

East Leppington Precinct - Infrastructure Delivery Plan



East Leppington Precinct - Infrastructure Delivery Plan

Prepared for

Department of Planning and Infrastructure

Prepared by

AECOM Australia Pty Ltd

Level 21, 420 George Street, Sydney NSW 2000, PO Box Q410, QVB Post Office NSW 1230, Australia

T +61 2 8934 0000 F +61 2 8934 0001 www.aecom.com

ABN 20 093 846 925

19 June 2013

60264853

AECOM in Australia and New Zealand is certified to the latest version of ISO9001 and ISO14001.

© AECOM Australia Pty Ltd (AECOM). All rights reserved.

AECOM has prepared this document for the sole use of the Client and for a specific purpose, each as expressly stated in the document. No other party should rely on this document without the prior written consent of AECOM. AECOM undertakes no duty, nor accepts any responsibility, to any third party who may rely upon or use this document. This document has been prepared based on the Client's description of its requirements and AECOM's experience, having regard to assumptions that AECOM can reasonably be expected to make in accordance with sound professional principles. AECOM may also have relied upon information provided by the Client and other third parties to prepare this document, some of which may not have been verified. Subject to the above conditions, this document may be transmitted, reproduced or disseminated only in its entirety.

Quality Information

Document East Leppington Precinct - Infrastructure Delivery Plan

Ref 60264853

Date 19 June 2013

Prepared by Katrie Lowe/Robbie Williams

Reviewed by John McDermott

Revision History

Revision	Revision Date	Details	Authorised	
			Name/Position	Signature
A	06-Jun-2012	For Review	Roger Swinbourne Associate Director	
B	07-Jun-2012	For Review	Roger Swinbourne Associate Director	
C	08-Jun-2012	For Review	Roger Swinbourne Associate Director	
D	16-July-2012	Final	Roger Swinbourne Associate Director	
E	29-Nov-2012	Final	Roger Swinbourne Associate Director	
F	18-Dec-2012	Final	Roger Swinbourne Associate Director	
G	18-Jan-2013	Final	Roger Swinbourne Associate Director	
H	11-Jun-2013	For Council Review	Roger Swinbourne Associate Director	
I	19-Jun-2013	Final – Updated with Council comments	Roger Swinbourne Associate Director	

Table of Contents

Executive Summary	i
1.0 Introduction	1
1.1 Background to Infrastructure Provision	2
1.2 East Leppington Precinct	3
1.3 Growth Centres Development Code	4
1.4 East Leppington Infrastructure Context	5
2.0 Overview of Infrastructure Delivery	6
2.1 State Infrastructure	6
2.1.1 Infrastructure Agency Funding	7
2.1.2 Special Infrastructure Contributions	7
2.1.3 Private Sector Partnerships	7
2.2 Local Council Infrastructure	8
2.3 Services Infrastructure	9
2.3.1 Sydney Water Infrastructure Planning Process	9
2.3.2 Endeavour Energy Infrastructure Planning Process	9
2.4 Infrastructure Delivery for the East Leppington Precinct	10
2.4.1 Services Infrastructure	10
2.4.2 Water Cycle Management Infrastructure	11
2.4.3 Road Infrastructure	11
3.0 Proposed Development Staging	12
4.0 Existing Infrastructure and Interim Servicing Strategy	13
4.1 Water	15
4.2 Sewer	15
4.3 Electricity	16
4.4 Natural Gas	16
4.5 Telecommunications	16
5.0 Ultimate Infrastructure Strategy	17
5.1 Services Infrastructure	17
5.1.1 Water	18
5.1.2 Sewer	18
5.1.3 Electricity	18
5.1.4 Natural Gas	19
5.1.5 Telecommunications	19
5.2 Water Cycle Management Infrastructure	20
5.3 Transport Infrastructure	22
5.3.1 Roads	22
5.3.2 Rail	23
5.4 Social Infrastructure and Open Space	25
5.4.1 Community Facilities	25
5.4.2 Health	26
5.4.3 Education	26
5.4.4 Open Space and Recreation	27
6.0 Conclusions	29
6.1 Infrastructure Delivery Coordination	29
6.2 Local Essential Infrastructure Delivery Strategy	29
6.3 Next Steps in Infrastructure Delivery	29

Executive Summary

Each of the primary utility suppliers has identified interim and ultimate infrastructure strategies for providing utility services to the East Leppington Precinct.

The key service infrastructure delivery program items are as follows:

- Sydney Water has committed to funding the water infrastructure for servicing the Precinct with potable water and has made a preliminary commitment to deliver ultimate water infrastructure for the precinct by mid-2015. The initial infrastructure works will have capacity to serve a small number of lots and servicing of development exceeding this will be dependent on the delivery of subsequent Sydney Water infrastructure packages.
- Interim sewer servicing arrangements have been identified by Sydney Water in the form of a pump-out system. This interim measure will be employed until such time as the ultimate servicing scheme is rolled out by Sydney Water. Sydney Water has made a preliminary commitment to deliver ultimate wastewater infrastructure for the precinct by mid-2015.
- Electricity supply will require the delivery of a dedicated 132kV zone substation. It is understood that Endeavour Energy has already commenced planning of upgrade works to supply the Precinct and the required infrastructure (as described in Section 1.4) is scheduled for delivery in mid-2014.
- Jemena has committed to supply the proposed development within the precinct, however has not yet concluded whether they will commit full funding or request contributions from developers. This decision will be based on a business case assessment of the required works and commitment from the developers.
- Service reticulation will require installation of infrastructure in proposed road alignments that are planned for construction in later development stages. This should be considered in the delivery of service infrastructure for Phase 1 and Phase 8.
- Trunk infrastructure will generally be provided by the primary utility suppliers, and the majority of secondary infrastructure will be delivered by developers.

1.0 Introduction

The Department of Planning and Infrastructure (DP&I) has engaged AECOM to prepare an Infrastructure Delivery Plan (IDP) for the East Leppington Precinct in Sydney's South West Growth Centre.

This Infrastructure Delivery Plan (IDP) is a summary of the infrastructure requirements for the East Leppington Precinct that have been previously identified through a number of specialised reports and reviews the mechanisms for planning, delivering and funding those requirements. Other purposes of the IDP are as follows:

- Provide an information source for infrastructure providers and encourage the coordination of infrastructure provision between providers.
- Provide a basis for both ongoing discussion between the Department of Planning and Infrastructure and the infrastructure agencies, and for the refinement and iteration of infrastructure delivery plans of those agencies.
- Discuss the funding, planning and delivery issues affecting infrastructure roll-out.
- Consider the relationship between projected staging of development and planned infrastructure provision.
- Define responsibilities for the provision of infrastructure.
- Provide a basis for efficient allocation of resources towards infrastructure that is to meet the Precinct's development demands.
- Inform land owners, developers, the community and other stakeholders about the Precinct's infrastructure imperatives, development sequencing issues, and the role that land owners must play in enabling development to occur.

Infrastructure assessed as part of the IDP comprises:

- Services infrastructure;
- Transport infrastructure;
- Water cycle management infrastructure; and
- Social infrastructure and open space

As part of the precinct planning process, a number of technical studies of the infrastructure requirements and servicing strategies required to support the proposed development within the East Leppington Precinct have been undertaken. These studies have formed the basis of the infrastructure requirements documented in this IDP and include:

- Transport Assessment (Cardno, May 2013);
- Water Cycle Management Report (Cardno, May 2013);
- Social Infrastructure and Open Space Assessment (Elton Consulting, May 2012) and Letter – Open Space: East Leppington Precinct (Elton Consulting 14 May 2013); and
- Utility Servicing Strategy (Cardno July 2012)

Advice regarding the provision of utility infrastructure for the Precinct has been drawn from letters from the relevant utility provider, provided as part of the Utility Servicing Strategy (Cardno July 2012), and advice from DP&I arising through liaison/consultation with infrastructure agencies including RMS during the precinct planning process. The letters referred to are dated as follows:

- Sydney Water, 21 October 2011
- Endeavour Energy, no date provided
- NBN Co Limited, 14 December 2011
- Jemena Gas Networks, 25 November 2011

The IDP considers two key stages in the delivery of enabling infrastructure:

- An interim servicing strategy to ensure essential infrastructure is available for early stages of development; and
- The ultimate or long term servicing strategy, which requires major investment in large scale infrastructure to ensure services are available across the whole of the South West Growth Centre Precincts.

1.1 Background to Infrastructure Provision

The *Metropolitan Plan for Sydney 2036* (NSW Government 2010) defines infrastructure as follows:

Infrastructure comprises the physical assets required to satisfy the public's need for access to major economic and social facilities and services.

This has been translated into the recently release a *Draft Metropolitan Strategy for Sydney 2031* (NSW Government 2013) into the provision of 'economic infrastructure', 'green infrastructure' and 'social infrastructure'.

For the purposes of this IDP, the following infrastructure categories are considered:

- Services infrastructure
 - o Water related headworks, treatment and reticulation facilities
 - o Sewage servicing, treatment and reticulation facilities
 - o Electricity generation and reticulation
 - o Natural gas distribution
 - o Telecommunications
- Transport infrastructure
 - o Roads
 - o Railways
- Water cycle management infrastructure
 - o Stormwater drainage infrastructure
 - o Flood management works
 - o Water quality management facilities
- Social infrastructure and open space
 - o Schools and other education facilities
 - o Hospitals, clinics and other health facilities
 - o Recreational and sporting facilities
 - o Arts and cultural facilities, entertainment venues
 - o Law and order facilities
 - o Cemeteries

The *Draft Metropolitan Strategy for Sydney 2031* establishes a need for around 427,000 new homes in South-West Subregion of Sydney, to which the 4,400 dwellings proposed for the East Leppington Precinct will contribute.

