

Leppington Precinct Infrastructure Delivery Plan

DRAFT

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Prepared for



Prepared by



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Summary of Infrastructure Requirements

The Leppington Precinct is anticipated to accommodate approximately 7,190 new dwellings and a population of approximately 23,680 people over the next 30 years. The Precinct will be supported by:

- A local centre providing commercial and retail uses;
- A P-12 school;
- Four primary schools;
- Community facilities;
- An open space network; and
- A transport network.

This Infrastructure Delivery Plan (IDP) documents the infrastructure requirements for the Precinct and how this infrastructure will be planned, funded and delivered.

The IDP provides a basis for the ongoing discussion between the Department of Planning and Environment and infrastructure providers, and a communication tool for landowners and developers on how and when required infrastructure is likely to be provided to the Precinct. It will also highlight the importance of cooperation and coordination between all responsible stakeholders, including landowners, infrastructure providers, developers and both Local and State governments, in the successful delivery of infrastructure to the Precinct.

Table 1 on the following pages details the required infrastructure needed to adequately service new urban development within the Precinct. The table also indicates the responsible provider of infrastructure, the precinct-specific requirements for the provision of infrastructure, and describes timing and staging considerations.

The table is supported by a series of figures that highlight the preliminary utility services, major road infrastructure and social infrastructure requirements for the Precinct (illustrated in Figures A to C).

Table 1: Infrastructure Needs for the Leppington Precinct

Infrastructure type	Provider of the Infrastructure	Particular requirements for the Leppington Precinct	Timing / staging considerations	Next steps for planning and delivery of the Infrastructure
Water Lead in mains Trunk water mains Water reservoirs	Sydney Water; developers (for reticulation)	Existing reticulated water available in Leppington Precinct (reservoir in southern portion on Woolgen Park Road) Existing connections are able to service the precinct up to 2016 before significant development occurs. Expansion of water trunk system required prior to 2016 to serve the whole precinct.	Expansion of water trunk system dependent on first hand evidence/certainty of new development in precinct (i.e. at subdivision level or individual land owners lodging DAs). The expected delivery date of additional water trunk infrastructure is approximately 2020.	Consult with Sydney Water regarding proposed expansion of water trunk system and availability of potable water during early stages of development.
Wastewater/Sewer Sewage pumping stations Trunk sewers Sewage treatment plants	Sydney Water; developers (for reticulation)	Sewer carrier to service Leppington and Leppington North precinct will flow to the north to eventually connect to a waste water treatment plant in Kemps Creek. Northern portion of precinct to benefit from proximity to existing and planned wastewater servicing.	Staging plan to eventually connect to a Waste Water Treatment Plant in Kemps Creek (not required until after 2022). The Denham Court Road Carrier, Camden Valley Way Carrier, 1182 Rising Main and SPS 1182 will be constructed by June 2015 with flows going to the Liverpool system. The Bringelly Road Carrier and SPS 1183 will be constructed by June 2016 and will service the northern catchment of the Leppington Precinct. An extension of this carrier will form part of a future infrastructure package of works dependent on demand and timing for rezoning. Interim measure in place to collect flows from both Leppington and Leppington North catchments via central gravity main and pump to East Leppington carrier (Camden Valley Way) and into the Liverpool system.	Consult with Sydney Water to develop a wastewater servicing strategy.
Drainage/Stormwater Detention basins and water quality facilities Reticulation pipes	Camden Council; developers (for reticulation)	An integrated Water Cycle Management Strategy has been prepared by Parsons Brinckerhoff for the Indicative Layout Plan to manage stormwater systems for the Precinct. Majority of land in the Precinct drains towards the north and is situated within the South Creek Catchment. Camden Council is responsible for the delivery of trunk drainage infrastructure (detention basins and channels) under s.94 plan. Land developers responsible for reticulation drainage works. Riparian Corridor Management Maintain and enhance riparian land by exploring effective management actions and land ownership considerations.	All stormwater works to be planned and delivered during roll out of subdivision works. Opportunity for developers to deliver trunk drainage infrastructure by negotiating a works-in-kind agreement with Council in lieu of s.94 payment.	Works to be done in accordance with Water Sensitive Urban Design (WSUD) principles. Temporary site specific solutions be considered by developers/Council to address fragmented land constraints of the Precinct.

Infrastructure type	Provider of the Infrastructure	Particular requirements for the Leppington Precinct	Timing / staging considerations	Next steps for planning and delivery of the Infrastructure
Electricity Feeder mains, substations and distribution network	Endeavour Energy; developers (for reticulation)	<p>Leppington South Zone Substation planned to south-east of Precinct by 2014.</p> <p>132kV lines are proposed to originate from the planned substation and service the precinct via notional routes along Ingleburn, Heath and Alma/George Roads.</p> <p>The Precinct will also be serviced by the Leppington Zone Substation (to be constructed in the Leppington North Precinct adjacent to the future Town Centre).</p>	<p>Timing of delivery and location of power pole investment driven by development certainty and programming/staging of that development (i.e. DA lodgement & approvals).</p> <p>The Leppington Zone Substation is still a proposed project plan for completion in approximately 2020. Lead times for zone substations are typically 3 years if a site is available (cleared).</p>	<p>Endeavour Energy to complete the Leppington South Zone Substation.</p> <p>Identify a site for the Leppington Zone Substation and plan for connection to feeder mains within precinct through consultation with Endeavour Energy.</p>
Gas Feeder mains and distribution network	Jemena; developers (for reticulation)	Investment in new infrastructure dependent on whether Jemena achieves a viable return/profit from existing High Pressure Secondary Network. Network terminates on Camden Valley Way approx. 200 m south of Cowpasture Road intersection, which will need to be extended to service Precinct. Pressure reducing station required to provide reticulated natural gas supply to Precinct.	Jemena will review commercial viability of expanding gas network to the Precinct and whether it will generate sufficient patronage to its services to justify capital cost of servicing the Precinct, otherwise developer contributions will fund gas services.	Provide information on development staging and forecasting to Jemena.
Telecommunications Cables and distribution network	National Broadband Network Co. (NBN)	<p>Developers responsible for cost and implementation of pit and pipe network and NBN responsible for installation of fibre optic infrastructure.</p> <p>Location of infrastructure likely to be located along Camden Valley Way to service East Leppington or to the north of Ingleburn Road to service Leppington North.</p>	Not expected to be delivered until after 2015.	Provide information on development staging and forecast to NBN and other relevant telecommunication providers (i.e. Telstra and Optus).
Roads Regional/Arterial Roads (upgrade and new) Local Roads	RMS Camden Council; developers	<p>Upgrades to the following arterial roads:</p> <ul style="list-style-type: none"> * Ingleburn Road * Eastwood Road <p>Camden Valley Road is currently under construction.</p> <p>Proposed new roads:</p> <ul style="list-style-type: none"> * Richard Road transit boulevard <p>Road hierarchy to be established during the design of the Indicative Layout Plan to restrict trucks and heavy goods vehicles to arterial roads.</p> <p>Sub-arterial road crossings required:</p> <ul style="list-style-type: none"> • St Andrews Road <p>Collector road crossing required:</p> <ul style="list-style-type: none"> • Heath Road (west) • Heath Road (east) • 2 x Dickson Road • 2 x Park Road 	<p>Funding of potential new and upgrades to the regional and arterial roads from Special Infrastructure Contributions (SIC) which is delivered by subdividers of large parcels of land by negotiating a works-in-kind agreement with the State Government.</p> <p>Arterial roads constructed to meet demands of are in line with the RMS program.</p> <p>Planned during subdivision phase and delivered during development/construction phase by developers and Council (funded by Section 94 contributions when developers are unable to meet costs).</p>	<p>Consult with RMS to confirm program for upgrades during the early stages of development of Precinct.</p> <p>Creek crossings and sub-arterial and collector roads required to facilitate development on fragmented land to be identified in Section 94 contributions plan, where not funded in part by the NSW Special Infrastructure Contribution levy.</p>

