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Leppington Town Centre Masterplan

Final Report

September 2012

Prepared for: Department of Planning and Infrastructure

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02	August '11	Client Amendments Completed	RN/DA	RN	DA
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Glossary

3D Three Dimensional (Visualisation)	GCDC Growth Centres Development Code
AADT Average Annual Daily Traffic	GFA Gross Floor Area
AMBS Australian Museum Business Services	ICP Indicative Layout Plan
APZ Asset Protection Zone	LEP Local Environmental Plan.
CM ⁺ Conybeare Morrison.	LGA Local Government Area.
CRZ Core Riparian Zone	NSW New South Wales
CPTED Crime Prevention Through Environmental Design - the design of the built environment which can lead to a reduction in fear of crime and incidence of crime.	RMS Roads and Maritime Services
DA Development Application	SEPP State Environmental Planning Policy
DCP Development Control Plan.	SWGC South West Growth Centre
DDA Disability Discrimination Act, 1992.	SWRL South West Rail Link
DEC Department of Education and Communities	TAFE Technical and Further Education
DP&I Department of Planning and Infrastructure	TfNSW Transport for New South Wales
EA Environmental Assessment	TMAP Transport Management and Accessibility Plan
EIS Environmental Impact Statement.	VB Vegetated Buffer
ESD Ecologically Sustainable Development.	WSUD Water Sensitive Urban Design.
FSR Floor Space Ratio	

1.0 Introduction

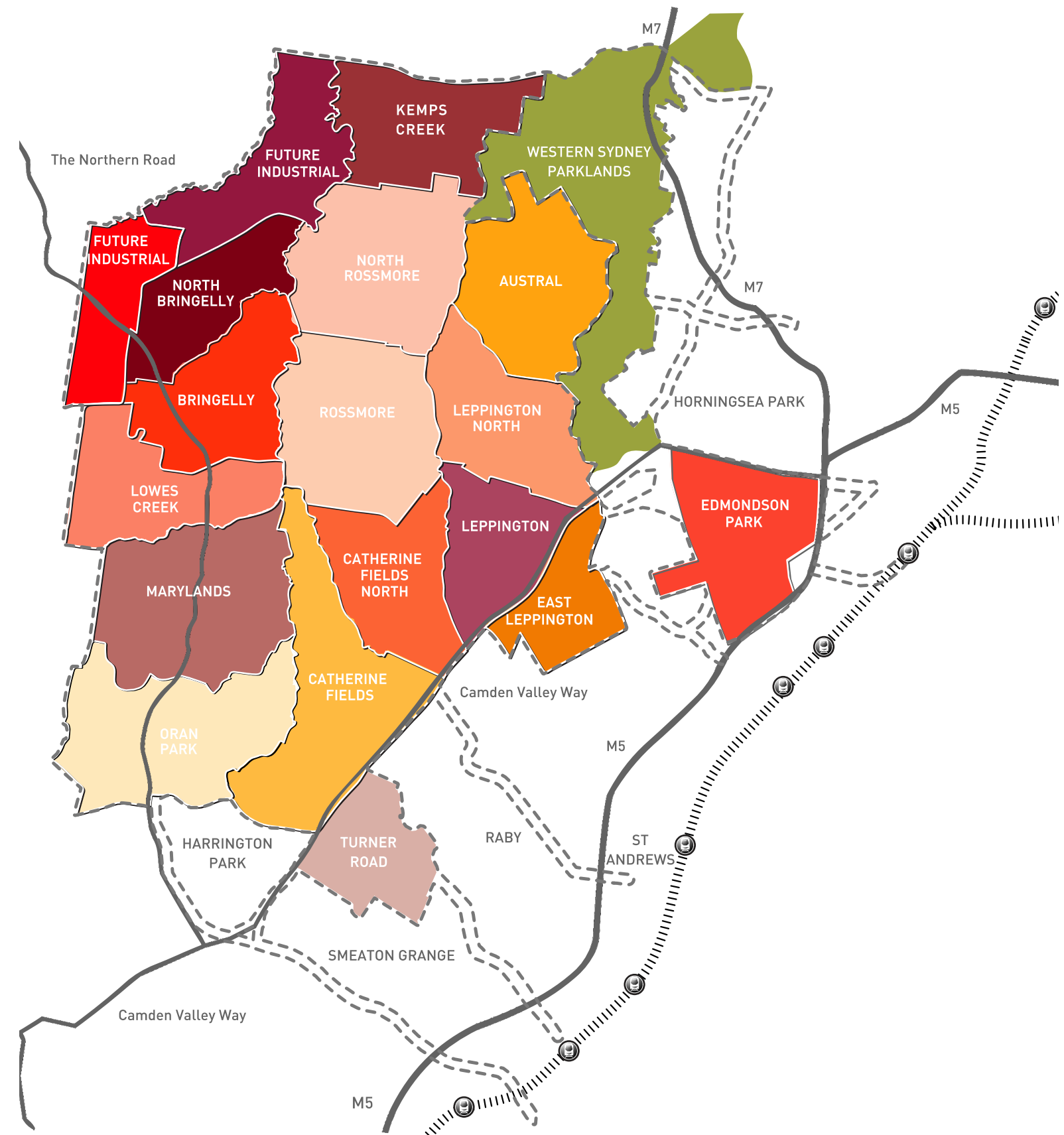
1.1 The Purpose of this Report

This report documents the planning output at the completion of the Leppington Town Centre Masterplanning Project. It includes the further development and refinement of the Indicative Layout Plan - including studies of the town centre built form and the preparation of a Discussion Paper on the statutory planning framework that will be necessary for implementation. Detailed analysis and options studies have been provided to DP&I under a separate submission earlier in this study.

Following public exhibition of the Indicative Layout Plan, the study team has incorporated stakeholder input and agency comments into the Indicative Layout Plan.

1.2 The Study Team

The study team is led by Urban Designers, Conybeare Morrison (CM⁺), with specialist expertise provided by Context Landscape Design (Landscape Architecture), Arup Transport Planning (Transport and Traffic Planning) and MG Planning (Statutory Planning).



Above: Southwest Growth Centre Precincts (Source: NSW Department of Planning)
Left: Regional Context - Metropolitan Strategy Map (Source: NSW Department of Planning)

1.3 The Study Area

Leppington Town Centre is approximately 409 hectares in area and is bounded by Ingleburn Road to the south, Kemps Creek to the west, Camden Valley Way and Bonds Creek to the east, and by Bringelly Road and Fourth Avenue to the northwest. Most areas of the town centre are within a one kilometre radius of the proposed Leppington Station.

1.4 Planning Context

The NSW Government's Sydney Metropolitan Plan provides the strategic planning vision for metropolitan Sydney over the next 25 years. Leppington Town Centre is planned to be the major town centre in the South West Growth Centre, providing employment, retail, entertainment, community services and facilities to meet the needs of a population estimated to ultimately reach 300,000.

The South West Structure Plan indicates that the Leppington Town Centre will contain between 60-80,000 square metres of retail floor space and the South West Sub-regional Strategy that the Leppington Major Centre will accommodate approximately 8,000 jobs.

These indicative targets have been revised upwards during the course of the study as further advice has been provided by the Metropolitan Strategy Review, the DP&I and by economic planning consultants on the team. The Metropolitan Plan currently identifies a target of 13,000 jobs for the Centre.