New residential development makes additional demands on infrastructure, requiring new or upgraded roads, services, public transport, health and community facilities and parks. Utility providers, State Government agencies, Councils and the developers of greenfield areas each will have a role in delivering the necessary infrastructure that will sustain these new communities.

1.2 East Leppington Precinct

The whole East Leppington Precinct comprises an area of approximately 463 hectares located within three Local Government Areas: Liverpool, Campbelltown and Camden. This Infrastructure Development Plan (IDP) considers the entire East Leppington Precinct. This IDP has been written to reflect the latest information for the Campbelltown and Camden LGAs, which has previously been addressed in a separate IDP. It also provides information on the updated ILP for Liverpool soon to be placed on public exhibition.

The current Indicative Layout Plan (ILP) for the Precinct proposes approximately 4,400 residential dwellings to provide housing for around 14,800 people, with accompanying retail, open space, community and educational land uses.

East Leppington Precinct is located approximately equidistant between Liverpool city centre, 15 kms to the north east and Campbelltown city centre, 15 km to the south. The location of the East Leppington Precinct within the South West Growth Centre is presented in Figure 1.

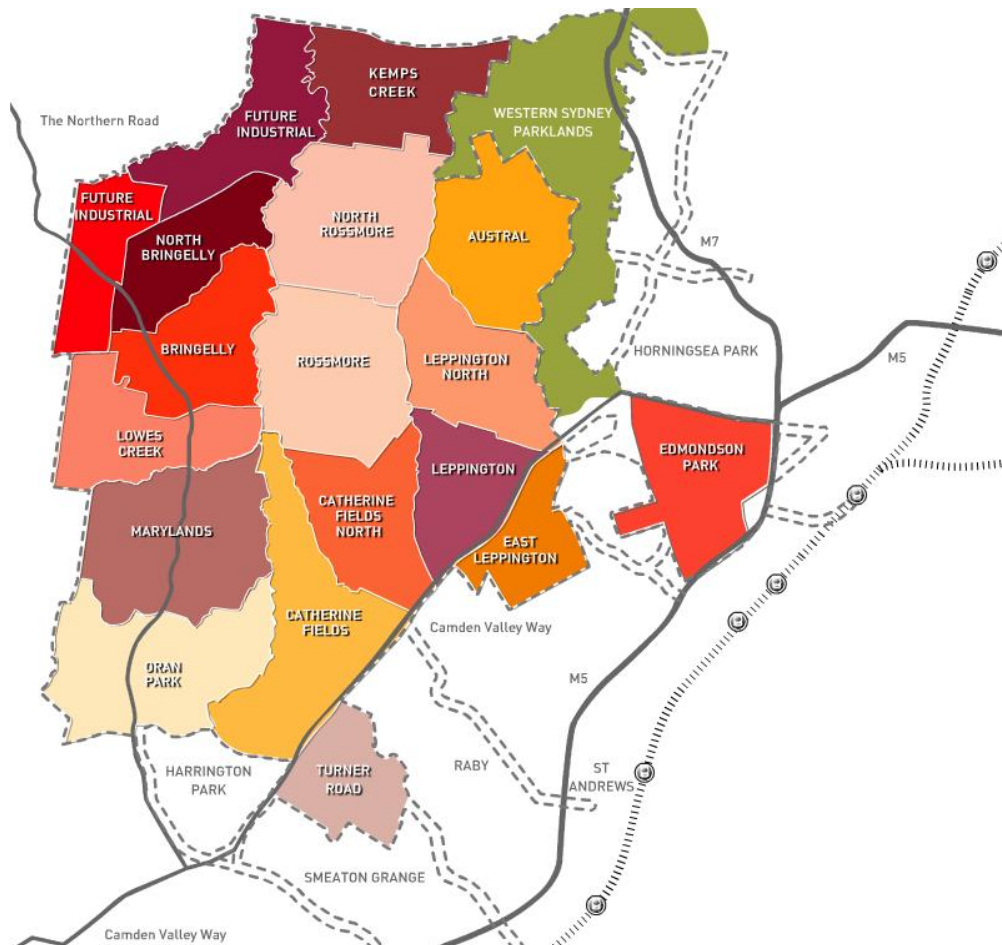


Figure 1 South West Growth Centre Precinct Layout

Approximately three quarters of the Precinct is currently owned by one major landowner, and comprises rural uses. The remainder consists of smaller rural enterprises, rural residential properties, market gardens, bushland and other rural holdings.

The Precinct is traversed by several large existing infrastructure corridors which run broadly parallel to Camden Valley Way, including:

- The Sydney Water Upper Supply Channel;
- Two underground gas pipelines (Eastern Gas Pipeline and Moomba Sydney Gas Pipeline);
- Electricity transmission lines; and
- The Bonds Creek system.

The latest East Leppington Precinct Indicative Layout Plan (ILP) is presented as Figure 2.

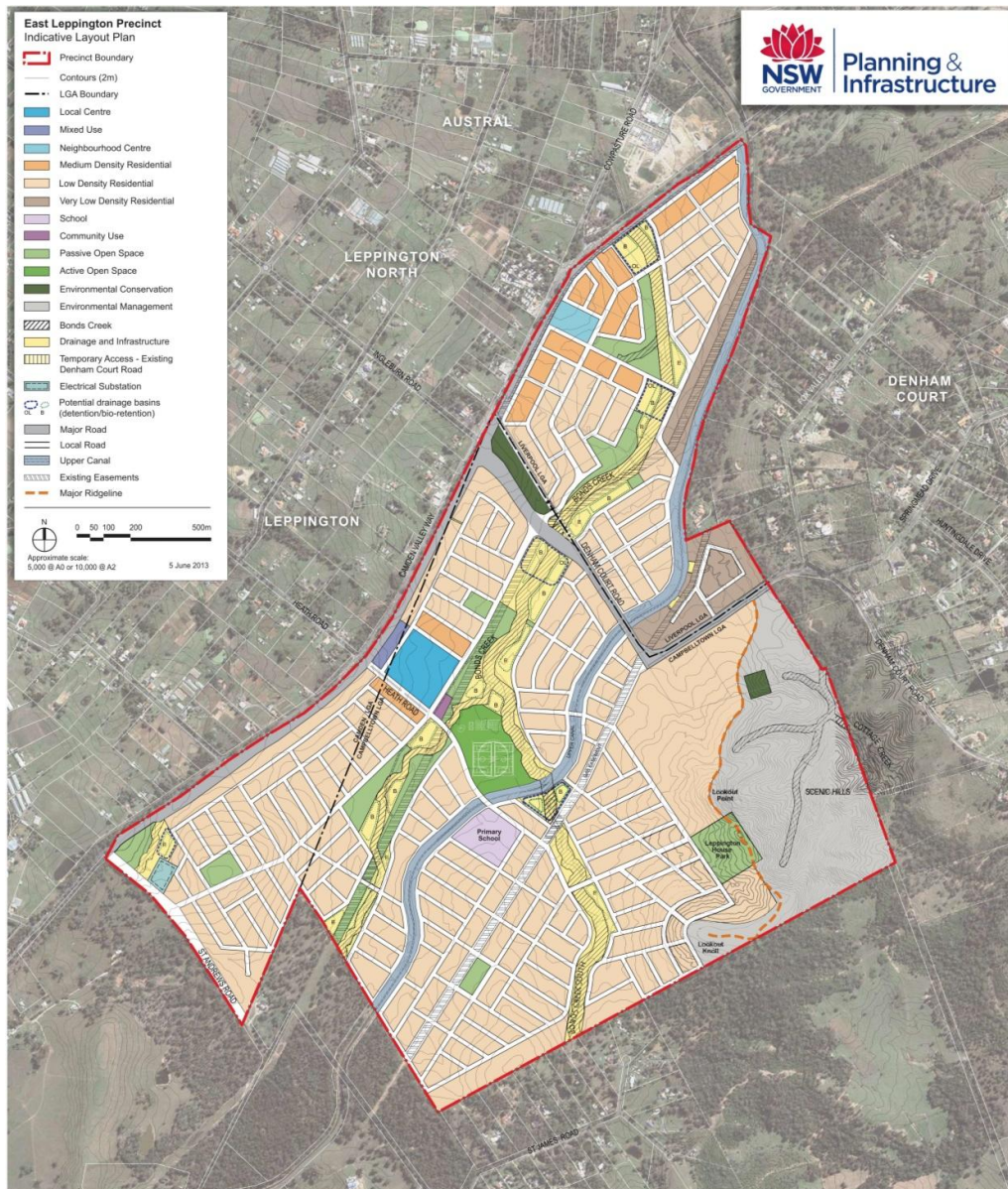


Figure 2 East Leppington Precinct ILP

1.3 Growth Centres Development Code

Service infrastructure provision to the East Leppington Precinct will need to comply with the Growth Centres Development Code (GCDC) (Department of Planning, 2006). This document requires the following to be considered in the provision of services infrastructure to the Growth Centre Precincts:

- Existing main/trunk service layouts;
- Typical street sections demonstrating allocation of essential services and other verge components; and
- Capability and requirements for sufficiently servicing land consistent with GCDC Development Parameters.

The objectives from the GCDC have been considered in this Infrastructure Services Assessment. The relevant objectives are:

- Facilitate the provision of infrastructure necessary to serve future communities;
- Locate utility services appropriately;
- Locate services to be as visually unobtrusive as possible;
- Share services trenching wherever possible;
- Provide footpaths capable of accommodating the necessary services;
- Use of underground electrical reticulation in the Precinct; and
- Provide opportunities for services that allow for flexibility in street design and minimise maintenance costs wherever possible.

1.4 East Leppington Infrastructure Context

Existing infrastructure and essential services within the East Leppington Precinct is consistent with the current predominantly rural land use. As such, there is limited existing infrastructure available in the Precinct to facilitate the proposed new urban development.

