

# 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

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## 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 within Campbelltown Local Government Area (LGA) and Camden LGA in Sydney's South West Growth Centre.

The East Leppington Precinct will eventually incorporate an area within the Liverpool LGA, which will be re-zoned at later stage. Currently this IDP only encompasses the land within Campbelltown and Camden LGAs and will be updated to include the land within Liverpool LGA at a later stage.

This Infrastructure Delivery Plan (IDP) documents the infrastructure requirements for the East Leppington Precinct 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, DP&I has commissioned a number of technical studies of the infrastructure requirements and servicing strategies required to support the proposed development within the East Leppington Precinct. These studies have formed the basis of the infrastructure requirements documented in this IDP and include:

- Transport Assessment (Cardno, 2012);
- Water Cycle Management Report (Cardno 2012); and
- Social Infrastructure and Open Space Assessment (Elton Consulting, 2012)

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 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.*

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

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

The Metropolitan Plan for Sydney 2036 establishes a need for around 170,000 new homes in greenfield areas of Sydney, to which the 4,500 dwellings proposed for the East Leppington Precinct will contribute.

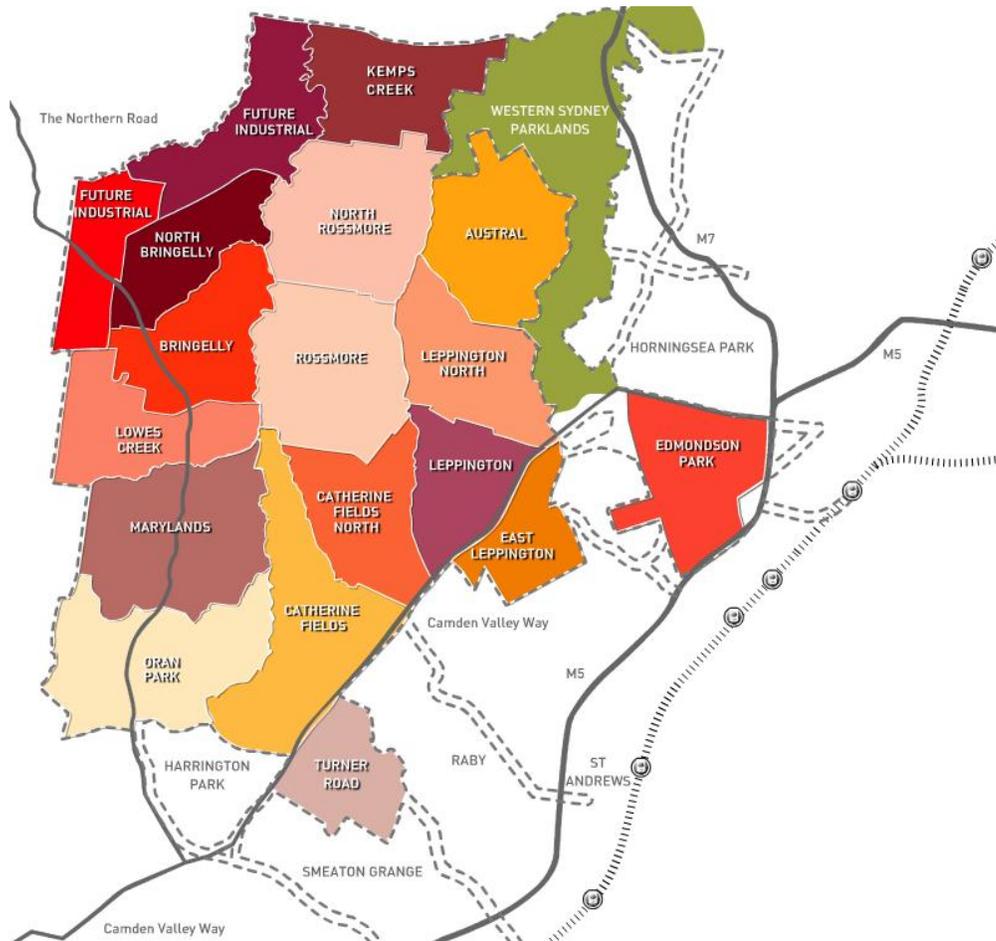
New residential development makes additional demands on infrastructure, requiring new or upgraded roads, services, public transport, health and community facilities and parks. Utility providers, State Government agencies, Councils and the developers of greenfield areas each have a role in delivering 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 considers the part of East Leppington that is located within the Campbelltown and Camden Local Government Areas. The land within Liverpool LGA has been deferred and will be re-zoned at a later stage.