1.5 Study Objectives

The objectives of the project are to:

- Determine a preferred land use arrangement and a general structure for the Leppington Town Centre.
- Provide guidance for the future development of an active public domain and to create an employment, retail, entertainment and community services hub for the South West Growth Centre.
- Provide advice on appropriate staging of retail, commercial and residential developments within the Leppington Town Centre considering both strategic land use planning objectives and market factors.
- Identify appropriate routes and locations for all forms of transport and commuter carparking at various stages in the development of the centre.
- Provide advice on appropriate planning controls to guide the form of future development in the town centre, to lead to development of zoning plans, development standards and design controls for inclusion in a Development Control Plan (DCP).

1.6 Client and Stakeholder Consultation

The Indicative Layout Plan incorporates detailed input from Liverpool and Camden Councils, and from the DP&I. The masterplan is coordinated with infrastructure authorities, including Roads and Maritime Service (RMS) and Transport for NSW (TfNSW), and future facility needs have been assessed based on input from key future stakeholders including TAFE, the South West Sydney Local Health Network and the Attorney-General's Department.

1.7 Specialist Input

The masterplan consolidates specialist consultant advice and input from the DP&I Project Team - including AECOM, Elton Consulting, Cardno, ELA, JBS, Hill PDA and AMBS. The planning effort for the Leppington Town Centre has also been coordinated with the broader planning of the Austral and Leppington North precincts, undertaken in parallel by Cox Richardson.

1.8 Project Methodology

The project methodology involves six stages, all of which are complete:

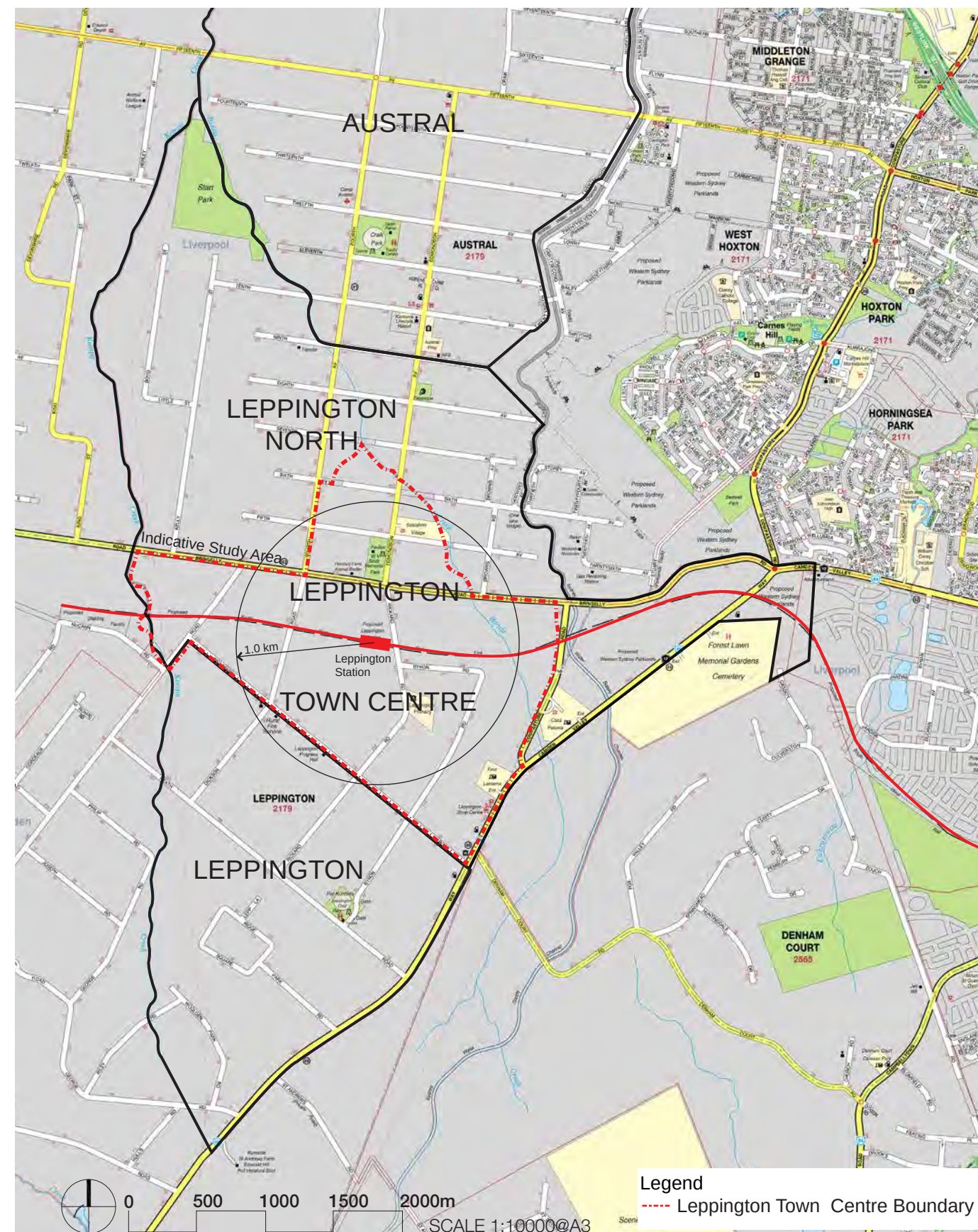
- Stage 1 – Preliminary Advice
- Stage 2 – Land Use Mix
- Stage 3 – Structure Plan Options and Workshop
- Stage 4 – Preferred Structure Plan and Staging
- Stage 5 – Refine Structure Plan, Controls and Workshop
- Stage 6 – Post Exhibition Finalisation

1.9 Background Working Papers

During the course of the project the following Working and Discussion Papers were prepared:

- Land Use Study
- Traffic and Transport Considerations
- Structure Plan Options Study
- Preferred Structure Plan
- Planning Framework Discussion Paper

The Papers include details of urban design analysis, land use and transport investigations, workshoping of town centre urban structure options, preferred structure plan development and investigations into statutory implementation. The key findings from these papers have been incorporated in this report.



2.0 Analysis

During Stages 1 and 2 of the project existing site data and relevant studies were reviewed, and urban analysis completed. The Analysis phase of the project concluded with the identification of the following summary - Leppington Town Centre development constraints and opportunities, illustrated in the diagrams on the following pages.

2.1 Constraints

Indigenous/Non-Indigenous Heritage

An Aboriginal Site (SW1) of the ‘Isolated find’ category and an area of ‘Low’ Archaeological Sensitivity (Area 10) were identified within the footprint of Leppington Station. The Aboriginal Site is assessed to have ‘Low’ Archaeological Research Potential, to ‘Represent incidental, background Aboriginal activity within the region’, and to have ‘Low’ Archaeological significance.

Non-Indigenous Heritage items of potential ‘local’ significance include Leppington Public School buildings, trees and curtilage, the WV Scott Memorial and historic road alignments and property boundaries.

Biodiversity Certification

Legislation establishes within the SWGC Biodiversity ‘Certified Areas’ and ‘Non Certified Areas’. Town Centre development is permitted within ‘Certified Areas’. Biodiversity Offsets within the SWGC would be required, if key infrastructure or development is necessary within these areas.