Liaison with the relevant authorities suggests that the critical infrastructure such as water, sewer and electricity can be provided to the early stages of development. However, there will need to be commitments to further and substantial investment in the short, medium and long term to serve the ultimate development infrastructure demands.

Infrastructure providers typically allocate resources for infrastructure delivery on the principles of efficiency, value for money and return on investment. This applies to the range of infrastructure delivery authorities, including private infrastructure companies (such as Jemena), State Owned Corporations (SOCs) (such as Sydney Water) or other government authorities (such as the Roads and Maritime Services). Private sector and SOC in particular, seek to make investment in areas that will provide the greatest return and are therefore reluctant to invest in an area unless there is evidence of future returns based on strong and steady development.

Considering the extent of additional infrastructure to be delivered to the East Leppington Precinct, there needs to be willingness and cooperation between agencies, landowners and developers for the development to proceed in an orderly and economic way. This will require a joint approach and communication and understanding of the issues which are touched upon in this Infrastructure Delivery Plan.

This IDP collates information from existing background studies for the East Leppington Precinct, each of these contain detail appropriate to the current stage of planning. Initial advice from key infrastructure agencies regarding the infrastructure needs of the Precincts has been provided, however this will be developed and modified through future design development.

The conclusion reached in this report is that servicing of the East Leppington Precinct can be achieved providing that a number of clear steps and processes are followed so that infrastructure is delivered in an orderly and cost efficient manner.

2.0 Overview of Infrastructure Delivery

This Section of the IDP provides an overview of how infrastructure is typically delivered by both State and local government for greenfield development areas in Sydney, and considers how this may apply to the East Leppington Precinct.

2.1 State Infrastructure

The NSW State Government is committed to the timely and efficient provision of utility, transport, community, recreation and communications infrastructure for developing 'greenfield' urban release areas, which includes the East Leppington Precinct. The Metropolitan Development Program (or MDP) is the Government's key program for managing land supply and assisting infrastructure coordination. The MDP is the main mechanism used to match rezoning of land to the timing and sequencing of new and upgraded urban infrastructure, and to inform infrastructure agencies in planning their budget programs for future infrastructure works. In turn, infrastructure agencies have a major input into the Government's decisions on land release and when release areas are included on the land release program.

The Government will meet the growing needs of the community through a wide range of measures including provision of essential new infrastructure, using existing assets more productively and ensuring regulatory settings do not discourage private investment in infrastructure.

The State's infrastructure investment program is guided by the State Plan, the State Infrastructure Strategy and the Budget Papers. The program recognises the need to deliver infrastructure in a way that is fiscally sustainable.

Infrastructure NSW will be responsible for directing and overseeing the delivery of the 20-year State Infrastructure Strategy for New South Wales, along with detailed five-year infrastructure plans which set out the details of projects and sequencing and funding arrangements in the NSW Budget from year to year for the delivery of those projects consistent with the 20-year strategy.

State Government delivers major facilitating infrastructure to service new release areas including:

- Arterial roads and motorways;
- Rail infrastructure;
- Health infrastructure;
- Education; and
- Law and order facilities.

The infrastructure identified in this IDP is in addition to the State Government's current program of major infrastructure that will serve the South West Growth Centre. Projects which are in the planning stage or are currently underway, of benefit to the South West Growth Centre, include the following:

- Major redevelopment of Liverpool Hospital
- South West Rail Link - Glenfield to the new Leppington Major Centre (to be completed by 2016)
- Glenfield rail junction upgrade and Glenfield railway station commuter car park
- Kingsgrove to Revesby rail quadruplication
- Widening of Camden Valley Way from Bernera Road, Prestons to Cowpasture Road, Edmondson Park
- Planning and pre-construction works for the widening of Camden Valley Way from Cowpasture Road, Edmondson Park to Cobbitty Road, Harrington Park
- Widening of Hoxton Park Road between Banks Road and Cowpasture Road, Hoxton Park
- Widening the F5 Freeway between Ingleburn and Campbelltown, jointly funded with the Australian Government
- M5 widening, Camden Valley Way, Prestons to King Georges Road, Beverly Hills

2.1.1 Infrastructure Agency Funding

Infrastructure Agency Funding is a means of funding State Services – Gas and Electricity, Water Supply and Sewerage and Education.

The Government's infrastructure funding decisions take place within a budgetary framework that responds to types of services provided by its agencies, and the ability of those agencies to charge for those services.

Government infrastructure agencies fall into two main types:

- General government agencies; and
- Public trading enterprises (PTEs).

General government agencies provide essential public services such as health, education, roads and police, typically with minimal user charges. Most general government agencies are dependent on the budget for funding.

PTEs provide commercial and social services, including electricity, water, ports, housing and public transport. Most PTEs have a commercial charter and generate revenue through user charges. Some PTEs also receive budget funding because they do not fully recover their costs when providing services required by the Government.

Each agency has its own processes for planning and provision of capital works and recurrent expenditure. Often lengthy lead times are involved with a range of competing pressures for expenditure which can change over time.

For some PTE infrastructure (such as electricity and water) there is some scope for commercial investments (i.e. debt financing) in new infrastructure to be repaid through user charges.

Users are charged for Government services where they are of significant direct benefit to the users and they are in a position to pay. The payment may not always be for the full cost of the service, which allows for the financial circumstances of individual users, and benefits received by the wider community, to be taken into account. Prices charged by the majority of commercial PTEs (such as electricity networks and water) are set by independent regulators which allow for a commercial rate of return on efficient capital expenditure.

2.1.2 Special Infrastructure Contributions

Special Infrastructure Contributions (SICs) are another funding option for State Services.

The State Government requires developers of land in Sydney's North West and South West Growth Centres to make monetary contributions toward the provision of State and regional infrastructure through Special Infrastructure Contributions (SICs).

State and regional infrastructure funded by the contributions includes roads; land for education, health and emergency service facilities; environmental conservation purposes; and planning delivery. SICs are intended to meet 75 percent of the cost of these infrastructure items, with the Government meeting the balance (i.e. 25 percent) of the cost. However, a discounted development contribution equivalent to 50 percent of the infrastructure cost (and increased Government contribution to 50 percent of the infrastructure cost) was in place until mid-2012.

The costs of other State and regional infrastructure required in the Growth Centres, i.e. the construction and operation of rail infrastructure, bus subsidies as well as social infrastructure facilities such as schools and TAFEs, hospitals, justice and emergency services will be borne by the Government.

The requirements for SICs in respect to the development of land in the South West Growth Centre are contained in the Environmental Planning and Assessment (Special Infrastructure Contribution - Western Sydney Growth Areas) Determination 2011.

2.1.3 Private Sector Partnerships

The State Government works with the private sector, where appropriate, to introduce new investment and deliver new and improved infrastructure and services. Public Private Partnerships (PPPs) that have been executed for a range of service sectors have realised major operational savings and increased quality of service delivery. The Government proceeds with a PPP only where it provides the best value for money for the service outcomes required. PPPs focused on the augmentation of urban infrastructure of the type found in greenfield areas have in the past included new public hospitals and public schools.

2.2 Local Council Infrastructure

Councils play a number of roles in supporting the development of the Growth Centres through the delivery of infrastructure. Councils are required to produce Community Strategic Plans as the key documents guiding their works in the coming decades. Supporting the implementation of the strategic plans are resourcing strategies, delivery plans and operational plans.

The Community Strategic Plans are prepared with due consideration of the various strategies and policies that impact on the local area from both the State (including the Draft Metropolitan Strategy 2031) and Federal Government levels. The effective management of development growth will require a significant ongoing commitment from the State Government, particularly in the delivery of infrastructure and services.

Councils fund the construction and operation of infrastructure in new urban areas including:

- Local roads, cycle paths and footpaths;
- Drainage and flood works;
- Local open space; and
- Local community facilities and civic services, such as libraries and community centres.

Local infrastructure in new development areas (i.e. that provided by Councils), in the first instance, is generally funded under the Section 94 development funding process. Section 94 of the Environmental Planning and Assessment Act 1979 allows Councils to levy developers for contributions towards public amenities and services that will be required as a result of the development. This includes Essential Works, which are considered primary infrastructure such as:

- land for open space (for example, parks and sporting facilities) including 'base level embellishment';
- land for community services (for example, childcare centres and libraries);
- land and facilities for transport (for example, critical road works, traffic management, bridges and pedestrian and cyclist facilities), not including car parking; and
- land and facilities for stormwater management.

It also includes Other Local Government services, which include:

- facilities and works for local community facilities; and
- works required for active open space use.

Section 94 contributions plans are being prepared for development within the East Leppington Precinct and will define the local infrastructure required as a result of urban development and the contributions rates that relate to such infrastructure. In cases where a Section 94 contribution plan is not in place a voluntary planning agreement can be entered into where the developer agrees with council and the state government to provide appropriate infrastructure to meet the infrastructure demand of the development.

Much of the capital cost of local infrastructure in new urban areas is funded by Section 94 contributions as there is a clear relationship between the need for new or upgraded infrastructure and population growth attributable to new development. Recently, the State Government has imposed restrictions on the amount of monetary contributions Councils can impose on residential developments. At present, Section 94 developer contributions are capped at \$30,000 per lot. The intent of this cap is to deliver Essential Works under this cap, with Other Local Government services to be delivered either under the cap if there is money remaining, or under alternative funding streams.

2.3 Services Infrastructure

Services infrastructure is delivered by the relevant utility authorities as part of their strategic planning processes. Responsibilities for the provision of services infrastructure within the Precinct are outlined in Table 1.

Table 1 Authorities Responsible for the Provision of Services Infrastructure

Utility	Provider
Potable water and sewer	Sydney Water
Power	Endeavour Energy
Natural gas	Jemena
Telecommunications	NBN Co

The critical authorities for commencement of development are Sydney Water and Endeavour Energy, both of which are State Owned Corporations (SOCs) and have defined processes for infrastructure delivery, as discussed in the following Sections. Jemena is a private company and makes decisions on investment in infrastructure based on a review of the business case and their expected commercial return.