Infrastructure type	Provider of the Infrastructure	Particular requirements for the Leppington Precinct	Timing / staging considerations	Next steps for planning and delivery of the Infrastructure
Public Transport				
Rail	Transport for NSW (RailCorp)	South West Rail Link will terminate at Leppington Major Centre and benefit northern portion of Precinct.	Rail link to Leppington Major Centre scheduled to be completed by 2015.	Consultation with Transport for NSW regarding the confirmation of local road network within Precinct.
Buses	Transport for NSW; Private Bus Operator	Supplementary bus routes for other parts required to complement existing rail and bus services.	Planning of new bus routes following confirmation of local road network and prior to the delivery of local roads.	Bus route strategy to be confirmed for all Precincts.
Pedestrian and Cycle Paths				
	RMS (responsible for arterial roads) Camden Council (responsible for local roads)	Walking and cycleway paths/routes to be confirmed following finalisation of Indicative Layout Plan. A comprehensive walking and cycling network is proposed with options for cyclists including off road and on road.	Delivery of cycleways and pedestrian paths in conjunction with delivery of roads and subdivision works for the Precinct.	Location and route of cycleways and pedestrian paths to be monitored during the implementation of the Precinct.
Emergency Services				
Police	NSW Government	A target population is to be established before NSW Police considers building a station - potential land banking a site for future use may be considered. Existing and proposed police stations outside of Precinct will cater for Leppington up to 2046. The adopted provision rate is one station per 20,000 people.	No current facilities. Two stations proposed at Leppington Major Centre and Catherine Fields North precincts.	Provide information to NSW Police regarding development staging and population growth forecasts.
Ambulance		Existing and proposed ambulance station outside of Precinct which cater for Leppington up to 2046. The adopted provision rate is one station per 25,000 people.	Camden Ambulance station provides sufficient capacity in short term. Ambulance station proposed at Catherine Fields North Precinct.	Provide information to NSW Ambulance regarding development staging and population growth forecasts.
Fire		Existing and proposed fire station outside of Precinct will cater for Leppington up to 2046. The adopted provision rate is one station per 25,000 people. There will need to be a transition requirement from the Rural Fire Service to the NSW Fire Brigade as the Precinct is developed.	It is unknown whether the Leppington Fire Station will have sufficient capacity to service the future population of the Precinct.	Provide information to NSW Fire and Rescue regarding development staging and population growth forecasts. Emergency services to be informed of the confirmation of road network before nominating sites for stations.
Education				
Schools, Colleges of TAFE	NSW Department of Education and Communities; private sector	Required provision of government funded schools: 4 x primary school (approx. 3 ha each) 1 x secondary school (approx. 6-10 ha) Best practice suggests to locate schools adjacent to local centres and open space Private schools as the need arises. Provision of private schools dependent on market demand.	Demand for primary government funded schools: *2 in 2021-2026 *1 in 2026-2031 *1 in 2036-2041 1 public secondary school required in 2021-2026. 1 TAFE campus proposed for Leppington Major Centre.	Provide development staging and forecast information to DEC and TAFE.

Infrastructure type	Provider of the Infrastructure	Particular requirements for the Leppington Precinct	Timing / staging considerations	Next steps for planning and delivery of the Infrastructure
Health General Practice Nursing Home Community Health Centre Maternal and Child Health Centre	NSW Department of Health; South Western Sydney Local Health Network; private sector	'Integrated Primary Care Centres' proposed at Leppington Major Centre, Oran Park and Bringelly, which is in proximity to the Precinct. Required provision of health facilities: * 6 x General Practitioners (GPs) (per 4,000 people) * 2 x Nursing Home (40 beds, per 1,000 70yrs +) * 2 x Low Care (Hostel) places (48 beds, per 1,000 70yrs +) * 1 x Community Health Centre (per 20,000 people) * 1 x Maternal and Child Health Centre (per 20,000 people) Liverpool, Camden and Campbelltown hospitals will accommodate South West Growth Area population. 46 additional beds required for either of these hospitals to cater for the projected population of the Precinct	Demand for GPs: * 1 in 2021-2026 * 2 in 2026-2031 * 2 in 2031-2036 * 1 in 2041 - 2046 Demand for Nursing Homes and Hostels: * 1 each in 2026-2031 * 1 each in 2036-2041 Demand for Maternal and Child Health Centre in 2021-2031. Demand for a Community Health Centre in 2021-2026. Demand for Public Hospital (number of beds): * 2 in 2016/2021 * 16 in 2021/2026 * 18 in 2026/2031 * 10 in 20331/2046	Provide development staging and forecast information to NSW Department of Health.
Community Facilities Cultural Facilities Meeting Facilities Early Year Services	Camden Council; non-government organisations; private sector	Required provision of cultural facilities: * 1 x Branch Library * 1 x Place of Worship Required Provision of meeting facilities * 3 x Community Halls * 1 x Multi Purpose Community Centre * 1 x Youth Centre Required provision of early year services: * 4 x Child Care Centres * 1 x Out of School Hours Care Facility	Demand for a: * Place of Worship between 2026 and 2031. * District Library between 2031 and 2046. * Multi Purpose Community Centre in 2021-2026. * Youth Centre in 2021-2026. Demand for three Community Halls, one required in 2021-2026, another in 2026-2031 and another in 2031-2036. Demand for four Child Care Centres, one required in 2021-2026, one required in 2026-2031, and two in 2031-2036. Demand of one Out of School Hours Care Facility required in 2026-2031.	Location of cultural facilities dependent on confirmation of location of residential and commercial (town centre) development and education facilities to successfully achieve colocation of facilities by way of best design practice. Location of meeting facilities dependent on location of 'catchment' development/facilities i.e. schools, residential development. Location of early year services dependent on confirmation of location of education facilities.

Infrastructure type	Provider of the Infrastructure	Particular requirements for the Leppington Precinct	Timing / staging considerations	Next steps for planning and delivery of the Infrastructure
Open Space and Recreation				
Open Space (Local)	Camden Council; private sector;	Required provision of local open space and recreation facilities: * 4 x local sportsground (approx. 5 ha) - co-located with playgrounds, schools, community facilities * 3 x playground (approx. 0.3 - 0.4 ha) * 5 x play space (approx. 0.5 - 2 ha) * 7 x local parks (approx. 0.5 - 2 ha) - located 400m of most dwellings * 2 x linear urban park (approx. 0.1 - 1.5 ha) - located along waterways, ridgelines, road reserves and service easements	Planned at zoning and subdivision stage. Delivered during development/construction phase. Planned at zoning and subdivision stage Delivered during development/construction phase.	Land dedication for the delivery of open space and recreation to be nominated and detailed in section 94 plan. Funding strategy determined by Council and IPART and detailed in the section 94 plan.
Open Space (District)		Approximately one district park measuring 2 - 5 ha is required	N/A	N/A
Open Space (Regional)	NSW Government	No additional regional open space required. The Precinct will benefit from Western Sydney Parklands and Mt Annan Botanic Gardens.		

