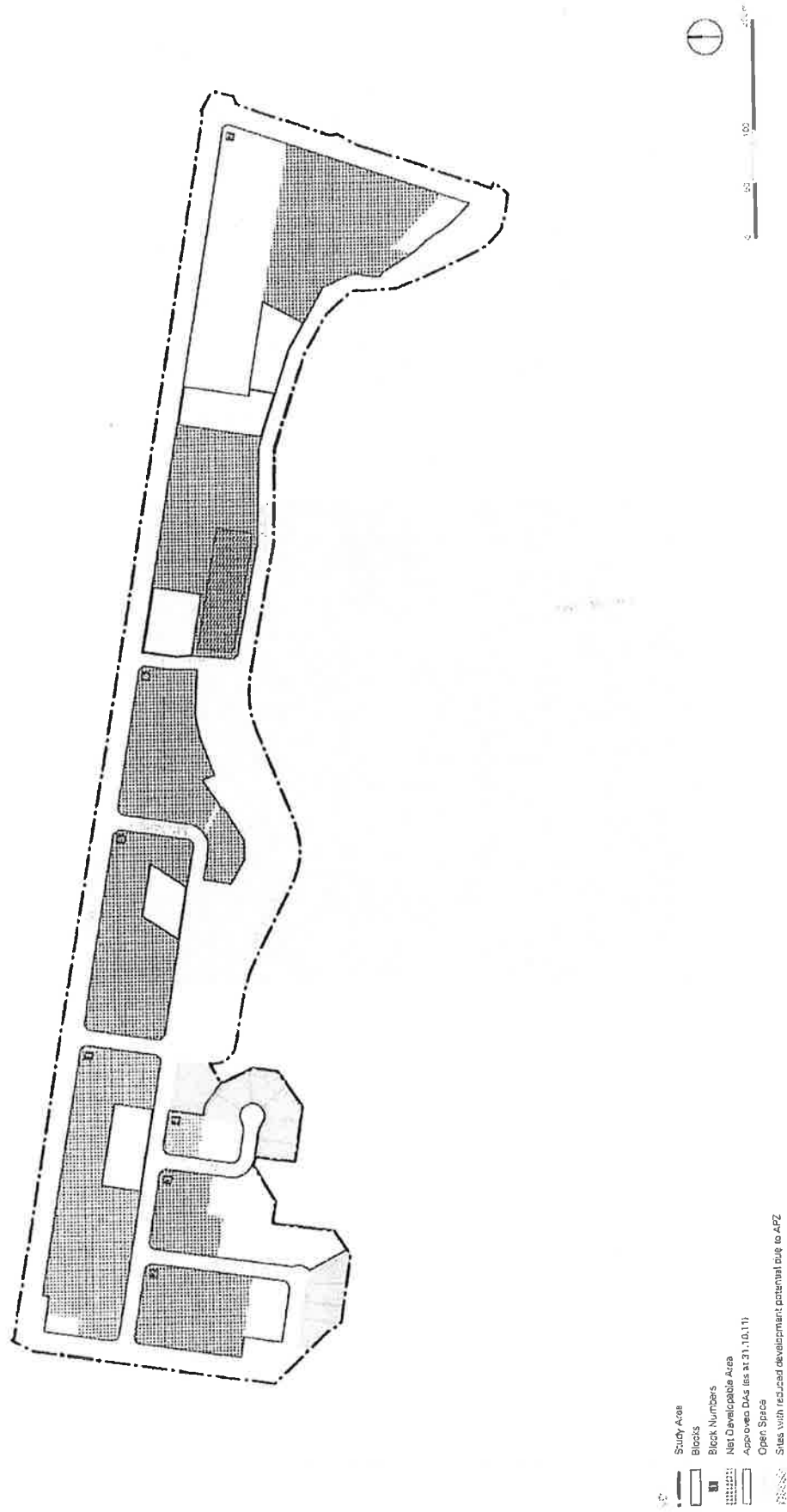


Figure 34 – Residential Yield Inclusions and Exclusions (as recommended)

5.6 Open Space Land Swap

It is recommended that Council and Housing NSW consider a land swap with respect to Council's existing open space at No. 1 Girraween Avenue (1,332m²) and Housing NSW's residential land at No 10-20 Pinaroo Place (2,588m²). The benefits of this land swap are that would:

- Provide a larger, more useable open space recreation area for the Study Area at No. 10-20 Pinaroo Place that is integrated with the existing open space at 18 Mindarie Street and Batten Reserve (see **Figure 35**). The open space could be embellished with new facilities such as children's play equipment, sun shading, seating and community BBQs; and
- Allow No. 1 Girraween Avenue to be developed for residential purposes (R4); and for it to be developed as part of any redevelopment of the existing Housing NSW property at No. 562 Mowbray Road West. This would provide a more regular development parcel and greater incentive to redevelop this aging building.