2.3.1 Sydney Water Infrastructure Planning Process

Sydney Water Corporation (Sydney Water) prepares annual Growth Servicing Plans (GSPs) setting out their proposed programs for water and wastewater infrastructure delivery to service urban growth over 5 years.

Sydney Water invests in new assets based on assessment of the need for those assets. The primary influence is the forecast lot and dwelling production targets set out in the MDP. Sydney Water also considers other factors such as:

- Broad macro-economic trends
- NSW government benchmarks for zoned and serviced land
- Sub regional analysis of greenfield areas
- Comparison of previous MDP data with current data
- Comparison of new connection rates to corresponding lot production forecasts
- New connection rates across Sydney
- Capacity of existing infrastructure
- Consultation with the Department of Planning and Infrastructure and the development industry
- Level of land fragmentation in greenfield areas

Sydney Water's policy is that it will invest in trunk services when there is demonstrated demand and the risk of delay is low.

2.3.2 Endeavour Energy Infrastructure Planning Process

As stated in its Annual Planning Statement 'EE investigates both supply-side and demand side solutions to ensure the optimisation of energy supply.' Endeavour Energy publishes annual planning statements into these investigations.

Endeavour Energy's 2011 Electricity System Development Review contains plans for the network based on local government areas and is intended to:

- Provide details and information on network constraint areas in accordance with the Demand Management Code of Practice;

- Invite stakeholder input and feedback on this Electricity System Development Review, particularly in relation to suggesting alternative proposals to relieving specific network constraints;
- Outline actions taken and results achieved as a result of feedback received since the last Planning Statement was issued; and
- Explain Endeavour Energy's energy efficiency strategy.

Endeavour Energy's 2011 Electricity System Development Review also describes in some detail a range of planning processes with the Strategic Asset Management Approach containing a ten year capital works program.

2.4 Infrastructure Delivery for the East Leppington Precinct

2.4.1 Services Infrastructure

Trunk services infrastructure will be delivered by the relevant utility authority, with the local reticulation delivered by the developer. Details of the specific funding arrangements for each service are discussed below.

Water and Sewer

Sydney Water will fund and construct trunk water and sewer infrastructure, and will be responsible for all design and approvals for external trunk infrastructure. Developers will be required to connect to trunk infrastructure by constructing lead-in and reticulation mains as development necessitates (to Sydney Water standards as part of the Section 73 process).

Where interim works or trunk works in line with Sydney Water's servicing strategy within the precinct are delivered by the developer under the Section 73 process, Sydney Water will reimburse the cost of works once the mains are transferred to Sydney Water ownership. Sydney Water's procurement process and Funding Infrastructure to Service Growth policy will be required to be followed for all reimbursable works.

Electricity

All trunk infrastructure including 132kV feeders and the zone substation will be funded by Endeavour Energy. The site for the zone substation was rezoned on 15th March 2013, which enables Endeavour Energy to commence their detailed planning.

The distribution network and other required infrastructure including distribution substations will be funded by the developer. This includes any temporary works.

Natural Gas

Jemena funds the delivery of natural gas infrastructure (trunk and reticulation) where their financial review determines that an appropriate commercial return will be achieved. Where Jemena does not consider the expansion of their natural gas network to be commercially viable, the developer will be requested to make a contribution.

Telecommunications

NBN Co. is responsible for delivery of trunk infrastructure to the site boundary and for reticulation of optic fibre throughout the development. The developer is responsible for installation of the pit and pipe network within the development.

2.4.2 Water Cycle Management Infrastructure

Water cycle management infrastructure will be delivered by a number of funding mechanisms.

Local infrastructure serving a broad catchment will be funded by Section 94 contributions, this will include:

- Retarding basins, including bio-retention areas incorporated with these basins; and
- Riparian corridor upgrades and channelisation works (for drainage purposes only).

Much of the water quality management infrastructure proposed for the East Leppington Precinct is anticipated to be delivered by the developer of particular sites. This will include:

- Rainwater tanks
- Gross pollutant traps
- Bio-retention areas
- Stormwater harvesting infrastructure

Stormwater drainage pit and pipe network will be delivered as part of the road infrastructure.

2.4.3 Road Infrastructure

The upgrade of arterial roads are to be funded by Roads and Maritime Services (RMS) or through the State Infrastructure Contribution (SIC), a levy paid by landowners and developers in the Growth Centres to fund major infrastructure. The SIC is collected to ensure that key infrastructure, in particular roads can be delivered generally in line with the rate of development as demand for this infrastructure increases. These roads will be delivered by either the RMS or Council.

Sub-arterial and essential collector roads, bridges, associated intersections will generally be undertaken by Council and funded under Section 94 contributions.

Development of local roads under normal circumstances is the responsibility of the developer of each particular site and will be ultimately dedicated to Council through conditions of development consent.

3.0 Proposed Development Staging

Based on existing infrastructure availability and the pattern of land ownership within the East Leppington Precinct, a proposed development staging plan has been produced and is presented as Figure 3 (Cardno, 2012). Cardno developed the development staging plan based on information provided by the major landowner in Cambelltown LGA, along with associated development projections.

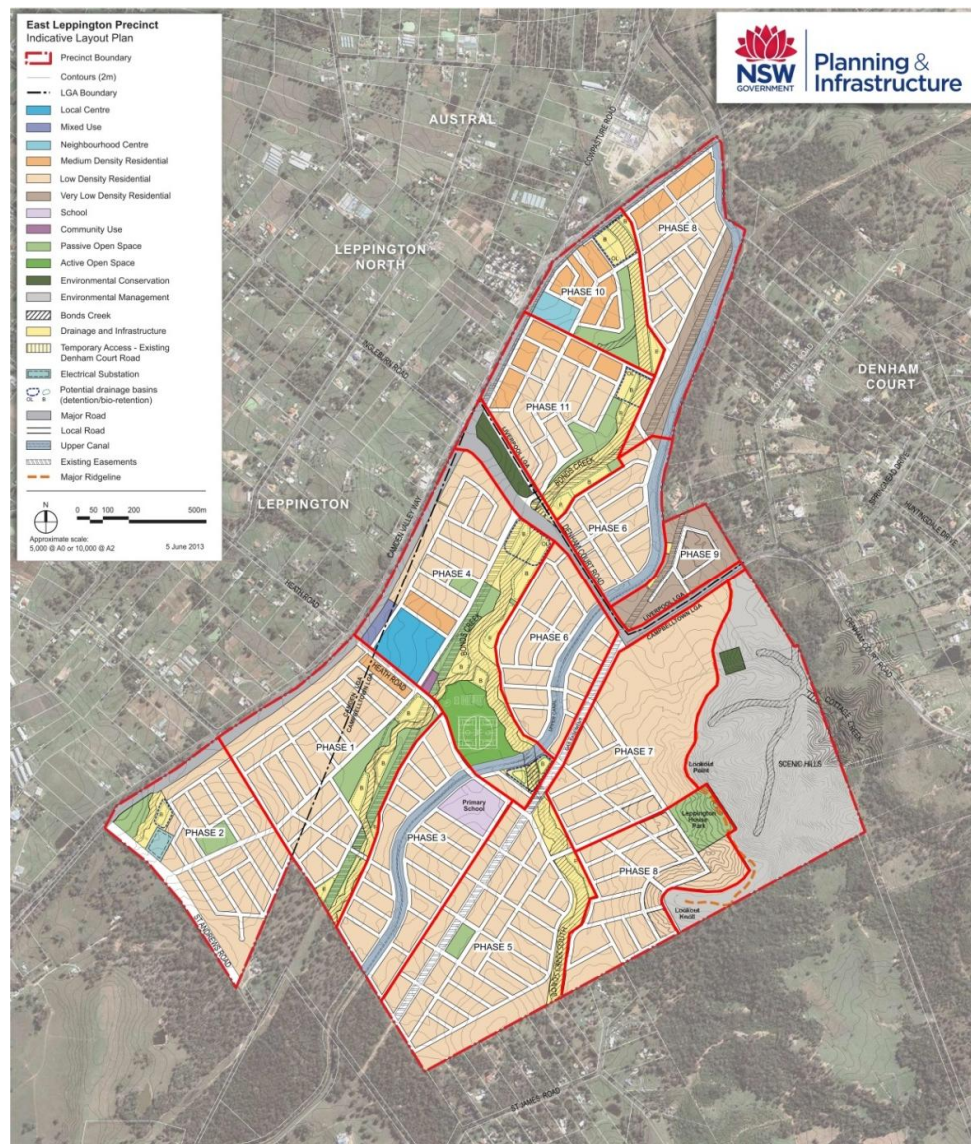


Figure 3 Development Staging Plan (Cardno 2012)

The development staging plan proposes 11 separate development stages, commencing in the south west corner of the Precinct and progressing to the north and east.

Construction of first lots is anticipated to commence in the southern parts of the precinct, as advised by the major landowner, with the release program thereafter consisting of approximately 250 lots per annum. Full delivery of development within the Precinct is likely to be achieved over approximately 16 years, with development complete in approximately 2029.

The following sections provide guidance as to the delivery of services infrastructure in the Precinct based on the proposed development staging.

4.0 Existing Infrastructure and Interim Servicing Strategy

Existing infrastructure services networks in the East Leppington Precinct are generally limited, supplying only the existing semi-rural development in the Precinct.

Advice has been sought from the relevant utility agencies to determine existing capacity of infrastructure either in the Precinct or within close proximity that could be augmented to allow initial development to occur within the Precinct.

A set of interim servicing strategies has been proposed by the utility agencies to provide for initial stages of development in the Precinct. A summary of these potential interim servicing arrangements is presented in Figure 4 and the proposals for each infrastructure type is discussed below.