The current Indicative Layout Plan (ILP) for the Campbelltown and Camden Council areas of the Precinct proposes approximately 3,265 residential dwellings to provide housing for around 11,000 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 kms 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**

The majority of the Campbelltown and Camden parts of the Precinct is currently owned by one major landowner, and comprises rural uses.

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

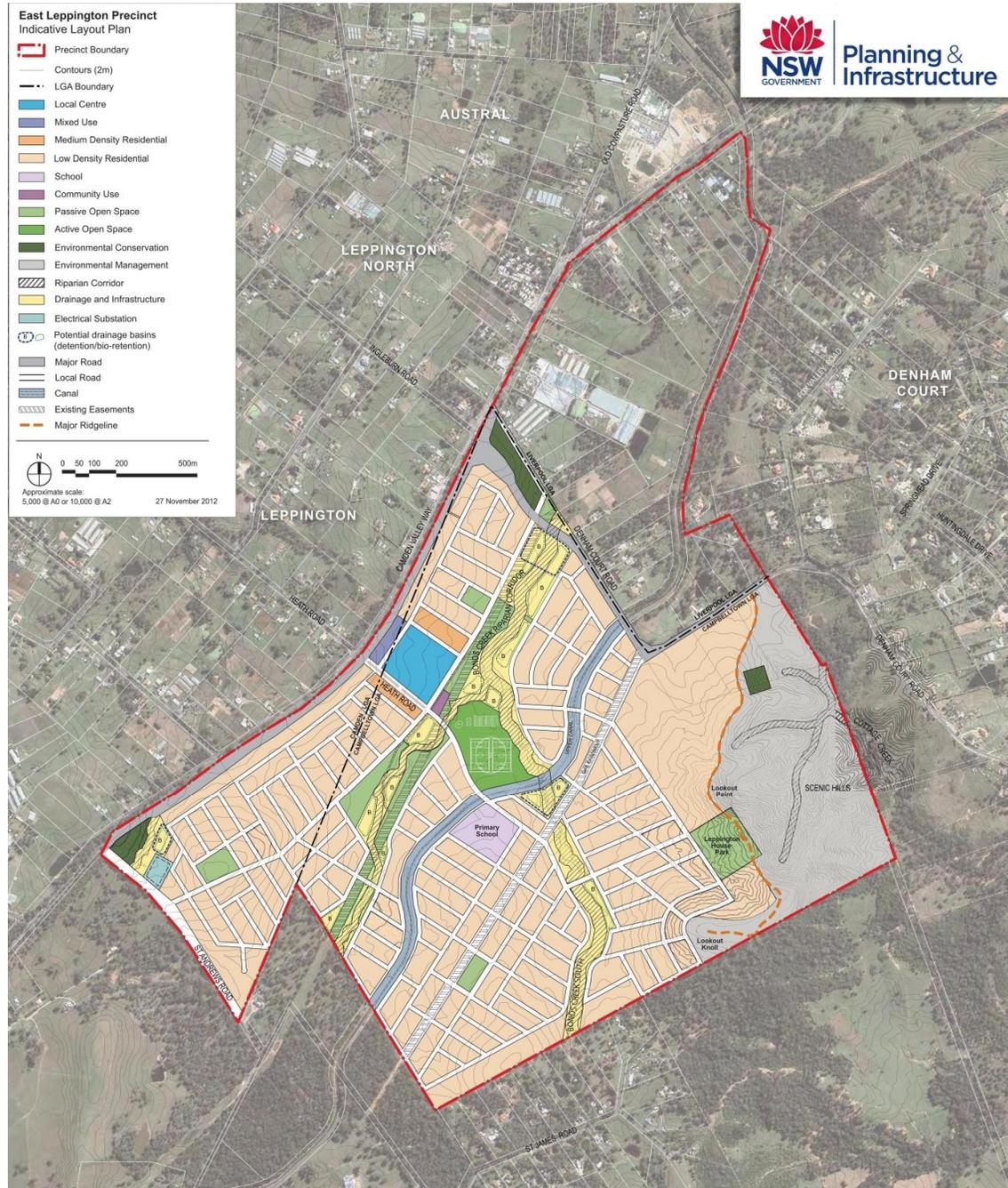


Figure 2 East Leppington Precinct ILP

### 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 Gorodok (APA) and Jemena), State Owned Corporations (SOCs) (such as Sydney Water) or other government authorities (such as the Roads and Maritime Services). Private sector and SOCs 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 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 in the context of Campbelltown and Camden LGAs.