Flora Habitat

Endangered ecological communities present within the Town Centre include Cumberland Plain Woodland of ‘Critically Endangered’ Conservation Status and Sydney Coastal River-flat Forest of ‘Endangered’ Conservation Status. Assessments of the Conservation Significance of the Cumberland Plain vegetation has classified the vegetation as primarily ‘Remnant Vegetation’ with some areas along Bonds Creek and Kemps Creek classified as ‘Support to Core Habitat’.

Riparian Corridors

Bonds Creek, Kemps Creek and Scalabrini Creek require Riparian Corridors, core riparian zone (CRZ) plus vegetated buffer (VB), to be established along their alignments of various widths determined by their assessed creek category.

Fauna Habitat

‘Threatened Ecological Species’ with Conservation Status identified within the Town Centre include the Cumberland Plain Land Snail (Endangered), the Grey-headed Flying-fox (Vulnerable), and five species of microbat (all Vulnerable).

Flooding & Drainage

Bonds Creek, Kemps Creek and Scalabrini Creek are subject to flooding. In a 1 in 100 year flood event, Bonds Creek and Kemps Creek are predicted to widen to approximately 200 metres, with Scalabrini Creek widening between 50 and 200 metres. The predicted extent of flooding suggests development should be limited in these areas.

Land Ownership Pattern

The Town Centre currently consists of over one hundred privately owned properties of average 2 hectare lot size. There is limited consolidation of ownership, with only a small number of such lots located south of the SWRL and west of Rickard Road. This fragmented ownership pattern, combined with speculative expectations, will influence the design and implementation of the Town Centre masterplan. Realising the provision of town centre infrastructure and overall development may require complex land purchase negotiations.

SWRL Corridor/Station/Interchange/Commuter Parking Infrastructure

The SWRL will cross the Town Centre east to west, with a rail corridor generally 50 to 60 metres wide, widening to 120 metres at Leppington Station. The TfNSW prefers that no development occurs over rail corridor lands and there is unlikely to be market for this in the foreseeable future. At-grade commuter parking areas, initially for 850 cars and potentially for up to 1000 cars, and land purchased for construction will influence early and the longer term development of the town centre.

TfNSW will construct bridges for north-south connections at Eastwood, Dickson, Rickard and Cowpasture Roads. Further vehicular and pedestrian bridges are in discussion, however will likely not be in place prior to the 2016 SWRL completion date. At Eastwood and Dickson Roads, bridge approach embankments are required, and this will put some restrictions on property access, the types of built form frontage possible, and town centre connectivity at these locations.

Road Upgrades

Bringelly Road and Camden Valley Way will be upgraded by the RMS to form Principal Arterials for the Growth Centre. They will be widened from 30 metres to approximately 50 metres, with intersections retained at Eastwood, Dickson, Rickard and Browns and Cowpasture Roads. Vehicular access will be limited to parallel, and setback, service roads. Rickard Road and Edmondson Avenue traverse the site north to south and will be upgraded to form a Transit Boulevard - widened to accommodate 4 lanes, with an average width of 34.9 metres. Ingleburn Road will be upgraded to a sub-arterial of 26.6 metres average width.

Noise Impacts

Noise impact from the proposed SWRL is generally contained within the corridor, however, it is assessed that even with noise barriers in place by 2016 there will be noise spill up to 60 metres beyond the corridor in a 450 metre section of the alignment, east of Leppington Station.

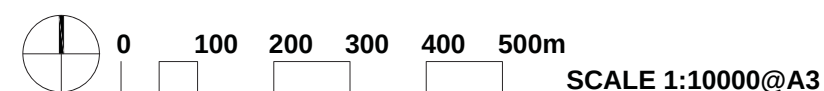
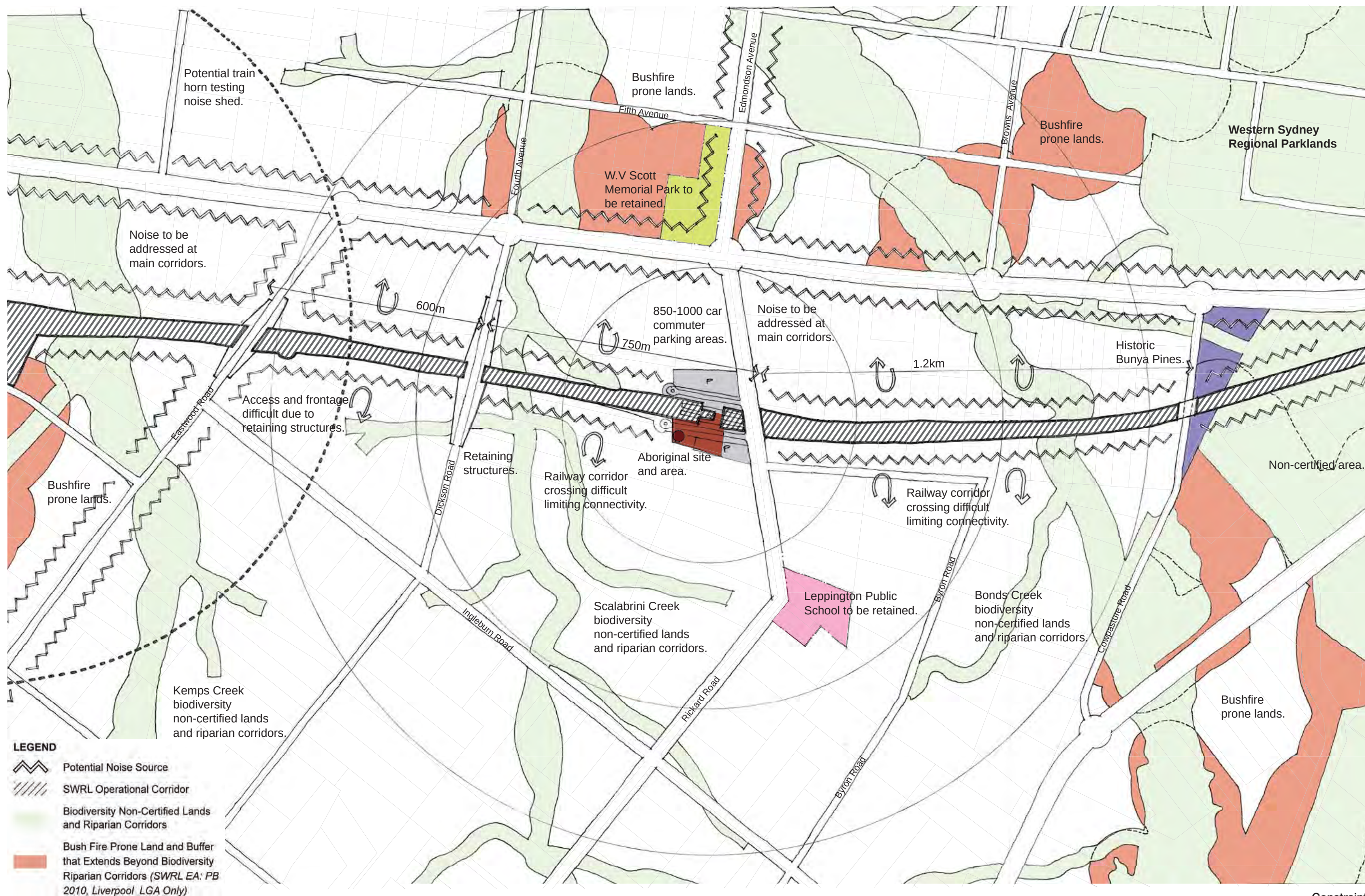
Train horn testing is likely to occur at the Train Stabling Facility located to the west of the town centre. Impacts may extend for up to one kilometre from the facility, limiting the type of development possible within this noise shed.