Major Road Infrastructure



Figure A: Major Road Infrastructure

Social Infrastructure

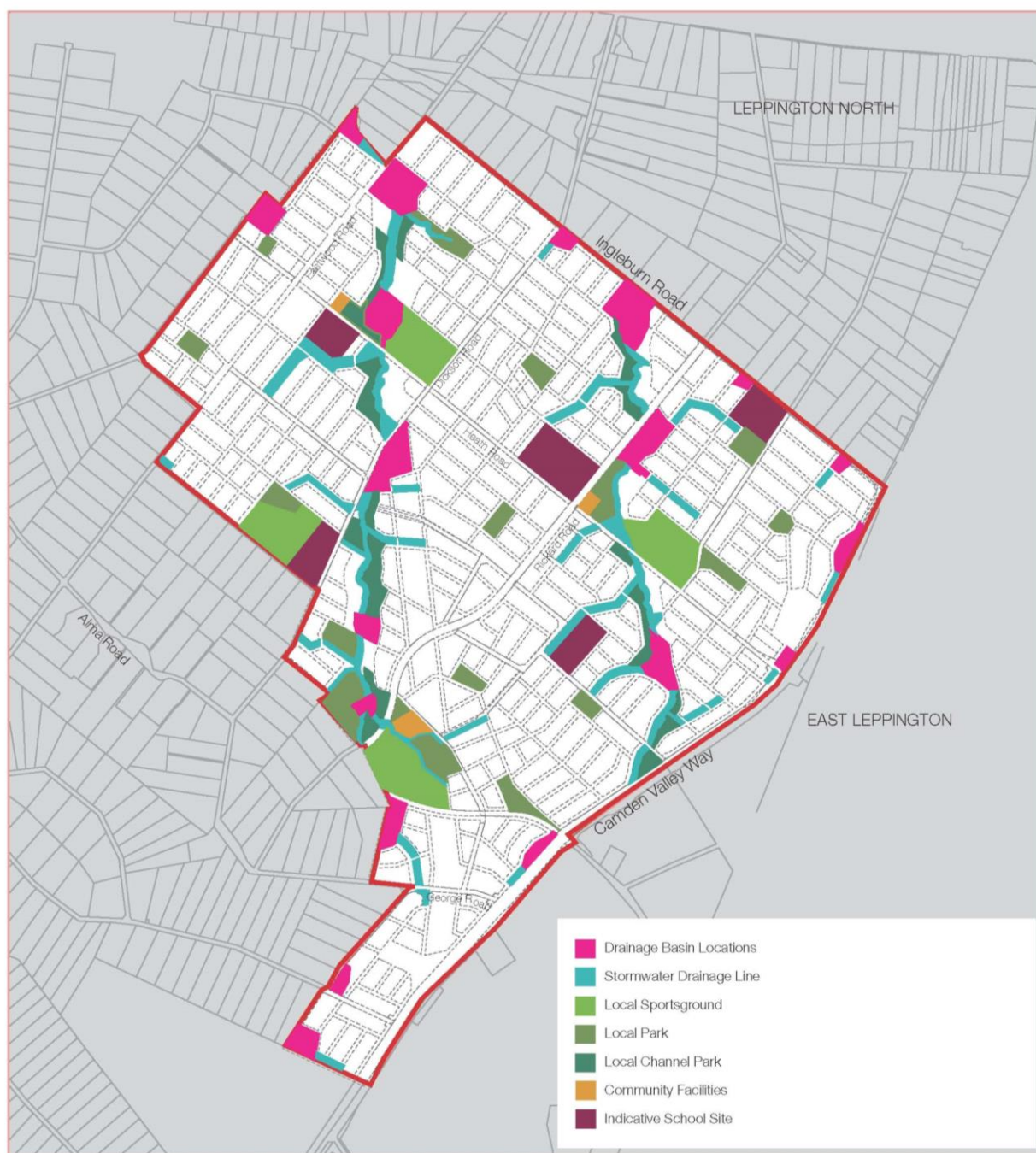


Figure B: Social Infrastructure

Utility Services Infrastructure

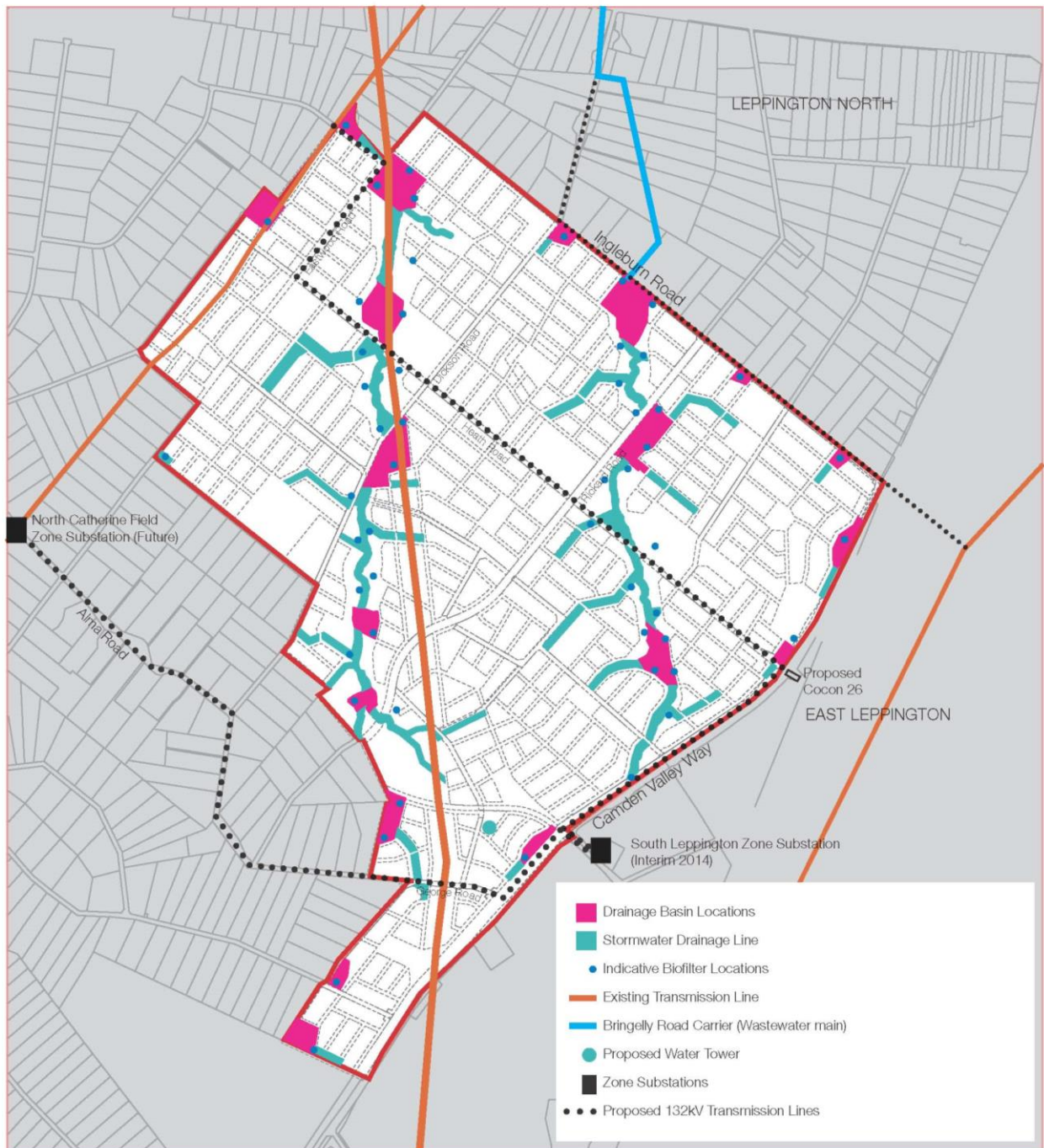


Figure C: Utility Services Infrastructure

1 Introduction

The Department of Planning and Environment (DP&E) has engaged APP Corporation Pty Limited (APP) to prepare an Infrastructure Delivery Plan (IDP) for the Leppington Precinct in Sydney's South West Growth Centre.

This IDP identifies the infrastructure requirements to support the urban development of the Leppington Precinct and reviews the mechanisms required for its planning, delivery and funding.

The specific objectives of the IDP are set out as follows:

- Encourage the coordination of infrastructure provision between various infrastructure providers;
- Encourage ongoing discussion between the Department of Planning and Environment and infrastructure providers for the refinement and iteration of proposed provision and upgrades to infrastructure by those providers;
- Discuss the funding, planning and delivery issues affecting infrastructure delivery.
- Consider the relationship between projected staging of development and planned infrastructure provision;
- Define responsibilities for the provision of infrastructure;
- Identify the Precinct's specific infrastructure demands and how these demands will be met; and
- Communicate between landowners, developers, the community and other stakeholders about the Precinct's infrastructure demands and challenges in the delivery of infrastructure.

As part of the precinct planning process, DP&E has commissioned a number of technical studies to assess the infrastructure requirements, which support the proposed urban development within the Precinct. These studies have been utilised to determine the infrastructure requirements provided in this IDP. The relevant studies include:

- Transport and Access Strategy (AECOM 2013);
- Riparian Corridor Assessment, Flood Assessment and Water Cycle Management Strategy (Parsons Brinckerhoff 2013);
- Social Infrastructure and Open Space Assessment (SGS 2012);
- Leppington Indicative Layout Plan (COX 2014); and
- Rickard Road Strategic Route Study (ARUP 2014);

Discussions have also been held with Sydney Water, Endeavour Energy and Jemena as the key infrastructure providers for the Precinct.

1.1 Types of Infrastructure

This IDP considers the following the infrastructure categories for the Leppington Precinct:

- Services infrastructure
 - Water treatment and reticulation facilities;
 - Sewage servicing, treatment and reticulation facilities;
 - Electricity generation and reticulation;
 - Natural gas distribution; and
 - Telecommunication.

- Transport infrastructure
 - Roads.
- Water cycle management infrastructure
 - Stormwater drainage infrastructure;
 - Flood management works; and
 - Water quality management facilities.
- Social infrastructure and open space
 - Educational establishments;
 - Health facilities, such as hospitals, clinics and other facilities;
 - Recreational and sporting facilities;
 - Arts and cultural facilities; and
 - Multi-purpose centres.