The staging of delivery of the water cycle infrastructure and road infrastructure will not require establishment of interim strategies. This is discussed further in Sections 5.2 and 5.3.

The interim servicing strategy is preliminary, and further confirmation from the relevant agencies will be required during the development application phase by the relevant landowner/s to confirm the infrastructure provision for the initial stages of development in the Precinct.

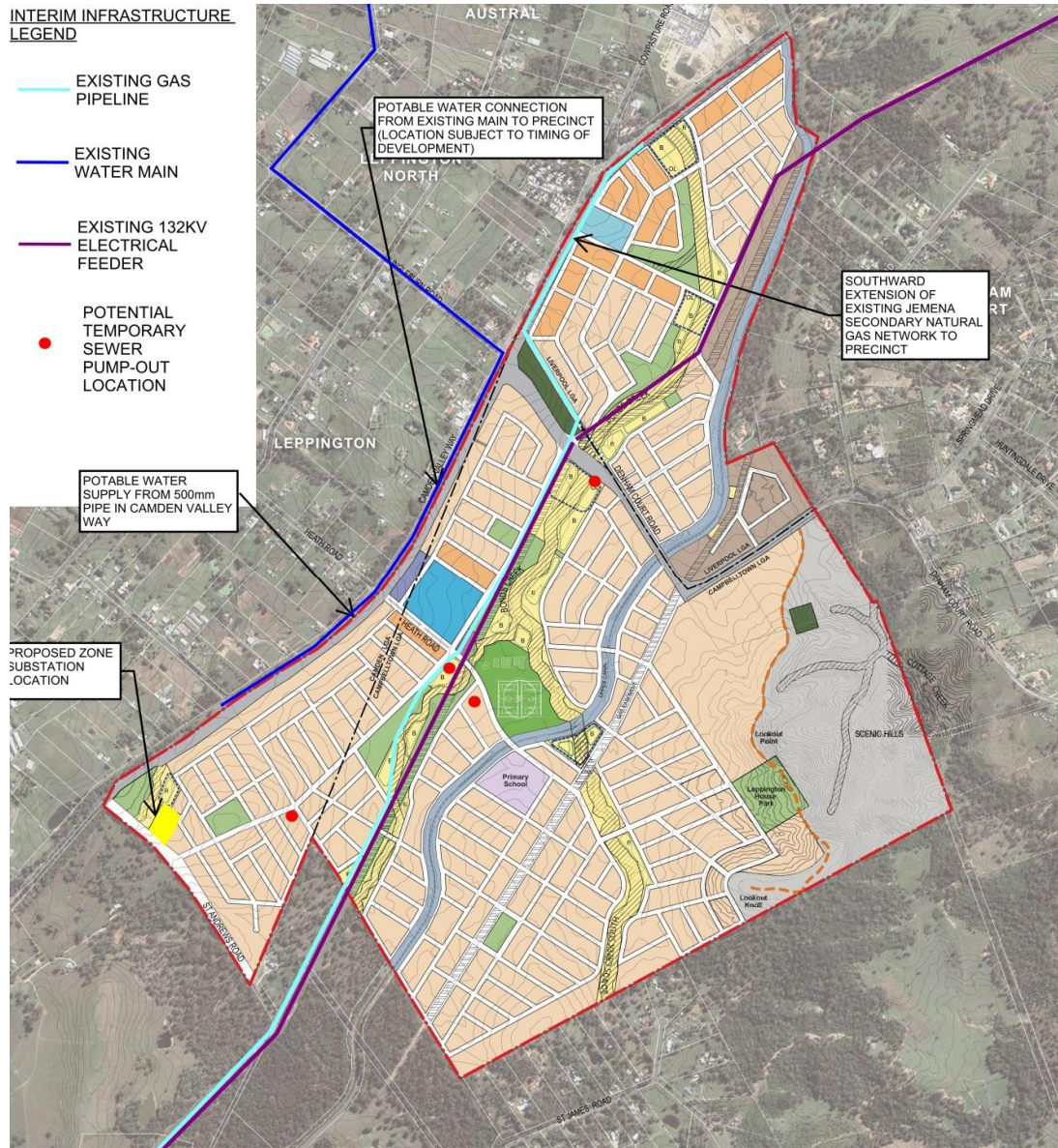


Figure 4 Interim Servicing Strategy

4.1 Water

The East Leppington Precinct is in close proximity to three water reservoirs and intersected by multiple trunk water mains. This existing infrastructure includes:

1. The Raby reservoirs and pumping stations located above the water supply canal in Denham Court;
2. The Leppington reservoirs and pumping stations located in Woolglen Park Road Leppington;
3. The Denham Court reservoirs located north of the site in Fox Valley Road Denham Court;
4. A 450mm main crossing the northern portion of the Precinct, a 500mm main crossing the western part of the Precinct and various mains between 200 and 500mm on Camden Valley Way (Cardno, 2012).

Sydney Water has advised that the existing 500mm diameter main located in Camden Valley Way will be capable of servicing up to 1,400 dwellings, up until approximately 2017, and will permit connection of the East Leppington development to the 500mm diameter main.

Sydney Water has made a preliminary commitment to deliver upgrades to the external potable water network upstream of the precinct by mid-2015, to provide further capacity to the existing 500mm diameter main to facilitate the servicing of the remainder of the East Leppington Precinct.

4.2 Sewer

The East Leppington Precinct does not currently have any connections to the Sydney Water sewer network and it is anticipated that the existing semi-rural development is served by on-site disposal systems. The closest existing Sydney Water sewer infrastructure is located on Camden Valley Way approximately 3 km north of the Precinct and has limited capacity.

Substantial upgrades to the sewer infrastructure throughout the South West Growth Centre are currently being investigated by Sydney Water.

Sydney Water has advised that interim sewer servicing for the East Leppington Precinct will consist of a pump-out system, consisting of a wet-well that is regularly pumped-out and trucked to an STP.

Potential locations for wet wells (pump-out tanks) are identified in Figure 4. These have not been confirmed with Sydney Water and will need to consider the staging of developments within the Precinct. It is understood that appropriate locations for wet wells have been identified for the development within the Campbelltown and Camden areas as part of discussions between Sydney Water and the major land owner in these areas.

Similarly, other early developers within the precinct, particularly in the Liverpool area, will be required to engage with Sydney Water to determine details of the temporary pump-out system as appropriate. The location of the wet-well(s) will need to be considered in relation to future trunk servicing layouts and the associated truck movements.

It is likely that each individual pump-out systems will be limited to serving 150 dwellings due to restrictions on the acceptable amount of truck movements. As such, if this interim arrangement is to service additional dwellings, alternative truck access arrangements and construction controls to minimise wet weather infiltration will need to be considered during design development.

Sydney Water may seek to incorporate tank storage into the ultimate servicing strategy as a wet well or wet weather storage. Cost of any tanks and pump-out delivered as part of Sydney Water's servicing strategy will be borne by Sydney Water.

This interim measure will be employed until such time as the ultimate servicing scheme is initiated by Sydney Water. Sydney Water has made a preliminary commitment to deliver ultimate wastewater infrastructure for the precinct by mid-2015. Based on the development staging discussed in Section 3.0, this interim arrangement will potentially be required to service Stage 1 and part of Stage 2, which represent development within the Campbelltown and Camden areas. Given the cost of establishing and maintaining pump-out systems and that the sewer infrastructure for the whole East Leppington Precinct is planned to be delivered by mid-2015, it may not be necessary for development within the Liverpool part of the precinct to be part of the interim servicing arrangement. However, this may not be the case if development within the Liverpool LGA precedes earlier than expected.

4.3 Electricity

There is currently limited electrical infrastructure within the East Leppington Precinct and Endeavour Energy has advised that upgrades will be required to supply the proposed development.

Endeavour Energy has committed to upgrade works to supply the Precinct, and the required infrastructure, including zone substation, is scheduled for delivery in mid-2014.

Endeavour Energy will work with developers to determine appropriate interim servicing solutions in the event that any dwellings are constructed prior to the commissioning of the zone substation.

4.4 Natural Gas

Jemena has advised that natural gas is available via an existing off-site high pressure secondary network adjacent to the precinct, which can be extended to supply any proposed development within the East Leppington Precinct, subject to commercial viability being achieved.

The details and timing of delivery of the natural gas supply will be determined by Jemena following a review of the commercial viability. This would require Jemena to review whether the proposed network expansion will generate sufficient patronage to its services to justify the capital cost of servicing the site. In the event that commercial viability is not justified, Jemena will request contributions from the developers.

Where Jemena's commercial viability review is satisfied, Jemena will be responsible for installation of all lead in and reticulation works.

4.5 Telecommunications

NBN Co. has advised that they can service the initial stages of development as part of their overall strategy for the Precinct.

5.0 Ultimate Infrastructure Strategy

A description of the proposed ultimate servicing arrangements for the East Leppington Precinct is presented in the following Sections.

5.1 Services Infrastructure

A summary of the proposed trunk services infrastructure arrangements for the East Leppington Precinct is presented in Figure 5 and discussed in the following Sections.