The “DoP Development Near Rail Corridors and Busy Roads – Interim Guideline” recommends for roads carrying 20,000 AADT or greater traffic volumes, mitigative measures to buildings up to 80 metres beyond the roadway. The RMS predicts that by 2026, Bringelly Road, Eastwood Road and Edmondson Avenue will exceed this threshold, thereby requiring some form of setback, noise management or treatment measure.

Bushfire Protection

Existing vegetation that has been identified in the town centre in certified lands (as per the Biodiversity Conservation Agreement) will present an interim constraint as development occurs. Temporary bushfire protection measures will likely be required until the town centre is significantly developed.

Vegetation in non-certified land and riparian corridors will be retained and will require appropriate bushfire protection measures.



2.2 Opportunities

Leppington Station

Completion of Leppington Station in 2016, early in the town centres' development, provides an urban design opportunity for the station building and immediate public domain to establish an identity and 'sense of place' for the emerging town centre community. There is the opportunity for the station building to become an iconic element within the town centre, marking the new centres location and providing orientation within the centre.

Landform & Visual Considerations

Three highly visible sites have been identified within the study area. These are the Rickard Road high point adjacent to Leppington Primary School, the Leppington Station precinct and the WV Scott Memorial Park at the northwest corner of the Bringelly Road and Rickard Road intersection. These sites are visible due to the alignment of major roadways and the topographical features of the site. Opportunities for public place making at these locations, culminating vistas and potentially providing landmark elements, are important considerations.

East-West Green Links

Three east-west oriented recreational green corridors could enhance the town centre's amenity and provided convenient access to both passive and active recreational opportunities. These Green Links would connect the north-south oriented Scalabrini Creek corridor, to the west, and Bonds Creek corridor, to the east, and provide a convenient path to Western Sydney Parklands, located one kilometre to the northeast.

The Green Links would incorporate opportunities for public promenade, with integrated pedestrian and cyclist routes and facilities. Be attractive landscaped routes and contribute to biodiversity and to stormwater management. They could be provided, integrated as part of infrastructure projects such as the Bringelly Road upgrade or the SWRL.

A Grand Transit Boulevard

There is an opportunity to establish Rickard Road as a grand transit boulevard of urban and architectural distinction. This green major multi-modal thoroughfare would also become a focus of urban life and activity, generated from an attractive mix of retail, business and apartment uses. Rickard Road could become a distinctive and sought after street address, adding value to the properties that define its frontages.

Strategic Mitigation of Noise Impacts

There is an opportunity to strategically locate town centre land uses and building mass to mitigate potential traffic, railway and train horn testing noise impacts on other more sensitive development and on the town centre public domain.

North - South Links

There is an opportunity to provide additional north-south vehicular, pedestrian and cyclist links, to enhance the connectivity of the town centre. A link between Byron Road and Browns Road and additional mid-block north-south links across the rail corridor would break down the physical and perceptual barrier presented by the rail line. Recreational shared pathways could potentially follow the major creeks beneath the proposed railway overbridges.

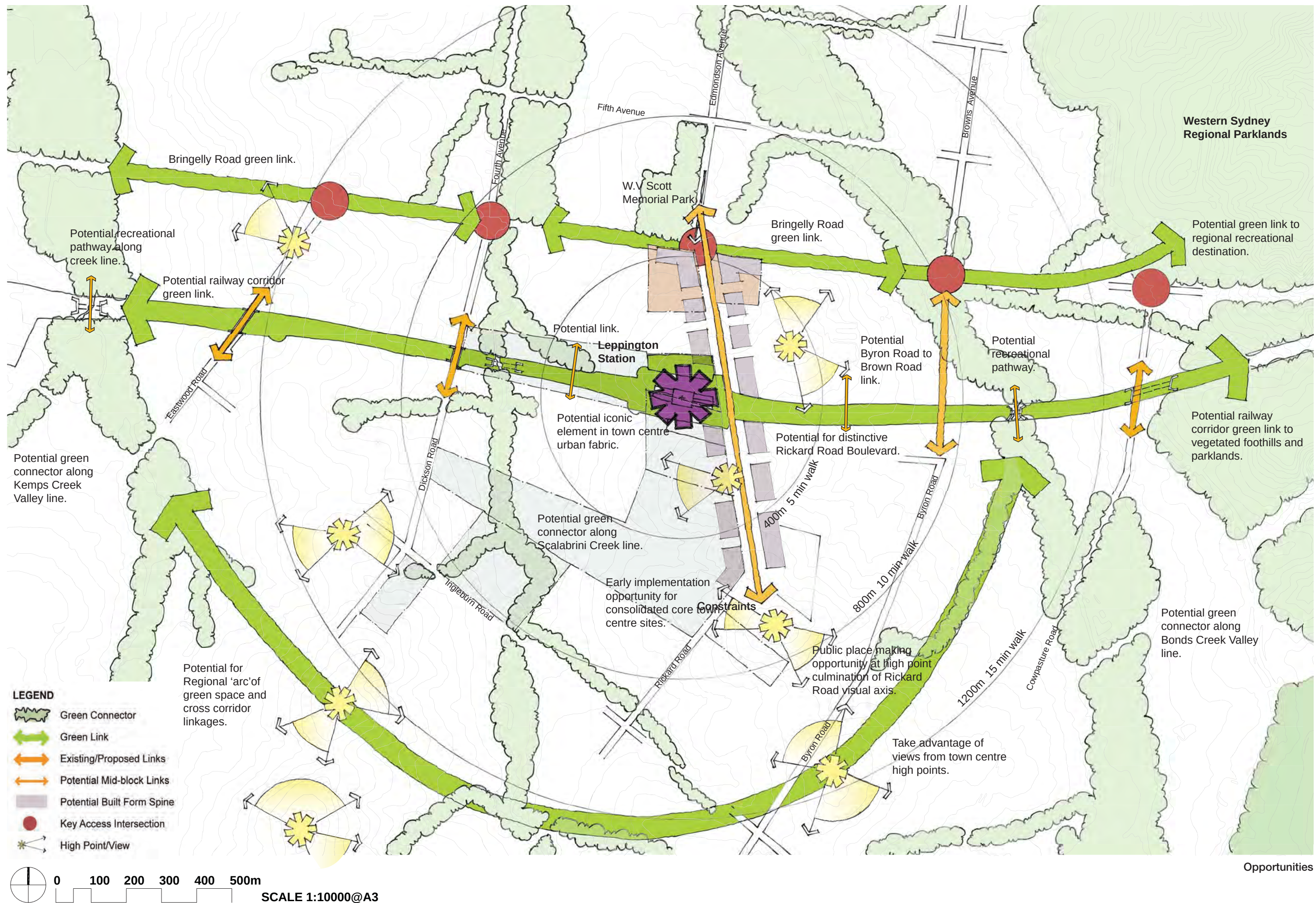
Sustainability

Leppington Town Centre is to develop on a 'greenfield' site – there is little existing built or servicing infrastructure or historic imposts on site planning. There is therefore an opportunity to adopt a best practice, transit oriented, sustainable approach to the urban planning of the town centre, including:

- Establishing good city block orientation, maximising access to sunlight and cross ventilation.
- Capitalise on the walkable proximity of Leppington Station and bus interchange, as part of an integrated public domain.
- Developing a fine grained, permeable built form with a network of streets, encouraging pedestrian and cycle accessibility.