1.2 The Leppington Precinct

The Leppington Precinct was released by the then Minister for Planning and Infrastructure in November 2011. The location of the Leppington Precinct within the South West Growth Centre is illustrated in red in Figure 1 below. The western boundary of the Precinct was reviewed immediately after the Precinct's release. On 15 August 2012 the Minister endorsed a realignment of the Precinct's western boundary, which included land partially within the Catherine Fields North Precinct.

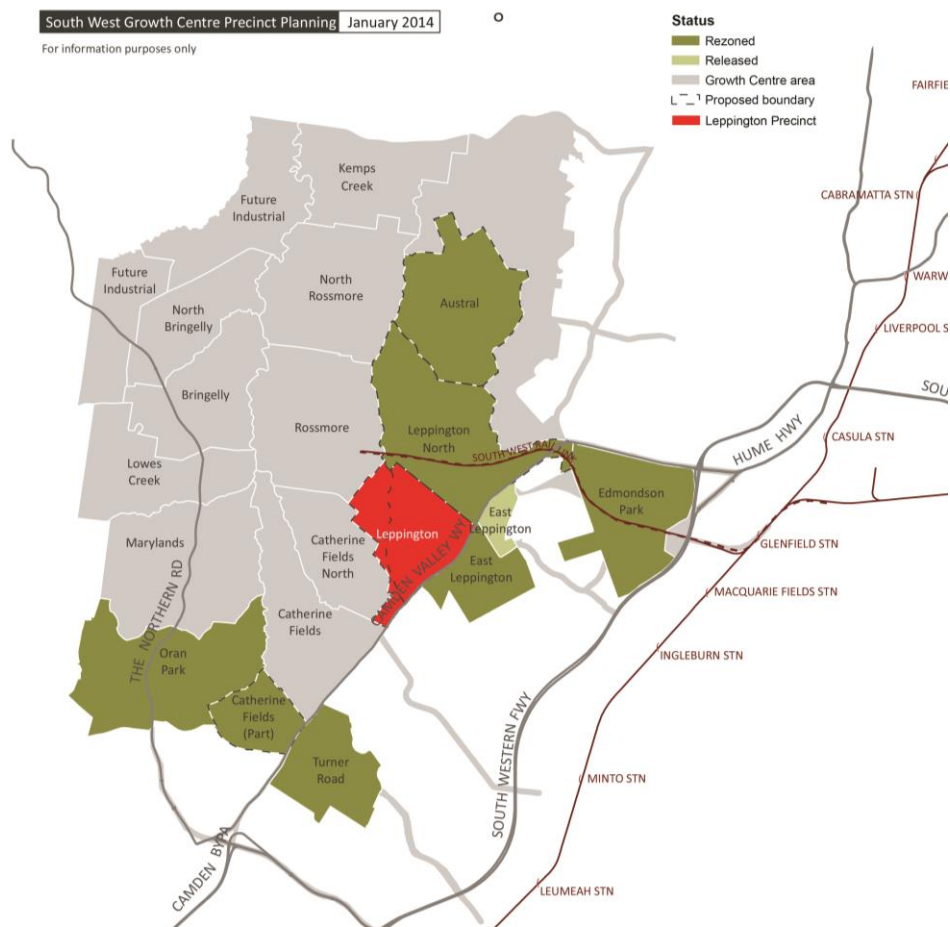


Figure 1: South West Growth Centre Layout (Source: DP&E)

The Precinct is located solely within the Camden Local Government Area (Camden LGA). It is bound by Camden Valley Way to the east, Ingleburn Road to the north, and follows lot boundaries and a number of roads along the west, such as Cordeaux Street, Anthony Road, Joseph Road, and Hulls Road (refer to **Figure 2**). The total area of the Precinct is approximately 655 hectares.

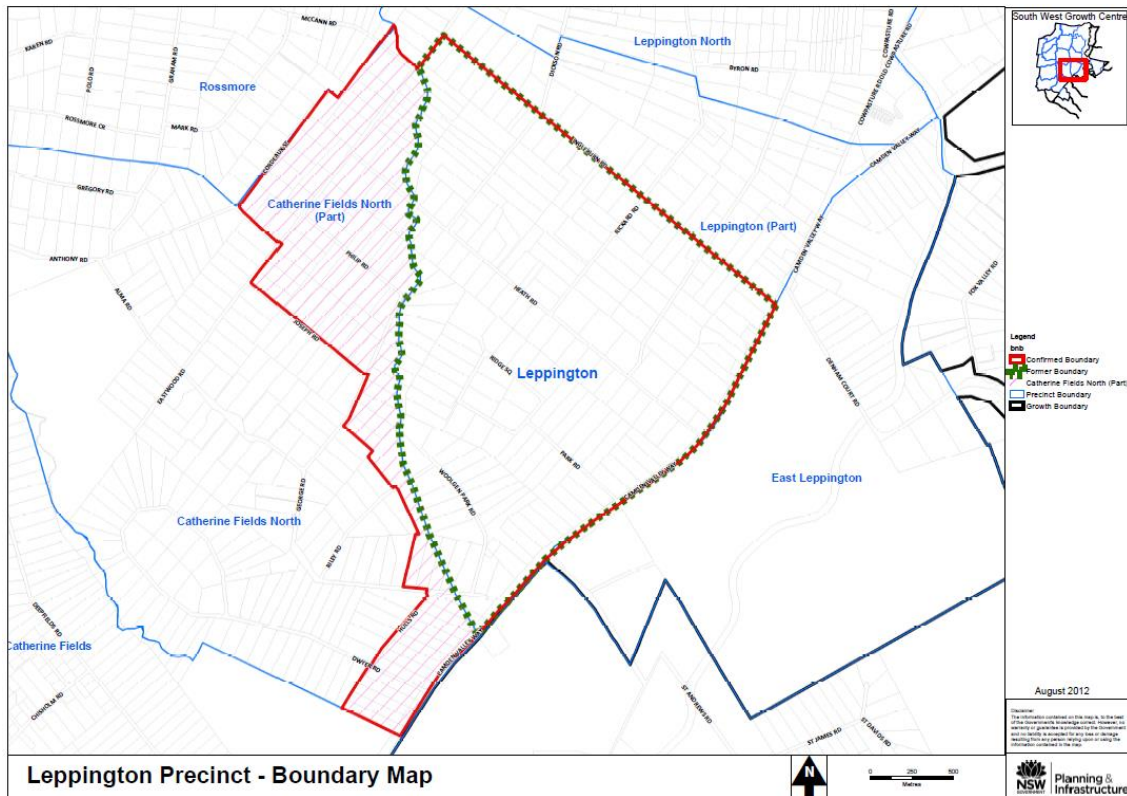


Figure 2 - Map showing boundaries of Leppington Precinct (Source: DP&E)

The release of the Precinct has been timed to coordinate with the completion of the South West Rail Link, current road upgrades and planned major centre in the Leppington Precinct. The rezoning of the Precinct will follow neighbouring Austral, Leppington North and East Leppington Precincts.

The *Growth Centres Structure Plan (Edition 3)* provides guidance for precinct planning by establishing the general pattern of development, constraints to development such as flood prone land, and targets for the number of dwellings and the size of town centres.

The draft Indicative Layout Plan (ILP) for the Precinct has been prepared by Cox Richardson Architects (Figure 3). Indicative dwelling yield, population and key elements of the Precinct Plan are as follows:

- Approximately 7,190 dwellings and a targeted population of 23,600 residents;
- A local centre providing commercial and retails uses;
- A P-12 school;
- Four primary schools;
- Community facilities;
- An open space network; and
- A transport network.