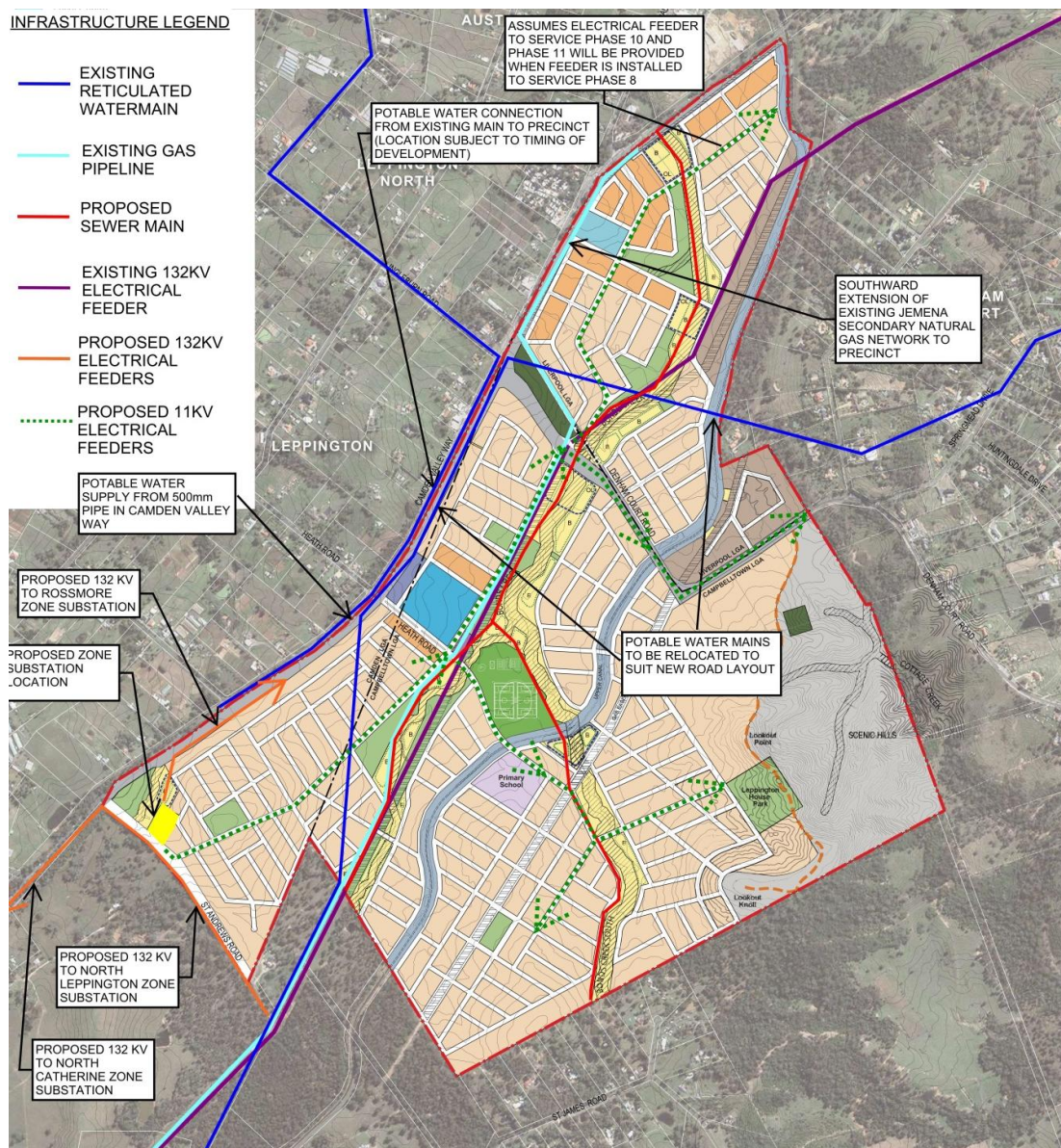


Figure 5 Ultimate Trunk Services Infrastructure Plan (Source: Cardno 2012)

5.1.1 Water

Sydney Water is currently reviewing their strategy for delivery of water infrastructure to the South West Growth Centre. It is anticipated that this overall strategy will require upgrades to existing Sydney Water infrastructure external to the East Leppington Precinct, which will service development within the overall South West Growth Centre.

A part of its long term servicing strategy, Sydney Water has advised that it will provide upgrades to the external potable water network upstream of the precinct to facilitate the servicing of the remainder of the East Leppington Precinct. These off-site infrastructure works will provide further capacity at the existing 500 mm main located in Camden Valley Way, providing sufficient capacity for this main to service the whole East Leppington Precinct.

Sydney Water has made a preliminary commitment to deliver ultimate water infrastructure for the precinct by mid-2015.

Developers will be responsible for provision of potable water reticulation throughout the Precinct under the Section 73 process. These water mains will be dedicated back to Sydney Water once constructed.

Sydney Water's amended recycled water servicing strategy to the North and South-West Growth Centres does not propose that the Precinct be serviced by recycled water.

5.1.2 Sewer

Sydney Water has made a preliminary commitment to deliver ultimate sewer infrastructure for the precinct by mid-2015.

Sydney Water is currently reviewing their strategy for delivery of sewer infrastructure to the South West Growth Centre.

Sydney Water has previously identified a number of options for providing sewage servicing to the East Leppington Precinct as follows:

1. Connection via pump station and rising main discharging to the Liverpool STP, which currently has sufficient capacity to service the Precinct. The discharge point would likely be to the existing trunk system on Camden Valley Way in the vicinity of Edmonson Park.
2. Connection via pump station and rising main discharging to the Oran Park / Turner Road system. Sydney Water has advised that this is unlikely to be feasible.
3. Localised treatment and re-use for irrigation. This was considered not to be feasible on a Precinct level, due to limited available land for irrigation within the Precinct.
4. A combination of the above.

Recent advice from Sydney Water indicates that the ultimate servicing strategy for the East Leppington Precinct will most likely consist of a new trunk gravity carrier main falling in a northerly direction, following the alignment of Bonds Creek. There is potential for this carrier main to discharge to the existing Liverpool STP via a pump station or to connect to the Kemps Creek STP by gravity. These options are currently being reviewed by Sydney Water.

Developers will be responsible for provision of sewer reticulation throughout the Precinct under the Section 73 process. These sewer mains will be dedicated back to Sydney Water once constructed.

5.1.3 Electricity

Endeavour Energy is currently progressing planning for the installation of a new zone substation fronting St Andrews Road, near the corner of Camden Valley Way, to service the East Leppington Precinct. The site location has been agreed and it is understood that Endeavour Energy currently anticipates that this zone substation will be operational by mid-2014.

The agreed location of the zone substation allows for the installation of 132 kV feeders along St Andrews Road to the south and to the existing 132kV feeders which run through the Precinct, as well as in both directions along Camden Valley Way. These feeders will form connections to other zone substations in the South West Growth Centre. As such, this zone substation will form an important strategic role in the supply for the wider area, providing redundancy in the network.

Endeavour Energy has also advised that as part of its system upgrades, it intends to upgrade the 132 kV overhead conductors running through the easement in the Precinct.

It will be the responsibility of the developers to run 11kV high voltage feeders from the zone substation to the respective parts of the precinct. This includes all lead in works for Stages remote from the substation. This could either be via below ground feeders or temporary aboveground services, which will be determined and agreed as part of the detailed electrical design process with Endeavour Energy. All high and low voltage, reticulation conductors for the Precinct will ultimately be required to be located underground to improve urban amenity and provide extreme weather protection in accordance with Endeavour Energy guidelines. Figure 5 provides a preliminary indication as to where it may be appropriate to install connecting feeders from the proposed new zone substation to each development area based on the indicative development staging provided in Section 3.0. However, these should be considered as indicative only, and developers should consult Endeavour Energy as part of the agreement process.

5.1.4 Natural Gas

Jemena has advised that the High Pressure Secondary Network (HPSN) which currently terminates on Camden Valley Way approximately 200m south of the Cowpasture Rd intersection would need to be extended to service the Precinct and that a pressure reducing station would be required to be installed by Jemena to reduce pressure suitably for reticulation purposes (Cardno, 2012).

The details and timing of delivery of the ultimate natural gas supply will be determined by Jemena following a review of the commercial viability. This would require Jemena to review whether the proposed network expansion will generate sufficient patronage to its services to justify the capital cost of servicing the site. In the event that commercial viability is not justified, Jemena will request contributions from the developers.

Where Jemena's commercial viability review is satisfied, Jemena will be responsible for installation of all lead in and reticulation works.

5.1.5 Telecommunications

NBN Co has confirmed that it would be able to provide telecommunication services to the Precinct within the proposed timing of the development works. This is based on the assumption that the development program will deliver stages in greater than 100 new lots.

Developers will be responsible for the cost and implementation of a pit and pipe network, while NBN Co. will be responsible for funding and installation of fibre optic infrastructure, including backhaul to a point of interconnect.

5.2 Water Cycle Management Infrastructure

The Water Cycle Management Report prepared by Cardno (May 2013) evaluates the flood behaviour within the East Leppington Precinct and proposes various infrastructure components to manage the stormwater quantity and quality. A summary of the key water cycle management infrastructure to be delivered is presented in Table 2.

Table 2 Summary of Proposed Water Cycle Management Infrastructure

Stormwater Measure	Proposed Infrastructure
Riparian Corridor Widths	• 25m on the tributary of Scalibrini Creek • 25m on Bonds Creek upstream of the confluence point • 45m on the Bonds Creek tributary • 45m on Bonds Creek downstream of the confluence point
Retarding Basins	• On-line basins x3 for Bonds Creek • On-line basins x1 for South Bonds Creek • Off-line basins x1 for tributary of Scalibrini Creek (combined with bio-retention)
Floodplain Management	• Channelisation of the reach between Denham Court Road and Camden Valley Way.
Stormwater Quality Management	• Rainwater tanks • Gross pollutant traps • Bio-retention areas • Stormwater harvesting

The preliminary water cycle management infrastructure plan is presented as Figure 6. The key infrastructure, as presented in Table 2 has been graphically presented alongside the development stage in which they are anticipated to be delivered. This proposed development staging also reflects what is outlined in Section 3.0. The retarding basins are identified in the earliest development stage that will contribute flow to that basin.