Existing Consolidated Sites

There are three groups of properties within the site under consolidated ownership. These provide opportunities for the early implementation of the centre's primary urban structure.



3.0 Vision

Establishing a clear statement of 'vision' for the Leppington Town Centre guides the development of the masterplan, and establishes the standard by which the success or otherwise of the realisation of the masterplan will be judged.

3.1 Vision Statement

The vision statement references the physical nature of the proposed plan and highlights those aspects of the town centre that will make it a unique place.

3.2 Urban Design Strategy

The Urban Design structure for the town centre is intended to provide for a compact, walkable and legible town centre with a defined identity. This core area will sit within a larger, less formally defined residential area. The town centre will provide a network of streets and spaces that connect various uses and offer potential for an authentic urban life to evolve.

Key features include:

- Defined transitway and 'main street'.
- Large scale arterial 'parkway' character of Bringelly Road.
- Legible public places at the station, at the heart.
- Identifiable core zone with informal expansion areas.
- East-west green ways linking the defined core with the green recreational corridors that define the periphery.
- Vibrant mixed use zones.
- Urban places marking the north-south oriented ridgeline spine.
- Visual connections to provide orientation and legibility.
- Potential for private riparian areas adjacent to retail, office park and residential areas.

‘Leppington Town Centre will be a vibrant transit oriented place of activity precincts and residential neighbourhoods linked by an imageable public domain which highlights connections to transport, regional open spaces, and the site’s own natural features.’



Transit Boulevard - Rickard Road View Looking South

4.0 Indicative Layout Plan

The Indicative Layout Plan (ILP) is the main planning deliverable for the Leppington Town Centre masterplanning project. It summarises the town centre's main structural components and overall layout. The layout illustrates the town centre's primary elements, including the proposed rail corridor, station and bus interchange and the primary street and block structure.

The broad land uses are identified for each development parcel. Proposed public and private open space is identified, as is land set aside for stormwater drainage purposes. Environmentally protected areas and sites of historic significance are identified.

4.1 Land Use

The land uses identified in the ILP support the vision and include use groupings for precincts of fine grained nature, such as Mixed Use, Civic and Commercial/Retail areas, as well as single land use zones, such as Light Industrial uses.

In support of the sustainable objectives of the Metropolitan Strategy, the land use allocation for the town centre will both support significant numbers of new jobs and residents within the town centre catchment.

The ILP is composed of the following land use precincts:

Civic/Community/Justice/Education Cluster

Located immediately north of the railway station, this precinct will contain a Youth Centre, Library and Community Spaces, Performing Arts Centre, Arts Centre, TAFE Campus, Aquatic/Indoor Recreation Centre and Health Facility. The town centre may also contain a Court House and Police Station.

An 'urban' hub is proposed north of the station - suitable for community gatherings and cultural events. A regional Aquatic/Sports Centre is proposed at the corner of Edmondson Avenue and Bringelly Road, integrating the Scott Memorial and garden and continuing the legacy of providing community sporting facilities on the site. The facility located at this key urban corner, will effectively marking the town centre along this major arterial road and will anchor the proposed urban axis of the Rickard Road spine.

It is envisaged that the clustering of these activities will provide convenience and synergies, with the possibility of cooperative funding, and use of, function and meeting rooms, library facilities and carparking facilities. It is anticipated that if Justice and Police facilities are to be delivered, they would be located next to each other. A TAFE facility is proposed to the north of the station on the corner of Rickard and Bringelly Roads, providing direct access to public transport.

It is envisaged that the proposed civic buildings and the Aquatic/Sports Centre would provide high quality urban frontages and corners to Bringelly Road, Rickard Road and Edmondson Avenue. Further, there are opportunities for development to open up to the west, to the open spaces and recreational opportunities presented by the Scalabrini Creek floodplain landscape.

Bulky Goods Retail

Located between Bringelly Road and Fifth Avenue this precinct benefits from the high visibility of arterial road frontages. Legible access is provided for customers and deliveries with a simple road layout, signalised intersections at Fourth Avenue and Edmondson Avenue and with convenient direct left-in, left-out access to Bringelly Road. A stormwater management basin is integrated with the Bonds Creek open space corridor.

Retail Core

The Retail Core is located in the southwest portion of the town centre. This area is intended to serve as a regional shopping centre and a site has been identified of sufficient size that would allow a major shopping centre to be developed on land that is already partially consolidated. It is envisaged that in the long term this precinct will develop an office component above the retail.

Taller commercial offices or residential apartment buildings with associated ground floor retail are proposed clustered around a 'market' square at Leppington Station, and along the frontages of Rickard Road. A vibrant mix of uses and 24/7 activity is envisaged for the precinct. A bus interchange is proposed west of the square, with potential for future office or residential development above.

To the south of the railway station (approximately 200m), at the heart of the retail precinct, an interactive water plaza is envisaged providing a drawcard public place for the town centre. This type of space is an opportunity for private development to contribute to the building of a unique town centre destination.

There is an opportunity for the Scalabrini Creek floodplain landscape to re-establish creekline riparian vegetation and to establish new recreational open space, with lakeside parks, pedestrian promenades and outdoor eating areas – enhancing the outlook and values of retail and residential development along the Scalabrini Creek green corridor.