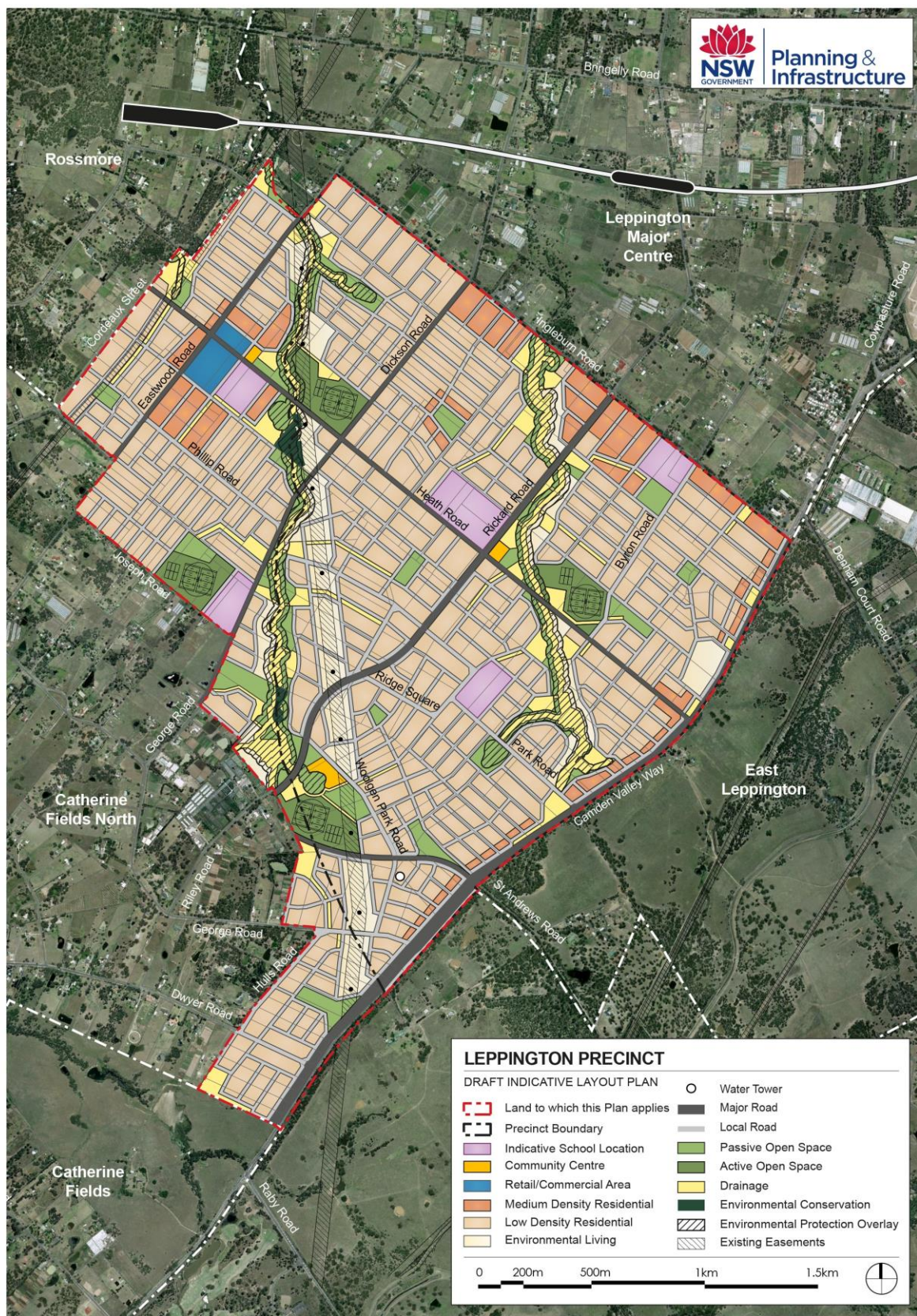


Figure 3 – Draft Leppington Precinct Indicative Layout Plan

The Precinct will accommodate low density residential development in the form of detached, semi-detached, attached and dual occupancy dwelling houses. Appropriate zones will nominate the type of residential accommodation that is suitable for areas across the Precinct. Development controls/zoning will aim to encourage housing choice and affordability for a broad range of purchasers. The expected dwelling yield for low density residential development in the Precinct is 15.3 dwellings per hectare (7,191 dwellings dividing by 470 ha), equating to lot sizes that range from generally 400 to 1000 square metres. The expected dwelling yield for medium density residential development in the Precinct is 962 dwellings based on 25 dwellings per hectare.

SGS Economics & Planning has forecasted a population of 23,130 people (revised to 23,680 as part of the detailed precinct planning) residing in the Leppington Precinct by 2046 at a compound annual growth rate of 9.9 per cent. The projected occupancy rates for residential development within the Precinct are as follows:

- Detached dwellings: 3.4 persons
- Semi-detached and attached dwellings (i.e. townhouse and terraces): 2.6 persons
- Flats, units and apartments: 1.8 persons

1.3 Assumptions and Limitations

The IDP brings together currently available information on proposed scale, type and timing of development. The planning for the Precinct is at the preliminary stage, but is sufficiently advanced to seek initial advice from key infrastructure providers regarding the infrastructure needs of the Precinct.

It is important to note the following assumptions and limitations in discussion of this infrastructure.

- While there is a range of facilities and a large number of infrastructure providers to consider, there are some practical considerations of critical infrastructure that must be considered of highest priority, namely water, waste water and electricity. This should not be construed as diminishing the importance of the other services which are essential for creation of viable and liveable communities. Nor is it assumed that the other services can be automatically provided within the preferred timeframe which will require commitment by the Department of Planning and Environment and the various agencies involved.
- The conclusions reached in this report are that servicing of the Leppington Precinct is possible. However there are a number of clear steps and processes which will need to be followed so that infrastructure is delivered in an orderly and cost efficient manner.

2 Infrastructure Planning, Funding and Delivery

This section provides an outline of how infrastructure is typically delivered by State and Local Government and infrastructure providers for greenfield development areas in Sydney, and considers how this may apply to the Leppington Precinct.

2.1 State Infrastructure

2.1.1 Principles

The State Government's infrastructure planning, delivery and funding system is based on the following principles:

- Integrate land use planning and infrastructure;
- Reflect the Government's economic, social and environmental goals;
- Meet community needs;
- Deliver transparency;
- Provide more certainty for investors, agencies and the community;
- Ensure resources are used efficiently; and
- Provide a climate that encourages private sector investment and innovation.

2.1.2 The Government's objectives for Greenfield Infrastructure Delivery

The NSW State Government (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 Leppington Precinct. The servicing capacity of infrastructure providers has a major influence on 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

The 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.

Infrastructure identified within the vicinity of this IDP which are currently planned, programmed or under construction include the following:

- Major redevelopment of the Liverpool Hospital;
- South West Rail Link – Glenfield to the new Leppington Major Centre (to be completed by 2015). Further investigations into the corridor extension north to St Marys via the Badgerys Creek Airport, and south to Narellan, are currently being undertaken;
- Widening of Camden Valley Way from Bernera Road, Prestons to Cowpasture Road, Edmondson Park;
- Widening of 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;
- Upgrade of the Northern Road to a minimum of four lanes from Narellan to the M4 Motorway (jointly funded with the Australian Government);
- Bringelly Road upgrade between Camden Valley Way and The Northern Road; and
- \$200 million Local Roads Program funded by the Commonwealth Government.

2.1.3 State Infrastructure Planning Agenda

The State government's infrastructure investment program is currently guided by NSW 2021 Plan (NSW 2021 - A Plan to Make NSW Number One) and the Budget Papers.

Budgeting recognises the need to deliver infrastructure in a way that is fiscally sustainable. New South Wales holds a Triple A credit rating. Maintaining the rating is important for budgetary flexibility and business and investor confidence, and is one of the targets of the NSW 2021 Plan.

The Government is developing three significant long-term plans to inform future Budget priorities:

- A new Metropolitan Strategy for Sydney;
- NSW Long Term Transport Master Plan; and
- 20-year NSW State Infrastructure Strategy (SIS).

Infrastructure NSW (INSW) is the authority charged with coordinating the planning and delivery of major infrastructure in NSW. One of the objectives of the Infrastructure NSW Act 2011 is '*to secure the efficient, effective, economic and timely planning, coordination, selection, funding, implementation, delivery and whole-of-lifecycle asset management of infrastructure required for the economic and social wellbeing of the community*' [Infrastructure NSW Act 2011 – clause 3(a)]

INSW is preparing the SIS. The SIS will identify long-term infrastructure priorities across the State; will be aligned with the NSW 2021 Plan, the Long Term Transport Master Plan, the new Metropolitan Strategy and national priorities.

Other roles of Infrastructure NSW include:

- The preparation of 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 SIS;
- The preparation of sectoral SIS statements that will set out a clear analysis of long-term requirements for a sector (for example, transport, water, ports) and a transparent road map for infrastructure needs; and
- The oversight and monitoring of the delivery of specified major infrastructure projects, through preparation of project implementation plans.

2.1.4 State Infrastructure Funding Arrangement

Infrastructure Providers

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. They are required to follow a Total Asset Management approach as set out by NSW Treasury.

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. While most agencies would wish to lock in longer term commitments, the State budget cycle and need to meet immediate community needs and expectations has not always enabled such commitments to be made. Infrastructure and services are provided but over a period of time within shorter term planning cycles.

User Charges

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. The total level of debt that the State can prudently adopt is limited by the investment risks, and the Government's obligation to fund general government services. If PTE debt levels become too high, this limits the State's ability to use debt to fund infrastructure investment.