### 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) is in place until the 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 TAFE's, 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 Metropolitan Strategy and the State Plan) 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 the Campbelltown and Camden LGAs 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.

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             | Gorodok (APA) and 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.

This document 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 within Campbelltown and Camden LGAs**

### **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, while 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). Sydney Water will refund the cost of trunk infrastructure delivered by the developer once the mains are transferred to Sydney Water ownership.

Acceleration of the delivery program for trunk infrastructure will either be funded by Sydney Water (if the development budget allows and the development levels warrant it) or a developer may finance the installation of the infrastructure to be reimbursed by Sydney Water as the lots are developed.

#### *Electricity*

All trunk infrastructure including 132kV feeders and the zone substation will be funded by Endeavour Energy. Endeavour Energy requires a site for the zone substation to be confirmed prior to commencing 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 required 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 understood 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, along with associated development projections.

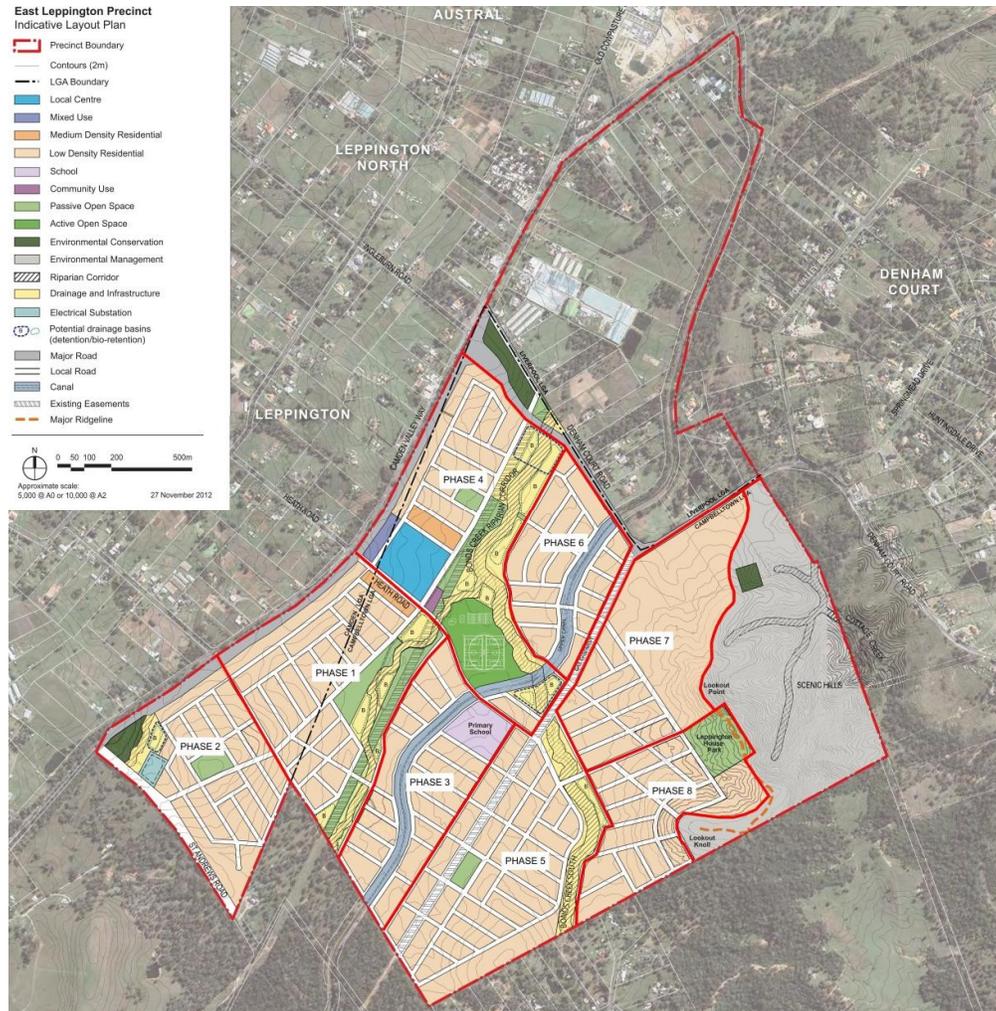


Figure 3 Development Staging Plan (Cardno 2012)