Mixed Use Precincts

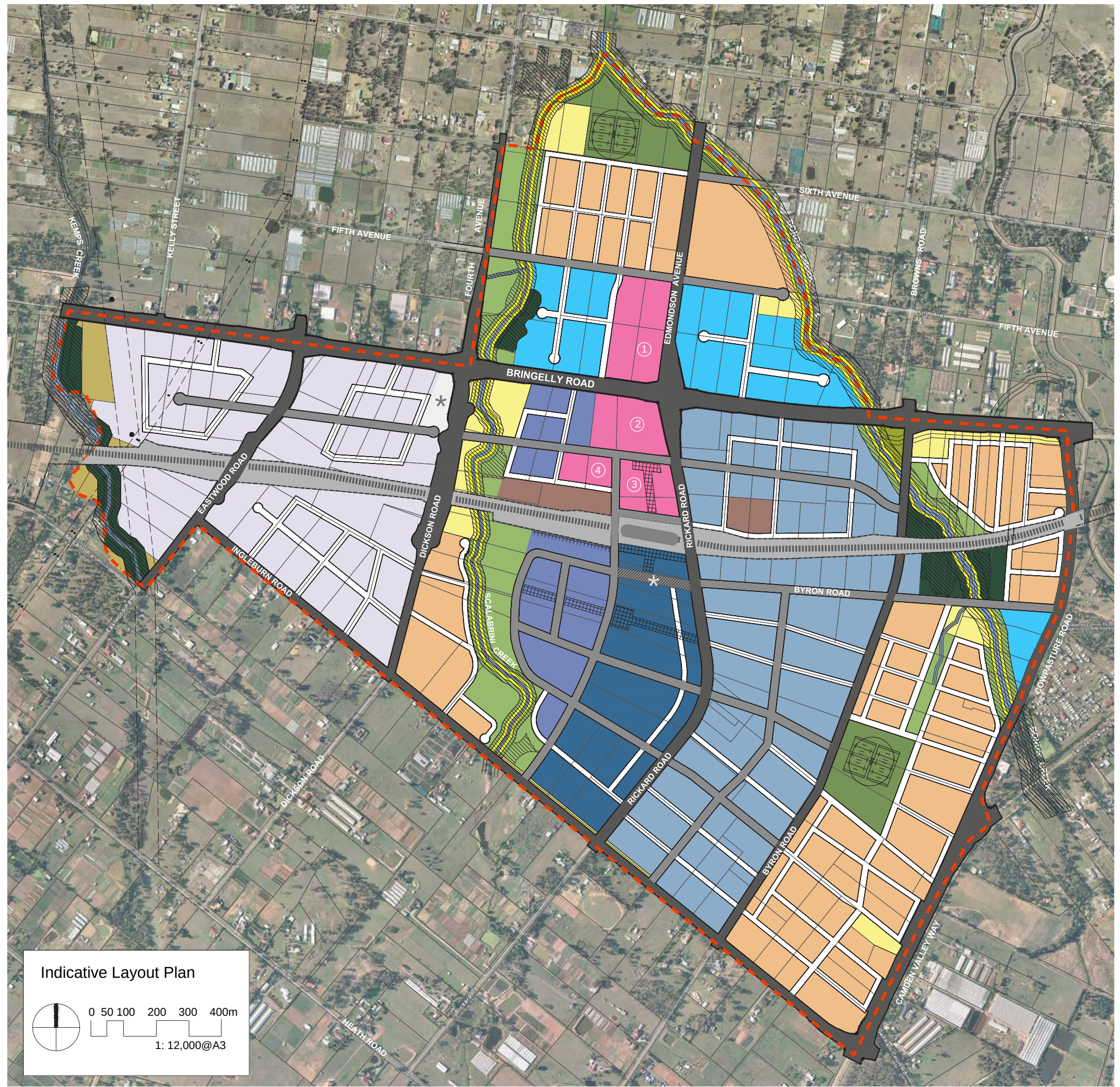
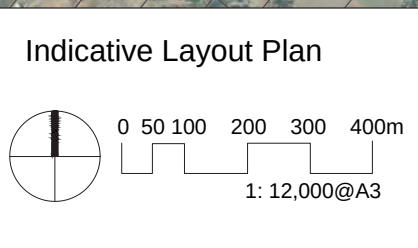
This precinct overlooks Scalabrini Creek.

The mixed use precinct features ground floor retail with potential for office and professional suites at first floor level. Residential apartment accommodation, incorporating a component of adaptable Seniors Living, is envisaged for the levels above.

There is opportunity for riparian corridor and for strong pedestrian links west to adjoining precincts.

LEGEND

- - - Site Boundary
- ~ Existing Creeks
- Environmental Protection Overlay
- Light Industrial
- Civic Precinct : 1 - Indicative Aquatic/Indoor Recreation Location
2 - Indicative TAFE Site
3 - Indicative Cultural/Community Centre Location
4 - Indicative Health Facility Location
- Mixed Use
- Commercial / Business Park
- Bulky Goods Retail
- Retail Core
- Medium Density Residential
- Rural Transition
- Passive Open Space
- Private Open Space
- Active Open Space
- Environmental Conservation
- Drainage
- Bus Interchange
- Commuter Carpark
- * Indicative Substation Site
- Major Roads
- Primary Roads
- Road Subject to Flood Plain Filling Assessment
- Rail Corridor And Leppington Station
- Transmission Easement
- Plaza / Pedestrian Link



Business/Office Park

A Business/Office Park occupies a large portion of the area to the east of Rickard Road. It provides important urban frontages to Bringelly Road in the north, Ingleburn Road in the south and in the east to Byron Road as it extends north to Bringelly Road.

The business park is proposed as an urban model, integrated with the overall town centre built form. Continuing the public domain east from Rickard Road, buildings will define the town centre street-block structure, with buildings built to street frontages.

An active Rickard Road frontage is proposed with retail at ground floor level and office accommodation above. Byron Road office development overlooks Bonds Creek, drainage reserves and sports fields.

It is envisaged that as the town centre develops, Leppington Public School will be relocated to a more suitable site, central to a residential catchment. The town centre masterplan accommodates this continuing use in the short term. The school buildings, assessed to be of local heritage significance, and their associated landscape curtilage, will be retained and incorporated into the future Business Park development.

Two multi-level commuter carparks accommodating 1000 cars are proposed adjoining the SWRL corridor. Within easy walking distance of the station and bus interchange the development will incorporate ground level retail/commercial frontages to adjoining streets.

Light Industrial

A Light Industrial area is located to the west of Dickson Road and incorporates a new town centre substation. The precinct adjoins major roads and provides a buffer to the rail easement, and possible rail noise as trains leave and enter the rail stabling yard located to the west of the town centre.

Along Kemps Creek it is proposed to continue the existing rural zoning for properties located wholly within the floodplain.

Northern Residential Precinct

Located between Fifth and Sixth Avenues this precinct of medium density residential development will comprise a mix of residential types, including three storey walk-ups and semi-detached dwellings and will benefit from proximity to the generous public parkland proposed at the junction of Scalabrini Creek and Bonds Creek, and to the east along Fourth Avenue.

This new residential neighbourhood will compliment the existing Scalabrini Village development located to the east of Edmondson Avenue.

East Residential Precinct

Bounded by Byron Road, Ingleburn Road, Camden Valley Way, Cowpasture Road and Bringelly Road, this precinct of medium density residential will comprise of a mix of residential types, including three storey walk-ups and semi-detached dwellings. Frontage street development is proposed along the major arterials of Camden Valley Way, Cowpasture Road and Bringelly Road.

Existing retail development along Camden Valley Way is likely to remain in the short-to-medium term, and has been considered in the planning. Residents will benefit from being within easy walking distance of consolidated sports fields and open space.

The railway line is elevated through this precinct, opening the potential for vehicular and pedestrian linkages north-south under the railway viaduct.

The publicly accessible Bonds Creek riparian corridor provides recreational open space adjoining this residential precinct.

Southwest Residential Precinct

This precinct overlooks Scalabrini Creek and establishes frontages to Ingleburn Road and Dickson Road.

Medium density residential townhouses, small lot housing and apartments are envisaged that benefit from views over a revegetated creek corridor and easy walking proximity to the station and retail core.

Area Schedule

The town centre accommodation schedule identifies the proposed town centre land use categories and likely land zoning, provides a breakdown of component Gross Floor Area and Floor Space Ratio and provides a summary of workplace/employment numbers.