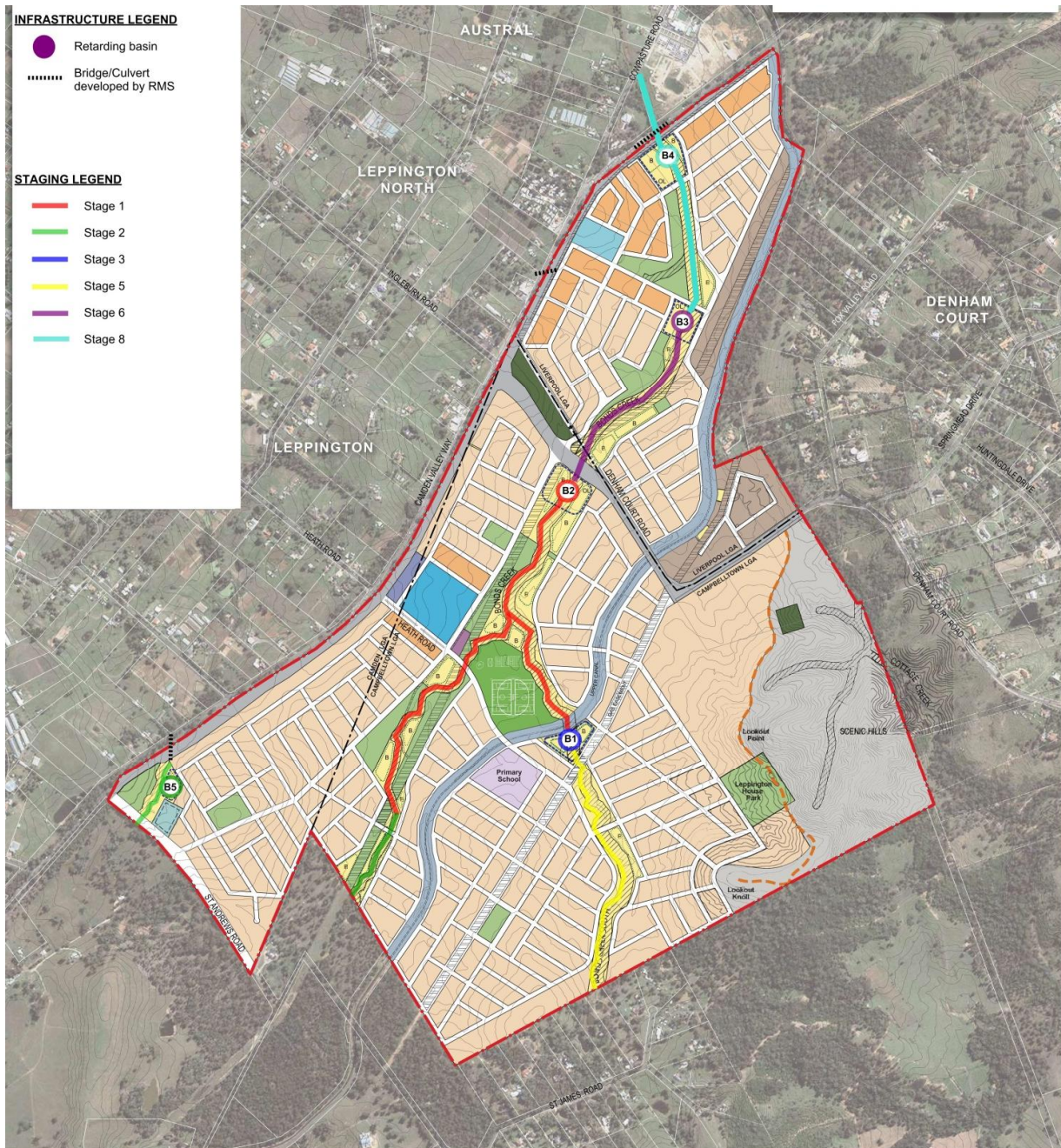


Figure 6 Preliminary Water Cycle Infrastructure Plan (Source: Cardno 2013)

The water cycle management infrastructure proposed within the Liverpool LGA part of the precinct for the relevant development stages is presented in Table 3.

Table 3 Proposed Water Cycle Management Infrastructure for Liverpool LGA by Development Stage

Development Stage	Liverpool LGA	Campbelltown LGA	Camden LGA
1	-	- On-line Retarding Basin - Bonds Creek (B2) - Riparian Corridor - Bonds Creek and Bonds Creek South	-
2	-	Riparian Corridor - Bonds Creek	- Off-line Retarding Basin - tributary of Scalibrini Creek (B5) - Riparian Corridor - Tributary of Scalibrini Creek
3	-	- On-line Retarding Basin - Bonds Creek South (B1) - Riparian Corridor - Bonds Creek South	-
5	-	Riparian Corridor - Bonds Creek South	-
6	- On-line Retarding Basin - Bonds Creek (B3) - Riparian Corridor - Bonds Creek - Channelisation between basins B2 and B3	- Riparian Corridor - Bonds Creek - Channelisation between basins B2 and B3	-
8	- On-line Retarding Basin - Bonds Creek (B4) - Riparian Corridor - Bonds Creek - Channelisation between basins B3 and B4	-	-

5.3 Transport Infrastructure

5.3.1 Roads

The East Leppington Precinct is serviced by a number of existing regional and sub-arterial roads, as well as a limited number of existing collector and local roads. Major existing roads serving the Precinct include:

- Arterial and sub-arterial roads:
 - Camden Valley Way – Arterial, provides a link between Hoxton Park and Narellan;
 - Denham Court Road – Sub-arterial function, links Denham Court, Ingleburn and Leppington; and
 - Cowpasture Road – Sub-arterial function, linking road between Camden Valley Way and Bringelly Road (not within the East Leppington Precinct, but provides service to the Precinct boundary).
- Collector and local roads:
 - Ingleburn Road – Collector road, serves the suburb of Leppington by connecting local roads to Camden Valley Way, intersection with Denham Court Road will be re-aligned as part of the

Camden Valley Way upgrade by RMS (not within the East Leppington Precinct, but provides service to the Precinct boundary) ;

- Heath Road – Collector road, serves the suburb of Leppington and connects to Camden Valley Way (not within the East Leppington Precinct, but provides service to the Precinct boundary); and
- St Andrew's Road – Local no-through road, serves a number of rural properties to the south of the proposed development.

The East Leppington Precinct ILP does not propose any new arterial or sub-arterial roads to be delivered as part of the development, however upgrades of the existing roads will be required.

Roads and Maritime Services (RMS) is currently managing the detailed design and construction of the Camden Valley Way upgrade, which involves expanding from the existing two lane road to a four lane dual carriageway road, and signalised junctions at various intersections on Camden Valley Way. It is understood that RMS has made provision for a further two lanes within the Camden Valley Way median strip for potential future expansion of the road to six lanes. Yield figures produced as part of the Traffic Assessment prepared for the Precinct (Cardno 2013) indicate a possible future upgrade being required in 2026.

The section to be constructed between Cowpasture Road and Cobbitty Road forms the western boundary of the East Leppington Precinct. There is a commitment to complete this section of the upgrade in 2016.

The following upgrades are also planned for Denham Court Road:

- Re-alignment of Denham Court Road between Camden Valley Way and Bonds Creek Bridge to align with Ingleburn Road – subject to RMS approval;
- Signalised connections along Denham Court Road to provide full access between the northern and southern areas of the precinct – subject to RMS approval; and
- Upgrade of Denham Court Road between Bonds Creek Bridge and eastern border of the Precinct – subject to Section 94 for land acquisition and works.

Yield figures produced as part of the Traffic Assessment prepared for the Precinct (Cardno 2013) indicate a potential need to upgrade Denham Court Road to a four lane road within the East Leppington Precinct boundary in 2026.

New collector and local roads will be delivered throughout the Precinct to service the proposed development. Roundabouts at collector road intersections and internal vehicular bridges have also been identified for delivery to ensure satisfactory traffic operations and connectivity within the precinct (Cardno 2013).

The preliminary road infrastructure plan is presented as Figure 7. It is anticipated that road works for each development stage will be limited to works within that stage boundary.

5.3.2 Rail

The South West Rail Link, when completed, will connect the Precinct's population with the regional passenger rail network. Leppington Railway Station will be located around 1.7 kilometres from the northern tip of the East Leppington site and will initially be served by 4 trains per hour with the potential for more in peak periods.

The South West Rail Link project includes:

- A new 11.4-kilometre rail line from Glenfield to Leppington;
- Two new stations located at Edmondson Park and Leppington, including commuter car parking;
- A train stabling facility at Rossmore;
- An upgrade of the existing Glenfield Station and bus/rail interchange, including new commuter car parking; and
- Construction of Glenfield North and Glenfield South rail flyovers. Construction of the rail link to Leppington Major Centre is proposed to be completed by 2016.

5.4 Social Infrastructure and Open Space

The Precinct's social infrastructure and open space requirements are described in the report Social Infrastructure and Open Space Assessment – East Leppington Precinct, prepared by Elton Consulting (2012).

Currently, the existing population that lives within the East Leppington Precinct boundary relies on local and district facilities such as schools, community centres, medical services, childcare centres and places of worship in Leppington to the west, the established suburbs of Kearns, Raby, and St Andrews to the south, Ingleburn to the east and Horningsea Park and Prestons to the north.

These local and district level facilities which exist in adjoining suburbs have been built to meet the needs of their immediate populations.

There is little spare capacity within existing social infrastructure in the area to meet the needs of the projected new population of the East Leppington Precinct. While a range of services and facilities are likely to be provided in the surrounding areas of Leppington North, Leppington and Austral to meet some additional needs of East Leppington residents:

- These are not within local walking distance for the future East Leppington Precinct population;
- They have been provided to meet the needs of their local catchments and generally will not have capacity to also meet the needs of the future East Leppington Precinct population;
- While there is reported to be some spare capacity within sporting facilities in Campbelltown LGA, these will not be conveniently accessible to the East Leppington Precinct population, especially for local level activities;
- Existing facilities in adjacent Growth Centre precincts are likely to be redeveloped to meet the needs of their future populations and will not be available in the future to also address demand from East Leppington Precinct; and
- Any spare capacity which currently exists in facilities and open space within Liverpool LGA is likely to be taken up by population growth in other release areas already approved.