The development staging plan proposes 8 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 mid-2013, 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 fragmented ownership of land in the northern part of the Precinct means that it will most likely be longer for these areas to be developed, however this area has been deferred and will be re-zoned at a later stage.

The implications of the proposed development staging on delivery of infrastructure to the Precinct are discussed in the following sections.



## 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. This arrangement would be sufficient to service development stages 1 to 3, and potentially part of Stage 4, as presented in Section 1.2.

## 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, however this infrastructure will not be delivered in time to service the first stages of development of the East Leppington Precinct. Recent advice from Sydney Water suggests that this trunk infrastructure will be delivered in mid-2015.

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. Based on the development staging discussed in Section 1.2, this interim arrangement will potentially be required to service Stage 1 and part of Stage 2.

Details of the pump-out system are to be developed with the landowner/s and Sydney Water, however the location of the wet-well(s) will need to be considered in relation to future trunk servicing layouts and the associated truck movements. Sydney Water has advised that individual pump-out systems are typically limited to serving 150 dwellings due to restrictions on 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.

## 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.

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 early 2014.

As it is currently anticipated that development of first dwellings will be complete by the end of 2013 (as advised by the major landowner), there may be a gap in availability of this upgraded electricity supply. However, Endeavour Energy has advised that in the event there is a gap in scheduling between requirement of additional demand to the site and operation of upgraded infrastructure, the existing electrical infrastructure will have available capacity to provide peak electricity supply to 100 lots (Cardno, 2012).

#### **4.4 Natural Gas**

Jemena has advised that existing off-site high pressure secondary network would need to be extended and a pressure reducing station constructed to provide a natural gas supply to the East Leppington Precinct. The timing of Jemena funded infrastructure expansion will be confirmed following their assessment of the commercial viability of the works.

Where Jemena does not identify a commercial case for expansion of their network to service the early stages of development, the developer/landowner will be required to make a contribution to deliver this infrastructure.