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, such as the Independent Pricing and Regulatory Tribunal (IPART), which allow for a commercial rate of return on efficient capital expenditure.

Special Infrastructure Contributions

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 regional 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 currently in place.

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*.

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 Infrastructure

2.2.1 Local Infrastructure and Councils

Councils play a number of roles in the effective management of development growth, primarily facilitator, regulator, advocate and infrastructure provider.

Councils have prepared community strategic plans as the key documents guiding Councils' activities in the coming decades. This is now the mandated way for councils in NSW to undertake and report their resource planning and the delivery of services and facilities to their communities. Supporting the implementation of the strategic plans are resourcing strategies, delivery plans and operational plans.

Council community strategic plans have been prepared with due consideration of the various strategies and policies that impact on the local area from both the State 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. State Government's role will span a range of agencies, and joint commitment and action through the Metropolitan and Subregional Strategy will be required to ensure consistent, timely and quality delivery of infrastructure and services to this part of the South West Growth Centre.

In particular, councils have an important role to play in the provision of infrastructure to serve local communities. Councils fund the construction and operation of infrastructure in new urban areas including:

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

Councils typically fund local infrastructure through a combination of general revenue (from rates and other charges), developer contributions under section 94 of the *Environmental Planning and Assessment Act 1979*, and grants from the State or federal government. 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 (see Section 2.2.2 below).

A draft section 94 contributions plan is in the process of being prepared for the Leppington Precinct. The plan will define the local infrastructure required as a result of urban development and the contribution rates that relate to such infrastructure.

2.2.2 Contribution caps

The NSW Government in 2010 and 2011 introduced a cap of \$30,000 per dwelling or pre residential lot in greenfield areas. The premise of this reform was to increase housing supply and stimulate housing construction by lowering development contributions payable by developers for the supply in housing.

In June 2010, IPART began reviewing section 94 contribution plans. IPART will:

- Review contribution plans that propose a contribution level above the relevant cap prior to public exhibition or seeking a special variation to general income or otherwise determined by the Minister for Planning;
- Consider if contribution plans comply with requirements under *Environmental Planning and Assessment Act 1979* and Department of Planning and Environments practice notes; and
- Verify if the costs arrived at in the contributions plan includes both land value and capital costs for construction/works assigned to infrastructure and if they are also reasonable.

The draft contribution plans prepared for the Leppington Precinct is anticipated to require approval through the IPART review process.

2.2.3 Opportunities to address the Local Infrastructure Funding Gap

The draft section 94 contributions plan currently being prepared outlines the range of essential and non-essential infrastructure.

Essential infrastructure comprises:

- Land and facilities for stormwater management;
- Land and facilities for transport (road works, traffic management and pedestrian and cyclist facilities);
- Land for community services; and
- Land for open space.

Non-essential infrastructure comprises:

- Branch library and community halls; and
- Multi-purpose community centres.

The State Government and Council should work in collaboration to develop ways of funding strategies to meet cost of essential and non-essential infrastructure that cannot be wholly funded by section 94 contributions.

Set out below are suggested funding mechanisms that can be adopted to compensate for potential local infrastructure funding gap.

Special Variation to Rate Income

Councils can seek a special variation to increase rates above the rate peg amount or percentage under the *Local Government Act 1993*. IPART determines the rate peg that applies to local

government rate income. IPART announced on 26 November 2012 that the rate peg to apply in the 2013/2014 financial year will be 3.4%.

Councils apply to IPART to seek special variations. The special variation options available under the *Local Government Act 1993* are:

1. Section 508(2) of the *Local Government Act 1993* – increase in rates above the peg rate amount in one year; and
2. Section 508A of the *Local Government Act 1993* – multi-year increase in rates above the peg amount between a consecutive period of two and seven years.

IPART assesses and determines special variation applications. The applications are assessed against criteria set out in section 4 of *Guidelines for preparation of an application for a special variation to general income* publication from the Division of Local Government of the Premier & Cabinet Department.

Contributions Gap Funding for Essential Infrastructure

The NSW Government introduced caps on developer contributions levied per dwelling in June 2010. The cap for development within greenfield sites is \$30,000. The gap caused by the difference of the total apportioned costs of all essential infrastructure per dwelling and the \$30,000 cap would need to be compensated by other means.

In June 2013, the NSW Government announced the 'Local Infrastructure Growth Scheme' comprising \$99 million of funding allocated in the 2013-14 Budget to assist councils deliver essential infrastructure to predominately new greenfield development sites. The scheme is designed to meet the funding gap between the imposed contribution caps and the true capital and land acquisition costs borne by councils to deliver essential infrastructure. The scheme defines essential infrastructure as including the following items:

- Roads;
- Stormwater facilities; and
- Public open space.

The scheme can only be utilised for greenfield sites subject of operative Section 94 Contribution Plans, which have been reviewed and approved by IPART. IPART must conclude that councils are unable to wholly fund the delivery of essential infrastructure under particular contribution plans.

2.3 Services Infrastructure

Services infrastructure is delivered by the relevant infrastructure provider, including PTE's, as part of their strategic planning processes. The responsibilities for the provision of specific services infrastructure within the Precinct are:

Utility	Provider
• Potable water and sewer	- Sydney Water
• Electricity	- Endeavour Energy
• Natural Gas	- Jemena
• Telecommunications	- NBN Co and Telstra

The critical authorities for the provision of urban development within the release areas are Sydney Water and Endeavour Energy, both are PTE's and have defined processes for infrastructure delivery.

2.3.1 Sydney Water

Sydney Water Corporation has publically released their 2012 version of the *Growth Servicing Plan* (GSP). The GSP outlines plans for the provision of water, wastewater and recycled water infrastructure to service urban development for a five year period between July 2012 and June 2017. The GSP sets out details of the decision-making framework applied to invest in new servicing infrastructure for urban growth and development.

The GSP is based on the NSW Government's 2010-11 *Metropolitan Development Program* (MDP) and other market indicators of the demand for water and wastewater services in greenfield development areas. Sydney Water considers the following indicators in relation to infrastructure investment decisions:

- Broad macro-economic trends;
- NSW Government benchmarks for zoned and serviced land;
- Sub-regional analysis of greenfield areas;
- Comparison of annual new connection rates to corresponding dwelling production forecasts;
- Development application activity across Sydney Water defined areas of operations;
- New connection rates across these areas of operations;
- Capacity of existing infrastructure in infill areas; and
- Level of land ownership fragmentation.

These investment decisions are highlighted within Figure 4. Sydney Water's strategic framework for investment in new service infrastructure is illustrated diagrammatically in Figure 5 and Figure 6.

With reference to Sydney Water's 'Funding infrastructure to service growth' policy, developers will fund the design, construction and commissioning stages of infrastructure.

Developers are required to pay for minimum reticulation of water and wastewater services that benefit their land with the exception of infrastructure that provides:

- capacity for other developers; and
- frontage or a point of connection to either another developer's land or a potential developer's land

Further to the above, Sydney Water sets out the following terms for who is responsible to fund infrastructure and the criteria for funding:

- The developer will fund 100% of any minimum reticulation that serves the developer's land exclusively, and hand it over to Sydney Water free of charge.*
- The developer and Sydney Water will each fund 50% of any minimum reticulation that serves other land, as well as the developer's land. For example, this may include a water main that serves land on the opposite side of a road to the development or a wastewater main along the development boundary that also drains an adjoining lot.*
- Sydney Water will fund 100% of lead-in and lead-out mains.*
- Sydney Water will fund 100% of costs to upsize reticulation mains above minimum reticulation.*
- Sydney Water will treat lead-in and lead-out mains that serve other land owned by the developer as minimum reticulation and determine funding using criteria 'a' and 'b'. Any upsizing of these mains will be funded following criteria 'd'.*
- Sydney Water will fund 100% of major infrastructure, such as pumping stations, storage reservoirs or treatment plants.*

Sydney Water will refund the costs incurred by the developer for these scope of works when ownership of infrastructure is transferred to Sydney Water. The refund includes 'reasonable'

overheads, excluding the cost of the developer's share of minimum reticulation. Developers are expected to follow Sydney Water's procurement guidelines to deliver agreed-funded infrastructure.