The current proposals for social infrastructure and open space are presented in the East Leppington Precinct Indicative Layout Plan presented in Figure 2.

Further details on the required additional local infrastructure to support the proposed Precinct development is outlined further below. Specified infrastructure requirements have been largely based on standard and benchmark rates for provision of social infrastructure on population set by DP&I (Growth Centres Development Code) and Liverpool Council.

5.4.1 Community Facilities

The following community facilities will be required to serve the Precinct's local needs:

- A neighbourhood level multi-purpose community centre, as a base for local community activities and services, to be owned and managed by Campbelltown Council;
- One local centre – intersection of Camden Valley Way and Heath Road providing access to shopping and other commercial services; and
- Private and non-government sector child care, entertainment and leisure facilities, and places of worship.

The Precinct's district and regional needs will be served by the Leppington Major Centre – South West Growth Centre's planned regional centre, which is expected to serve a broader surrounding population of around 120,000.

Infrastructure that has been identified for the proposed Leppington Major Centre include:

- Spaces for large community events, gatherings, celebrations and civic functions;
- Meeting spaces for community organisations and groups and for human services that have a district or regional focus;
- Large spaces for private functions, such as weddings, conventions, conferences;

- Spaces for adult education, workplace training and community learning programs;
- A central library; and
- Spaces for staging major entertainment events or performing arts, spaces for visual arts, and spaces to display and celebrate the cultural heritage of the area

The design and timing of development of these facilities has yet to be finalised and will depend upon a variety of factors, including the availability of funds, and rate of growth of the surrounding population.

5.4.2 Health

The Precinct population will be too small to warrant community health facilities in its own right. These needs will be met by facilities outside the precinct.

Commercially zoned areas within the local mixed-use areas and centre will provide spaces suitable for privately operated GP medical centres and allied health services such as dentists and physiotherapists. Anticipated demand for health services within the East Leppington Precinct is likely to require:

- Local medical centre / GPs, according to market demand and accommodated in commercial premises; and
- Residential aged care facilities, with sites to be acquired through the market.

The proposed multi-purpose community centre will provide spaces for the delivery of support services and programs for a range of target groups, including families, children, young people, older people and people with a disability. These services are likely to be provided by non-government and community based organisations, perhaps on a sessional or outreach basis.

Other community services are predominantly provided at district, sub-regional and regional levels, rather than at a local level. The bulk of these services will be located within the Leppington Major Centre.

The capacity of major existing hospital facilities within the region, namely Liverpool, Campbelltown and Camden Hospitals will need to be increased to provide for the increased regional population.

The health development strategy recommends provision of a hierarchy of integrated primary and community care centres (IPCC) across the South West Growth Centre. An IPCC contains multidisciplinary and specialist medical ambulatory care that will potentially include a day surgery with attached or incorporated primary care clinics.

These IPCCs are proposed for Leppington, Oran Park and Bringelly. The largest and most comprehensive IPCC in the South West Growth Centre is envisaged for the Leppington Major Centre with a projected catchment population of approximately 150,000. The South Western Sydney Local Health Network has indicated to the Department that it will commit to acquisition of land for the future construction of the Leppington IPCC.

Location of this centre in the Major Centre is important for access to other amenities including childcare, public transport and car parking.

5.4.3 Education

The NSW Department of Education and Communities (DEC, formerly Department of Education and Training) is responsible for public primary and secondary schools and TAFE colleges.

Based on a DEC standard of 1 primary school for 2,500 dwellings, there is likely to be demand for at least one new primary school within the Precinct. A site for the proposed school is proposed in the southern portion of the Precinct, within 200 metres of the proposed sports field. DEC have agreed to be listed as the acquisition authority for this site.

With around 4,400 dwellings proposed for East Leppington Precinct, it is likely that not all of the future demand will be accommodated within one new primary school. Part of the future demand will need to be met by another school.

At this stage, the location of a second school to accommodate part of the East Leppington Precinct student demand has not been determined.

DEC advises that demand for a new primary school is generally reached with the sale of around new 400 lots, although this is dependent on the capacity of schools in surrounding areas and State government approval processes.

East Leppington Precinct will not be large enough by itself to warrant the provision of a new high school. However, it will contribute significantly to high school demand in the wider area. At this stage, it has been assumed that high school needs in East Leppington Precinct will be met by either existing high schools in surrounding areas or those to be located within adjoining precincts.

Private schools will be established to reflect demand from the future socio-economic, cultural and religious profile of the population, and will acquire sites as needed through market processes.

Short term demand for TAFE facilities from the South West Growth Centre will be met regionally, through the four existing TAFE colleges in Liverpool and Campbelltown. The University of Western Sydney, Campbelltown has sufficient spare capacity to accommodate increased demand from East Leppington Precinct.

5.4.4 Open Space and Recreation

In terms of local and district open space and recreation facilities, the study has identified a need for:

- 40 hectares of local and district open space (approx. 2.95 ha per 1,000 people). This open space would be owned and maintained by Liverpool, Camden and Campbelltown Councils
- An approximate 35:65 split between active and passive open space
- Two key suburb parks, focused on the elevated areas in the south-east of the Precinct
- Local parks within walking distance of most dwellings
- Local sports parks with playing fields and multi-purpose courts
- Playgrounds for young children
- A network of walking and cycling trails along the creek line and linking to the wider network, particularly to the Leppington Major Centre

Across the whole East Leppington Precinct, passive open space will comprise 80% of the proposed open space, while active open space will comprise the remaining 20% of open space. This compares with a recommended 35:65 split between active and passive open space.

However, Elton Consulting has noted that the open space provision in the Liverpool Council component of the precinct equates to a rate of 1.7 ha per 1,000 people, which is below the Growth Centres Development Code and Council standard of 2.83 ha per 1,000 people (Elton Consulting 2013). To provide for the active recreational needs of the population within the Liverpool Council area, a recommendation has been put forward that the proposed open space be embellished in ways that encourage as much as possible informal physical activity and an active lifestyle, to help make up for the notional shortfall in the quantum of open space. Suggested embellishments include:

- Off-road cycling paths and "learn to cycle" circuits for young children
- A network of paths and trails for walking and jogging
- Fitness equipment located along the trails
- A large "kick about" area for informal ball games and practice
- A half court with basketball hoop for practice
- Playgrounds that encourage active play and more challenging activities.

East Leppington's regional open space and recreation needs will be met by the proposed Leppington Major Centre, to be situated in the adjacent Leppington North Precinct. Additional proposed recreation facilities include:

- A regional stadium and sporting facility (possibly in the Western Sydney Parklands in the Bringelly Precinct) to serve the entire Growth Centre population of around 300,000.
- An indoor sports and aquatic centre on a 4 hectare site in the Major Centre.

- Open space in the Major Centre to cater for the needs of residents, workers and visitors, including a town square, informal recreation space for children and youth, areas for lunchtime use, a network of cycling and walking paths, informal water play park, and regional private sector recreation facilities (e.g. tenpin bowling).

6.0 Conclusions

6.1 Infrastructure Delivery Coordination

The East Leppington Precinct ILP makes allowance for the major service infrastructure requirements identified through this report. Key requirements include:

- Allocation of a site for the proposed Zone Substation, completed on 15th March 2013;
- Allowances and appropriate land uses within existing easements of the two underground gas pipelines (Eastern Gas Pipeline and Moomba Sydney Gas Pipeline), electricity transmission lines and the Bonds Creek system; and
- A proposed road network that will facilitate installation of the primary and secondary reticulation infrastructure.

In accordance with the Growth Centres Development Code, service infrastructure distribution networks other than trunk lines should be installed in shared trenches within the road reserve, typically within the footpaths, except at road crossings. The use of shared trenches can often result in lower total costs, particularly in areas of new development such as the East Leppington Precinct (NSW SOC, 2009).

Alignment of services within the shared trench should be in accordance with the Guide to Codes and Practices for Street Opening, Conference 2009 (Department of Planning, 2006). The Streets Opening Conference seeks to promote the concept of shared trenches for the provision of services subject to arrangements that ensure suitable protection, support and access throughout the life of the Services (NSW SOC, 2009).

6.2 Local Essential Infrastructure Delivery Strategy

The East Leppington Precinct presents a unique challenge in that the land is divided between three local Councils. This means that local infrastructure procurement and delivery methodology applied by one Council may be different to that in another area. These issues have been considered by DPI and the three Councils as part of the precinct planning process.

The DPI are preparing draft Section 94 contributions plans for the three LGA's to provide a mechanism to provide for the local infrastructure requirements for the Precincts. These plans will include essential and non-essential infrastructure. Campbelltown Council are currently proposing to enter a Voluntary Planning Agreement (VPA) with the major landowner for land within its LGA.

Each Council will need to update its community strategic plan and associated resourcing strategy, delivery plan and operational plan to address the delivery of local infrastructure to the Precincts. As part of this strategy it may be appropriate or necessary for the Councils to enter into discussions on staging arrangements for key community facilities serving a regional catchment.

The Councils, with assistance from the State Government, should consider preparing infrastructure strategies, oriented toward making it easier for developers and other parties to deliver local infrastructure to a satisfactory standard on behalf of the future communities without unduly burdening the future communities with significant costs.

6.3 Next Steps in Infrastructure Delivery

It is intended that the process for infrastructure delivery in the East Leppington Precinct is clear, open and informative and supports its timely development in accordance with the ILP.

To assist with the further planning, detailed design and delivery of the proposed infrastructure identified within this IDP, it is crucial that the staging plan for the proposed development across the entire precinct be finalised. Infrastructure agencies identified within this IDP will need to be engaged as part of confirmation of the staging plan to enable the finalisation of the respective ultimate servicing strategies; the targeted planning and detailed design of infrastructure to specific timeframes; and preparation of preliminary costs for the works.