#### **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.

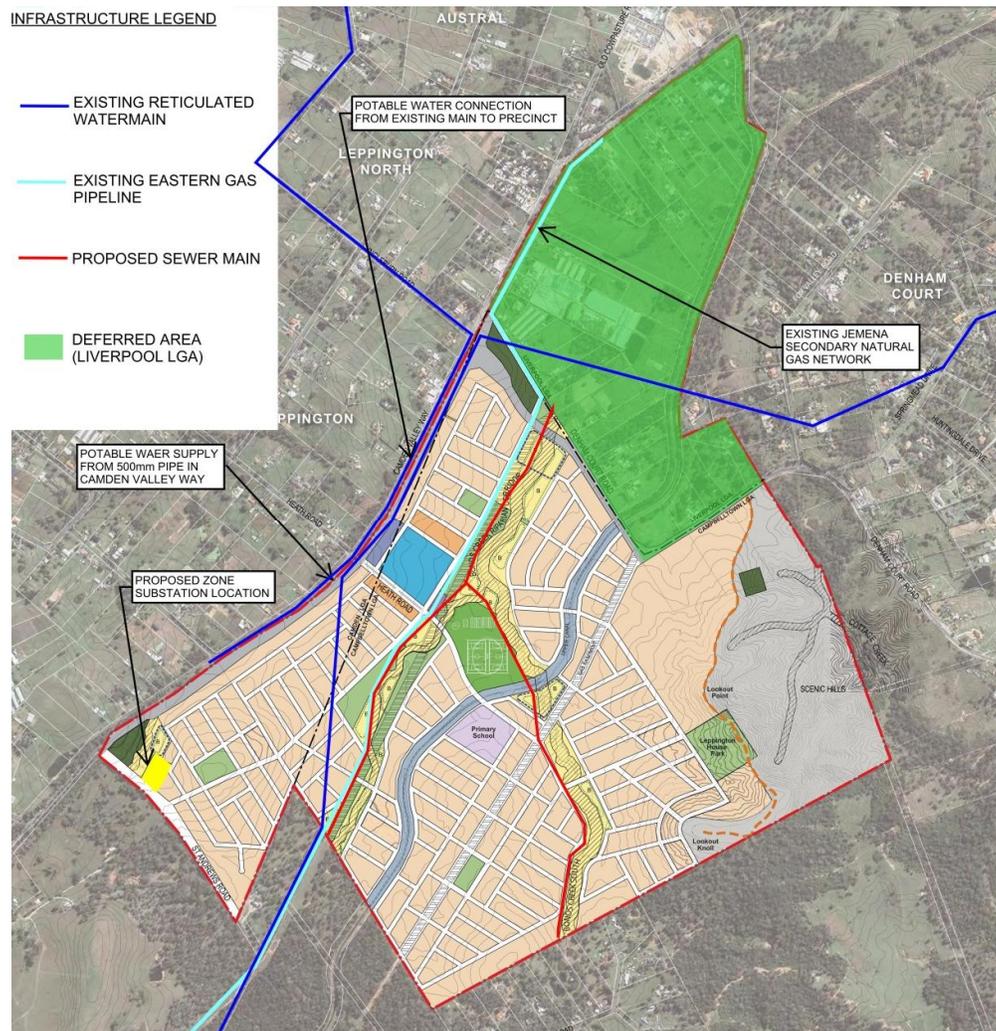


Figure 5 Ultimate Trunk Services Infrastructure Plan

#### 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.

Sydney Water has advised 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.

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 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 early 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.

Electrical reticulation from the zone substation will be the responsibility of developers, including any lead in works for Stages remote from the substation. All high and low voltage, reticulation conductors for the Precinct will be located underground to improve urban amenity and provide extreme weather protection in accordance with Endeavour Energy guidelines.

#### 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. Jemena 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 greater than 100 new lots.

NBN Co is currently undertaking extensive infrastructure works throughout Australia in line with the commitment for provision of optic fibre infrastructure to 90% of existing dwellings within the next 7 years.

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 2012) 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 as part of the development of the Precinct is presented in Table 2.

**Table 2 Summary of Proposed Water Cycle Management Infrastructure**

| Stormwater Measure            | Proposed Infrastructure  |
|-------------------------------|--|
| Riparian Corridor Upgrades    | <ul style="list-style-type: none"> <li>25m on the tributary of Scalibrini Creek</li> <li>25m on Bonds Creek upstream of the confluence point</li> <li>45m on the Bonds Creek tributary</li> </ul>                                |
| Retarding Basins              | <ul style="list-style-type: none"> <li>On-line basins x1 for Bonds Creek</li> <li>On-line basins x1 for South Bonds Creek</li> <li>Off-line basins x1 for tributary of Scalibrini Creek (combined with bio-retention)</li> </ul> |
| Stormwater Quality Management | <ul style="list-style-type: none"> <li>Rainwater tanks</li> <li>Gross pollutant traps</li> <li>Bio-retention areas</li> <li>Stormwater harvesting</li> </ul>   |

The preliminary water cycle management infrastructure plan is presented as Figure 6. The key infrastructure, as presented in Table 2, is identified with the development stage in which they are anticipated to be delivered. The retarding basins are identified in the first development stage that will contribute flow to that basin.