Figure 35 – Location of potential new open space resulting from land swap

5.7 Local Infrastructure Upgrades

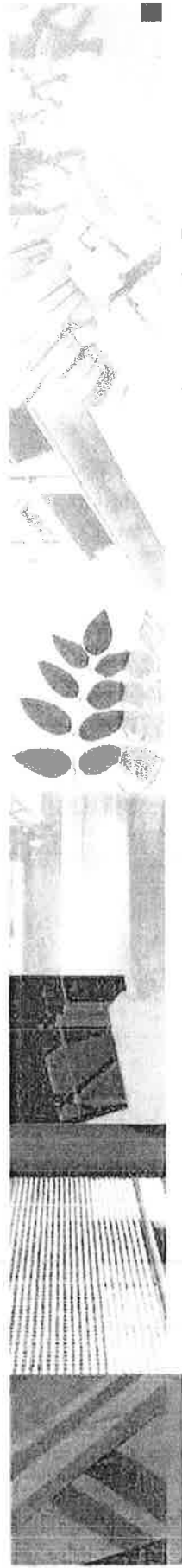
The following local infrastructure upgrades (to be funded through Section 94 Contributions) are recommended within the Study Area (in addition to standard rates for traffic, drainage, community facilities etc LGA-wide):

- Upgraded intersection of Mowbray Road West and Hatfield Street to a signalised intersection. Subject to detailed design, this may include some land acquisition;
- Upgraded existing pedestrian connection between Merinda Street and Epping Road, including lighting, signage and improved footpaths;
- Upgraded and realigned pedestrian connection between Mindarie Street and Kullah Parade;
- Potential new pedestrian connection between Mowbray Road West and Gordon Crescent;
- Upgraded stormwater outlets to Batten Reserve to control stormwater discharging into the reserve, gross pollutant traps be provided, and revegetation undertaken;
- New street tree planting (where required) throughout the Precinct;
- Embellishments to the existing and proposed open space located at the corner of Mindarie Street and Kullah Parade;
- Sign posting and line marking for passing bays in accordance with the recommendations of Ecological Australia (**Appendix C**).



Appendix A

Study Brief



Appendix B

Background Document Review

Background Document Review

Assessment of Viability of Planning Controls for North Lane Cove Precinct, Resitech in Association with Stanicic Associates Architects and SJB Planning for Housing NSW

Batten Reserve Bushfire Review Report (2011) Newcastle Bushfire Consulting

Batten Reserve Flora Assessment (2011) Dr. Ray & Elma Kearney

Batten Reserve – General Fauna Survey (2011) Andrew Lothian for Lane Cove Council

Basic Community Profile, Enumerated Census information for Lane Cove North 2006 and 2001, id Consulting

Draft Willoughby Local Environmental Plan, 2009

Flora Assessment Batten Reserve (2011) Anne Clements & Associates P/L

Indigenous Trees of Lane Cove (1997), S Butler

Inner North Subregion Draft Subregional Strategy (2007), NSW Department of Planning

Lane Cove Bushfire Accessibility Report (2011) Urbanhorizon Pty Ltd for NSW Department of Planning

Lane Cove Development Control Plan 2010, as amended

Lane Cove Local Environmental Plan 2009

Lane Cove LGA Housing Market Information, NSW Department of Housing

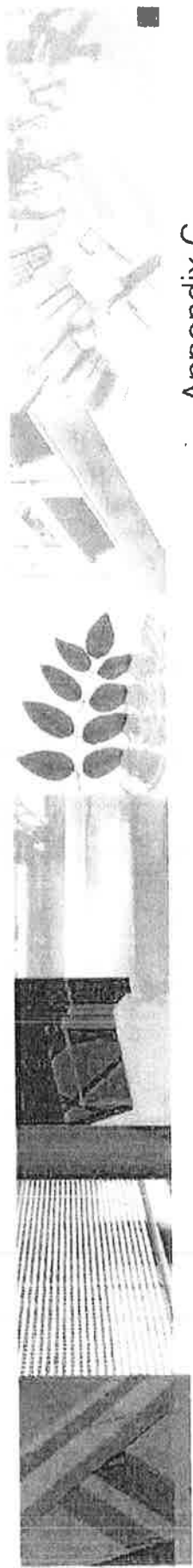
Lane Cove Section 94 Contribution Plan 1996 as amended

Metropolitan Plan for Sydney 2036 (2010), NSW Department of Planning and Infrastructure

Native Vegetation of the Lane Cove Council Local Government Area (2010) Storm Consulting for Lane Cove Council

Supplementary Information: North Lane Cove Precinct (April 2009) SJB Planning

Wildlife Corridor Review Batten Reserve Draft (2011) Ecological Australia for Lane Cove Council



Appendix C

Civil Infrastructure Report
by Diversi Consulting



Appendix D

Bushfire Protection Assessment
by Ecological Australia



Appendix E

Hypothetical Development Feasibility Study
by Davis and Langdon