Leppington Town Centre Masterplan		EXHIBITION DRAFT		FINAL ILP	
Area Schedule		Areas		Areas	
Land Use Category	Zoning & Land Use Description	Sub Precincts	Sub Precinct Areas (m2)	Sub Precincts	Sub Precinct Areas (m2)
Aquatic/Indoor Sports Centre	RE1 Public Recreation				
A	Aquatic/indoor sports centre	A	55767	A	50280
		Total	55767	Total	50280
Civic Precinct	SP2 Infrastructure				
B	Civic uses, including court house, police station, library/community centre, performing arts centre, TAFE, health	B	92370	B	84307
		Total	92370	Total	84307
Mixed Use	B4 Mixed Use				
C, D	Retail on ground floor with apartments or office above. Commuter carpark at station.	C	64127	C	51809
		D	115294	D	128165
		E	5560		
		Total	184981	Total	179974
Business/Office Park	B7 Business Park				
F, G	Primarily office with occasional small scale retail. Commuter carpark at station.	F	227967	F	200571
		G	495169	G	511362
		H	93657		
		Total	816793	Total	711933
Bulky Goods Retail	B5 Business Development				
I, J, Z	Bulky goods retail with small office component	I	73427	I	77151
		J	124538	J	131852
				Z	19017
		Total	197965	Total	228020
Retail Core	B3 Commercial Core				
K	Retail shopping centre, opportunity for office above. Bus interchange at station.	K	216922	K	238203
		Total	216922	Total	238203
Medium Density Residential	R3 Medium Density Residential				
L,M,N, H,X,Y	Mix of semi-detached, town houses, row houses, duplex, triplex	L	121095	L	140640
		M	111056	M	99286
		N	343439	N	355385
				H	58429
				X	92455
				Y	33047
		Total	575590	Total	779242
Rural Small Holdings	RU6 Rural Transition				
O, P, Q	Low impact rural activities	O	41674	O	20867
		P	1578	P	1487
		Q	21484	Q	9028
		Total	64736	Total	31382
Commuter Carpark	IN2 Light Industrial				
R, S	Multi-level carparking structures with, along main street frontages, ground floor retail or offices.	R	30936	R	24538
		S	17993	S	13920
		Total	48929	Total	38458
Light Industrial	IN2 Light industrial				
T,U,V,W	Urban services, warehousing, light industry	T	150287	T	173595
		U	187862	U	170041
		V	32193	V	54114
		W	217743	W	207727
		Total	588085	Total	605477
TOTAL			2842138		2947276

Open Space	Type of Open Spaces	North of Bringelly Road		South of Bringelly Road		Total
as,bs,cs,ds	Active Open Space	an	65163	as	56995	122158
	Private Open Space	bn		bs	6010	6010
	Passive Open Space	cn	52860	cs	138139	190999
	Drainage	dn	79655	ds	148941	228596
		Total	197678	Total	350085	547763

Area Schedule Key Plan

The town centre has been divided into land use precincts and sub-precincts for the purpose of preparing GFA and FSR yield calculations.

Sub-precinct areas exclude major roads and the SWRL. A multiplication factor is utilised to account for local access roads within each sub-precinct to arrive at an accurate Developable Area.

Employment population rates are based on Economic Planning advice.

LEGEND

- Site Boundary
- Existing Creeks
- Environmental Protection Overlay
- Civic Precinct and Aquatic/Indoor Sports Centre
- Mixed Use
- Commercial / Business Park
- Bulky Goods Retail
- Retail Core
- Medium Density Residential
- Rural Small Holdings
- Commuter Carpark
- Light Industrial
- Active Open Space
- Private Open Space
- Passive Open Space
- Drainage
- Rail Corridor And Leppington Station
- Transmission Easement



4.2 Heritage

Indigenous Heritage

The SWRL Environmental Assessment (EA) identified an Aboriginal find and site immediately to the south of the proposed Leppington Station.

A. Aboriginal Site/Find

Assessed as having a generally low level of significance, and impacted by the rail line construction, there is none-the-less an opportunity for interpretive signage to be incorporated in the design of the Market Square proposed near this location.

Non-Indigenous Heritage

Three items of potential local heritage significance were identified by AMBS within the town centre. These include:

1. Leppington Public School

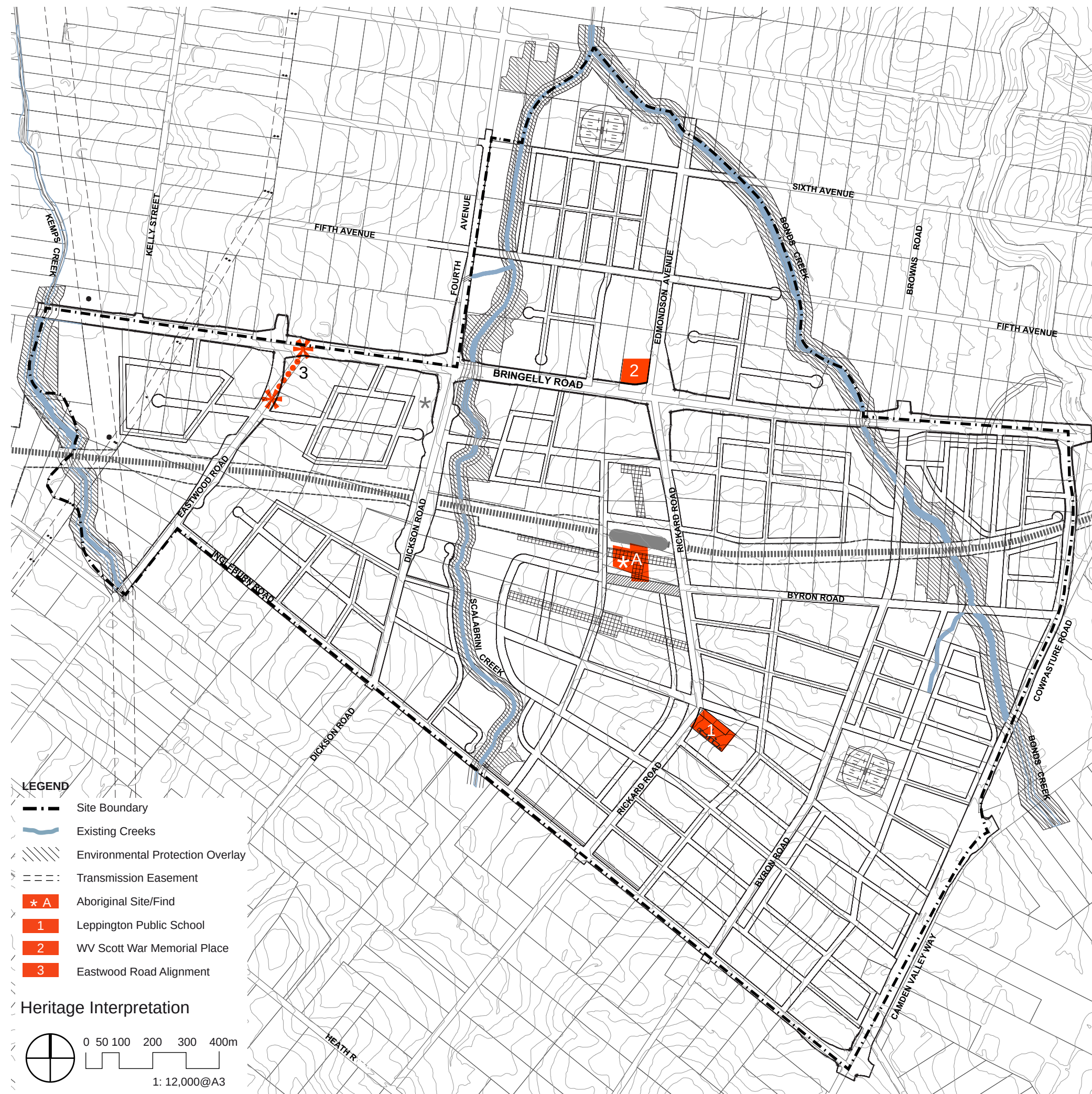
The Department of Education and Communities (DEC) supports the listing of the original 1923 Raby Public School Building (High Significance Rating), a 1959 classroom building designed by J van der Steen (Moderate Significance Grading), an ablution shed (1955) and associated plantings. Further work by AMBS identified several options for heritage curtilages, with the focus on the curtilage containing the key buildings listed (as indicated). DEC is generally supportive of the curtilage.