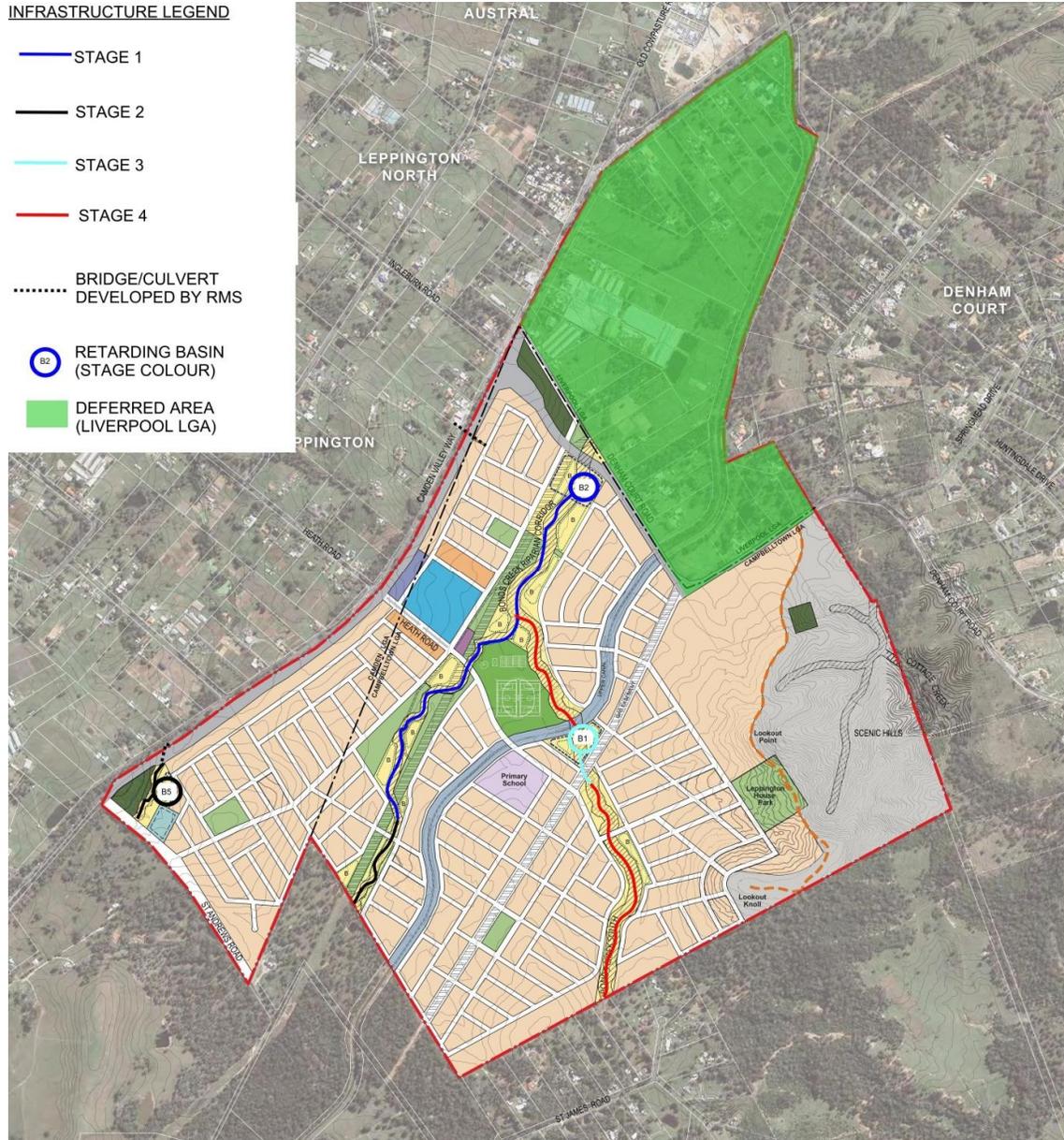


Figure 6 Preliminary Water Cycle Infrastructure Plan

As the water cycle management infrastructure will cross LGA boundaries, a breakdown of the proposed infrastructure within each LGA for the relevant development stages is presented in Table 3.

**Table 3 Proposed Water Cycle Management Infrastructure Breakdown by Development Stage and LGA**

| Development Stage | Campbelltown LGA  | Camden LGA   |
|-------------------|---|--|
| 1                 | <ul style="list-style-type: none"> <li>- On-line Retarding Basin - Bonds Creek (B2)</li> <li>- Riparian Corridor - Bonds Creek and Bonds Creek South</li> </ul> | -  |
| 2                 | <ul style="list-style-type: none"> <li>- Riparian Corridor - Bonds Creek</li> </ul>   | <ul style="list-style-type: none"> <li>- Off-line Retarding Basin - tributary of Scalibrini Creek (B5)</li> <li>- Riparian Corridor - Tributary of Scalibrini Creek</li> </ul> |
| 3                 | <ul style="list-style-type: none"> <li>- On-line Retarding Basin - Bonds Creek South (B1)</li> <li>- Riparian Corridor - Bonds Creek South</li> </ul>           | -  |
| 4                 | <ul style="list-style-type: none"> <li>- Riparian Corridor - Bonds Creek South</li> </ul>   | -  |
| 5                 | <ul style="list-style-type: none"> <li>- Riparian Corridor - Bonds Creek</li> </ul>   | -  |

## 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 road. 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 2012) 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.