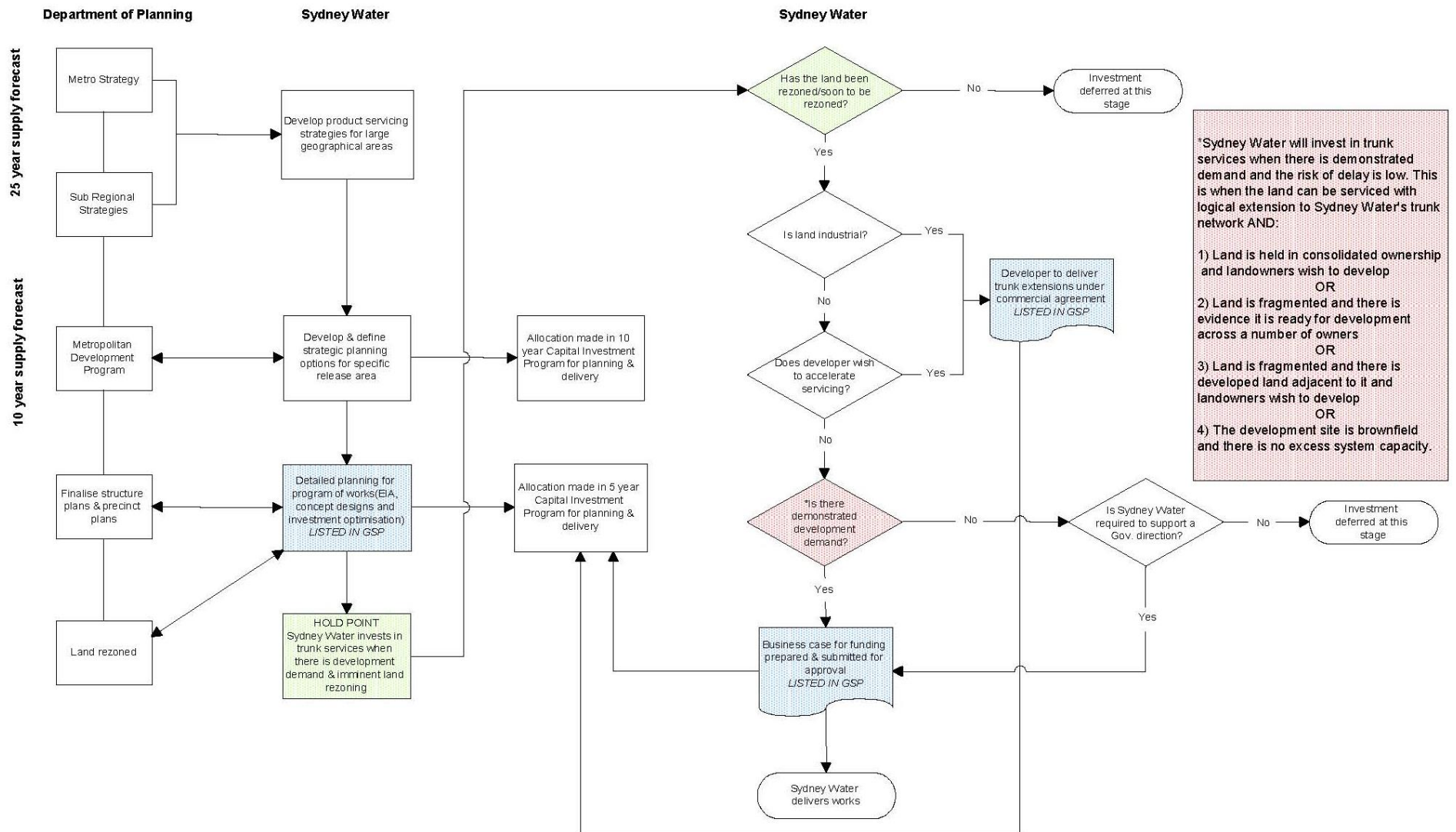


Figure 4: Sydney Water's decision-making framework for investing in urban growth

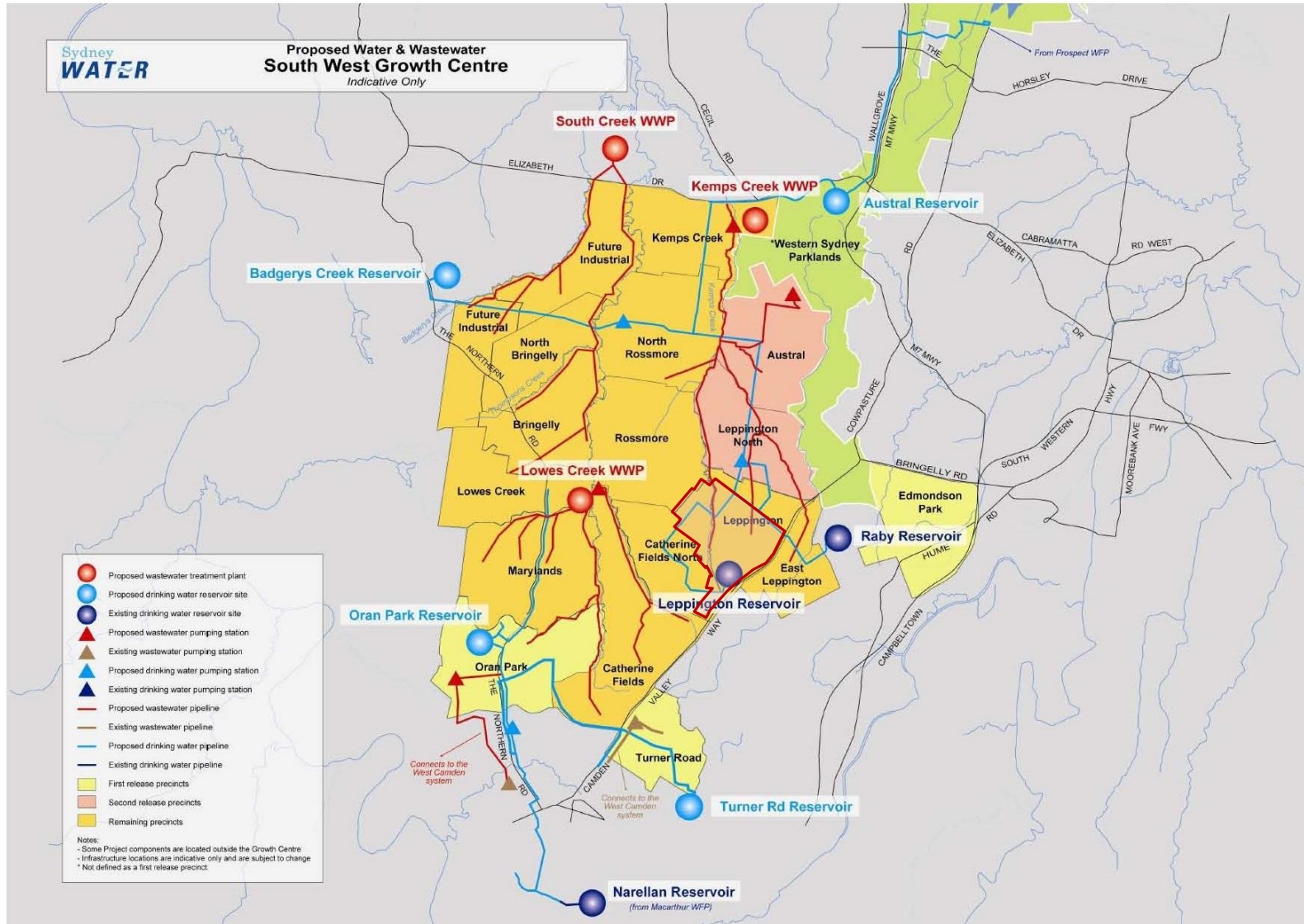
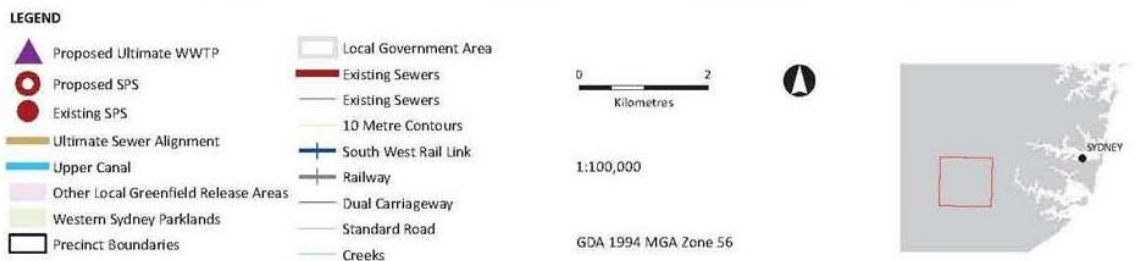
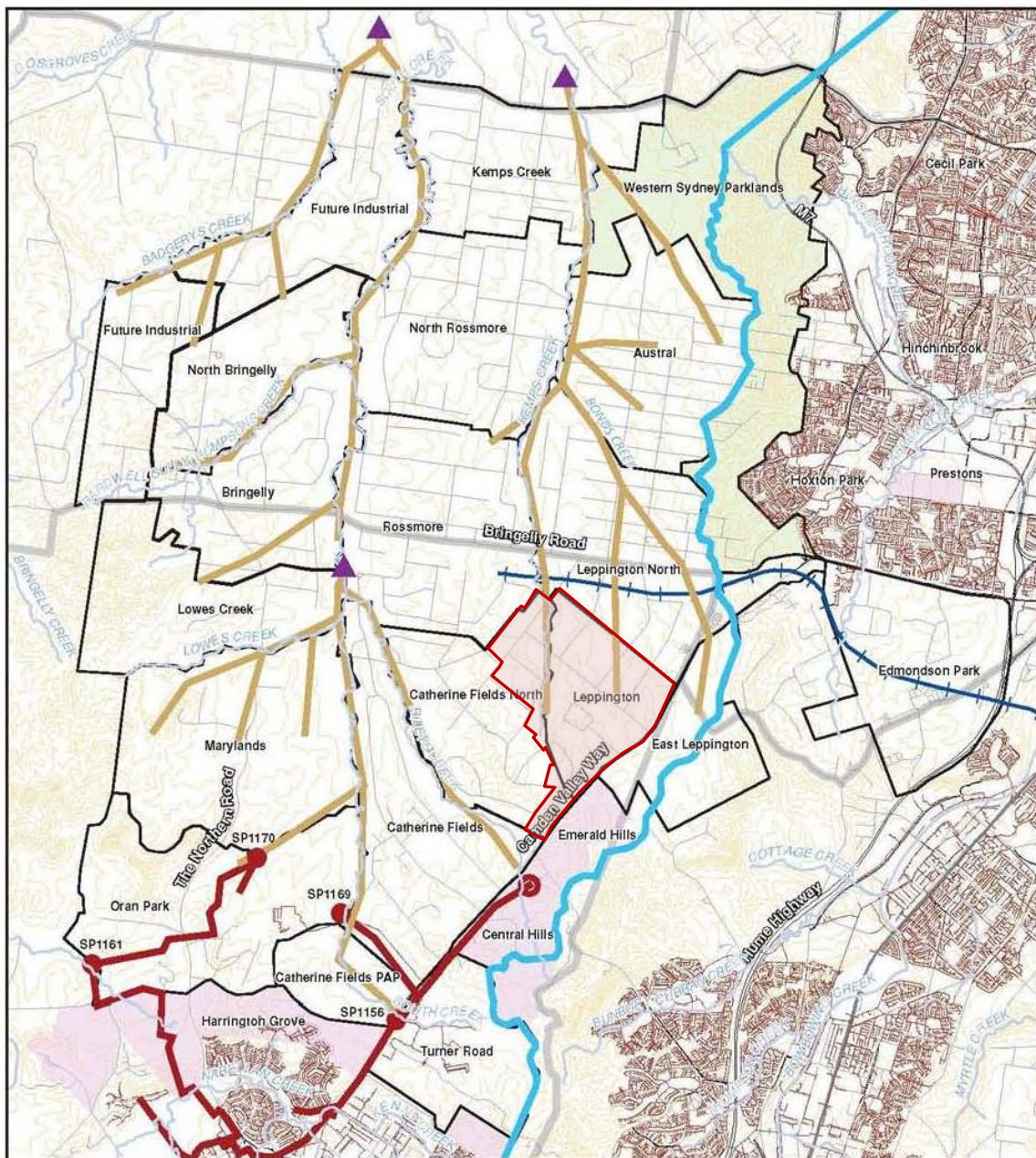