2. WV Scott War Memorial and Park

This heritage item consists of a World War II memorial (plaque and sports field) in honour of Flying Officer William Verdun Scott who died in action in the Netherlands in December 1943. A regional Aquatic/ Sports Centre is proposed on the site. It is envisaged that the WV Scott legacy will continue with the provision of community sporting facilities on the site bearing his name. A small public plaza is proposed at the Bringelly and Rickard Road corner to provide an appropriate setting for the memorial plaque and new interpretive signage is proposed.

3. Eastwood Road Alignment

The original Eastwood Road alignment has been identified by AMBS as a significant cultural landscape. A section of Eastwood Road will be affected due to the realignment necessary to accommodate the upgrade of the intersection with Bringelly Road. The interpretive sign markers would be located in the building setback zone.



4.3 Hydrology & Floodplain Filling Strategy

Hydrology

Leppington Town Centre is situated on a local north-south oriented ridgeline that generally follows the alignment of Rickard Road. The ridgeline slopes from RL 96.0 in the south to RL 90.0 in the north.

The town centre core area drains to Scalabrini Creek located about 650 metres to the west of Rickard Road and to Bonds Creek located about 900 metres to the east. Both creeks drain from south to north.

The Austral & Leppington North Precincts, Water Cycle Management Responses to Exhibition Submissions Report (Cardno, August 2012), identifies the need for seven detention basins within the town centre (Basin No's 1, 4, 13, 15, 31, 34 and 35) to address flood and stormwater management within the catchment. Basins are generally not located within riparian or buffer zones or in the 1 in 100 year floodplain. Basins can be publicly accessible and utilised as part of the open space network. The larger basins can accommodate sports fields for practice and informal training.

Basins No's 31 and 34 require upstream Overland Flow Channels to address stormwater flows beyond the capacity of a culvert or pipe. All basins require a drainage route, in the form of a dedicated open space reserve, from the basin to nearest existing creek channel.

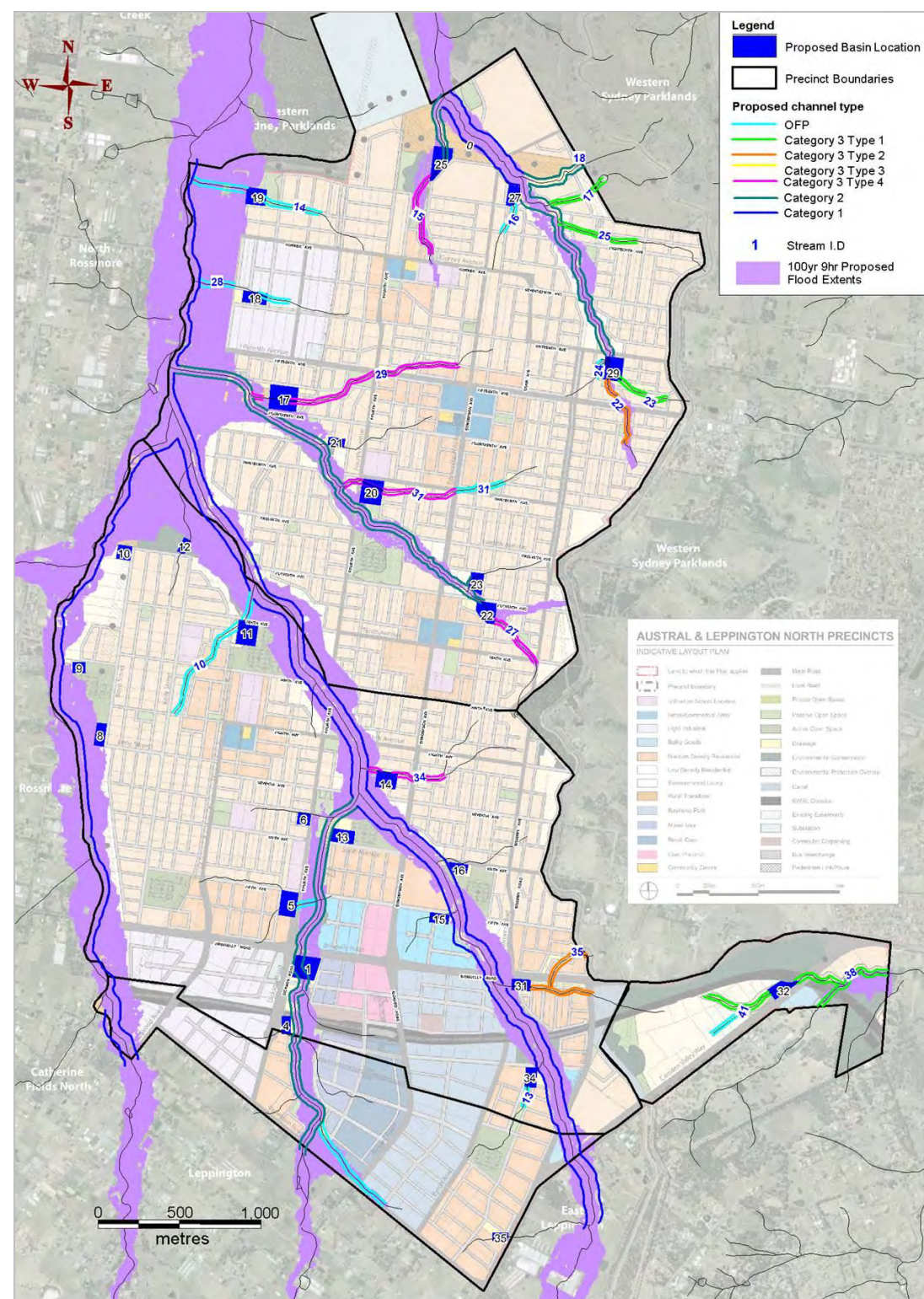
Whilst maintaining basin capacity, these basins and channels have been adjusted in shape to suit their urban or parkland setting. Overland flow paths have been integrated within the town centre structure planning.

Scalabrini Creek Corridor

The landscaped Scalabrini Creek Corridor will provide an attractive western outlook and recreational feature for residential apartments and the retail precinct. The Green Corridor and integrated 'train' of feature water quality ponds are seen as a unique drawcard to set Leppington apart in brand and identity from other competing centres, and to attract business to locate in the centre.

Floodplain Filling Strategy

A floodplain filling study was undertaken by Cardno and has informed the eastern and western extents of town centre development. The preliminary flood modelling has informed the extent of filling that is possible without impacting on the floodplain. Development in areas within the 1:100 year flood line will require further assessment including more detailed flood modelling.



Proposed Basins and Drainage Channels
(Source - Cardno)