Further upgrades to existing sub-arterial roads identified as part of the East Leppington Precinct Traffic Assessment (Cardno 2012) include:

- Signalised connections at various intersections on Camden Valley Way;
- Upgrade of Denham Court Road between Camden Valley Way and Bonds Creek Bridge - subject to RMS approval;
- Upgrade of Denham Court Road between Bonds Creek Bridge and eastern border of the Precinct - subject to RMS approval; and
- Introduction of intersection controls, including roundabouts on Denham Court Road.

New collector and local roads will be delivered throughout the Precinct to service the proposed development.

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 Major Centre, 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.

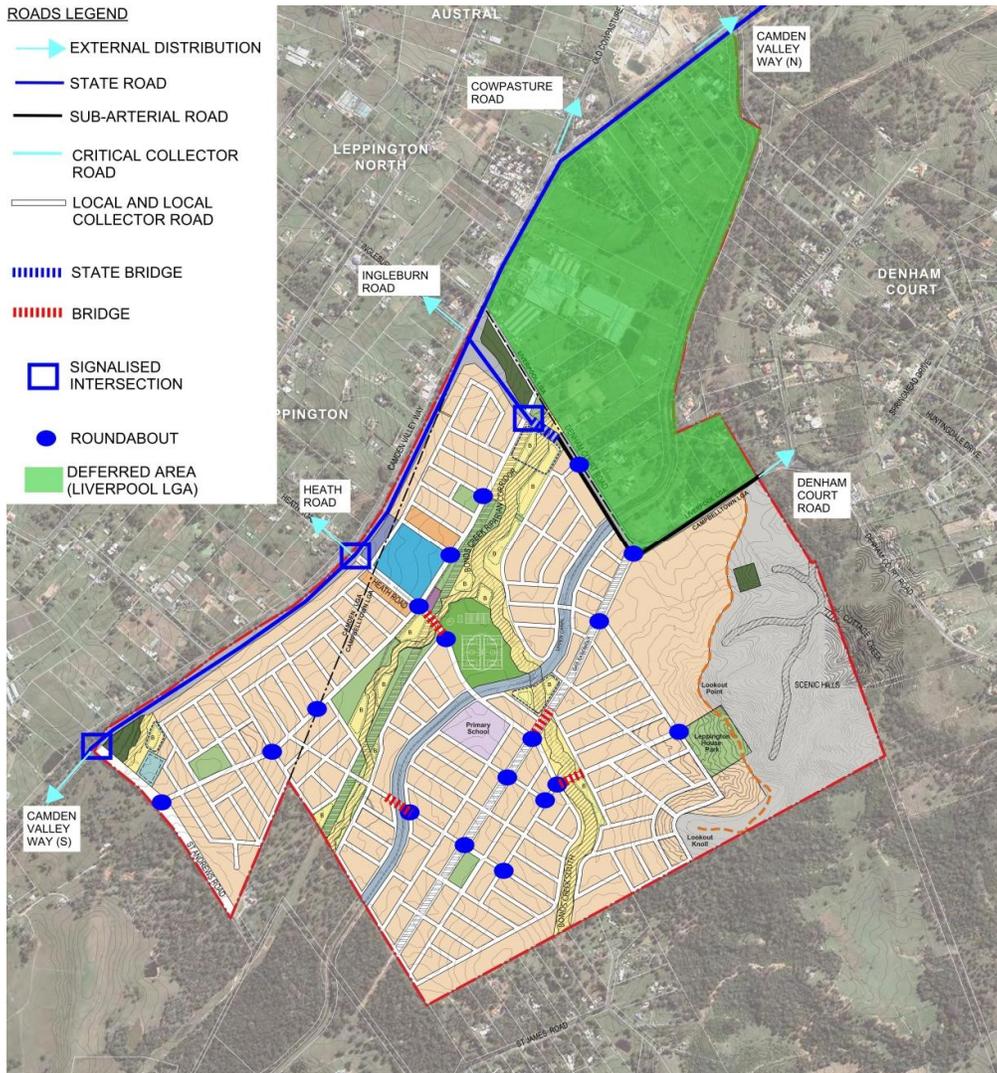


Figure 7 Indicative Road Infrastructure Plan

## 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.

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 Camden 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), Camden and Campbelltown Councils.

### 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**

In terms of local and district health services, 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 3,265 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 provided according to 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 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

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.

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

Earlier Sections of this IDP identified various infrastructure elements which are to be coordinated, delivered and funded by a number of infrastructure providers. Because of the broad range of agencies with responsibilities for infrastructure provision, the IDP is intended to assist in the coordination of funding arrangements from a range of sources.

The State Government is in the process of rezoning the land to enable urban development of the Precincts to occur. However, the Government is also mindful that zoning alone will not enable development. Infrastructure investment and coordination is the vital next step that converts Greenfield sites to urban development.

The following Sections document the key considerations for infrastructure coordination, sequencing and the process to progress the delivery of infrastructure to the East Leppington Precinct.

### 6.1 Service Infrastructure Delivery Challenges

Each of the primary utility suppliers has or is developing a program for the delivery of service infrastructure to the East Leppington Precinct.

As the rate of development of the East Leppington Precinct will be dependent on the market, the current programs for infrastructure delivery assumed by the primary utility suppliers are indicative only and are based on an assumed rate of development. As such, should the actual rate of development differ from those assumed in the service infrastructure planning there will be potential risks of underutilised infrastructure or constraints in available service infrastructure capacity.

The key service infrastructure delivery program risks are identified as follows:

- Sydney Water has general plans for servicing the Precinct with potable water and sewerage, however these are not yet finalised and included in their network planning. As such, funding for these works has not yet been committed. Furthermore, these 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, however it has been advised that the proposed solutions can only service a limited population. As such, the availability of sewer capacity may provide a limitation on development if the long-term servicing arrangements are not progressed.
- Electricity supply will require the delivery of a dedicated 132kV zone substation. Detailed planning for the zone substation has not yet been concluded.
- Jemena has capacity to supply the proposed development, however has not yet concluded their internal business case assessment or made a decision on whether to commit funding to these works.
- In some cases, service reticulation will require installation of infrastructure in proposed road alignments that do not currently exist. This may result in constraints where the delivery of service infrastructure is required in advance of delivery of the road network. This will be a particular issue for the early electrical supply which will require a connection through the Stage 2 area to service Stage 1. This will also restrict the ability of the land in fragmented ownership at the northern end of the Precinct to be developed in the short term.
- While the trunk infrastructure will generally be provided by the primary utility suppliers, the secondary infrastructure will in many cases be delivered by developers. This may result in substantial scope of work and cost where the early stages of development are remote from the trunk infrastructure, for example the land in fragmented ownership at the northern end of the Precinct.

### 6.2 Key Issues for Coordinated Infrastructure Delivery

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;

- 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).

### **6.3 Local Infrastructure Delivery Strategy**

Camden Council is preparing a Section 94 contribution plan to address the local infrastructure requirements for the Precinct. This plan will include essential and non-essential infrastructure. The staging plan for this infrastructure should accord with the indicative priority development areas identified in this IDP.

Campbelltown Council will be entering into a Voluntary Planning Agreement (VPA) with Stockland Pty Ltd for land within its LGA. It is likely that Camden Council will also enter into a VPA with Stockland Pty Ltd.

The East Leppington Precinct presents a unique challenge in that the land is divided between two local Councils. This means that local infrastructure delivered by one Council may be required to support the population arising from development in another area. These issues will be considered by DPI and the two Councils as precinct planning is finalised.

Each Council should 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 joint funding arrangements for key community facilities serving a regional catchment.

The development contribution limits and the existing constraints on the Councils' abilities to fund infrastructure means that even greater emphasis should be placed on partnering with developers to provide the necessary local infrastructure.

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.

### **6.4 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.

Infrastructure agencies will also commence more targeted planning and detailed design of infrastructure to specific timeframes and prepare preliminary costs for the works. The IDP will be updated following the re-zoning of the land within Liverpool LGA.