Figure 5 - Sydney Water's indicative strategy - water supply and waste water facilities - South West Growth Centre



SWGCG Wastewater Strategy Review



Figure 6: Detailed Ultimate Proposed Wastewater Network

Funding Processes for Greenfield Development

Sydney Water offers options to accelerate urban development in greenfield sites. These are:

- Commercial agreement between Sydney Water and developers;
- Precinct Acceleration Protocol;
- Lead-in infrastructure;
- Interim infrastructure; and
- Reticulation infrastructure.

Commercial Agreement

Developers may enter into a commercial agreement with Sydney Water to accelerate servicing of land beyond an endorsed GSP and that is located outside of areas subject to the 'Precinct Acceleration Protocol'. This involves developers constructing trunk infrastructure and being reimbursed by Sydney Water for the 'reasonable and efficient' costs subject to trunk infrastructure being constructed in accordance with Sydney Water requirements and funding principles for the delivery of services by developers.

This option involves the following processes:

- developer contacts Sydney Water's Urban Growth Team;
- developer enters into a commercial agreement with Sydney Water once conditions are agreed;
- developer funds and constructs major infrastructure to Sydney Water's requirements;
- infrastructure is transferred to Sydney Water upon completion;
- Sydney Water repays the cost of delivering the infrastructure in accordance with their funding principles/arrangements.

Precinct Acceleration Protocol

Precinct Acceleration Protocol (PAP) applies when a developer wants to accelerate the release of a Growth Centre precinct. Sydney Water commits to funding and delivery of infrastructure when developers demonstrate demand for that infrastructure. Sydney Water's aim is to ensure it receives a return on investment for the provision of infrastructure it funds and delivers.

The following steps apply for funding of PAP areas:

- PAP proponent funds and constructs required infrastructure to service a PAP area;
- PAP proponent receives progressive payments until 50% of lots are connected to Sydney Water's system
- Sydney Water makes a final 'balloon' payment for the rest of the infrastructure costs.

Lead-in Infrastructure

Developers are required to construct lead-in mains to connect development areas to Sydney Water's trunk system. The 'reasonable' and 'efficient' costs to construct lead-in mains will be refunded once works have been commissioned and transferred to Sydney Water to manage. The cost for lead-in mains will only be refunded by the infrastructure provider if it exceeds the minimum reticulation size required to be provided by the developer.

Interim Infrastructure

Interim servicing strategies (temporary water and wastewater infrastructure) are in place to assist with the early development of precincts. Sydney Water sets out the following criteria for the funding, acquisition and operation of interim infrastructure:

- The need for permanent infrastructure is deferred
- Servicing of urban development is brought forward
- Interim infrastructure is the lowest life cycle cost compared to constructing the permanent infrastructure at the outset.

Developers who do not meet the above criteria can fund, own and operate interim infrastructure. It should be noted that Camden Council does not support pump out systems as an interim measure. Sydney Water will consider funding interim infrastructure on a case-by-case basis and with reference to Sydney Water's decision-making framework (refer to Figure 4).

Reticulation Infrastructure

The funding and construction of reticulation of water and wastewater services is borne by the developers as part of the section 72 compliance certificate process

2.3.2 Endeavour Energy

Endeavour Energy is the provider of electricity in western and south-western Sydney. Endeavour Energy released a draft *Growth Servicing Strategy 2012* in July 2012. The Strategy is intended to be in working draft form in light of on-going changes to the planning and development of Sydney's growth centres. It sets out Endeavour Energy's high level plans for electricity distribution and sub-transmission network infrastructure up to a 10 year period, and spatially identifies planned and approved electricity infrastructure in the growth centres.

The Strategy is based on the following sources:

- Metropolitan Development Program forecasts;
- Discussions with Department of Planning and Environment, Council and developers;
- To some extent, the availability of other services (or plans for), such as Sydney Water services; and
- Internal intelligence within Endeavour Energy.

Responsibility of Funding and Delivery Infrastructure

The Strategy clarifies the responsibility, in terms of funding and delivery, of different types of electricity infrastructure. Reticulation or sub-transmission connections that are defined as having less than and equal to 22 kilovolts of capacity are funded and delivered by developers. Endeavour Energy plays a certification role in approving the provision of reticulation services that are carried out by the developer. This approval process has a typical duration of 14 days and involves the following processes:

- Initial enquiry lodged by developer regarding current electricity capacity for an area;
- An application is lodged by a developer seeking consent from Endeavour Energy to reticulate electricity infrastructure;

- Endeavour Energy assesses the application in terms of whether the existing capacity of surrounding substations can support proposed reticulation before granting approval for connection to the electricity network. This is managed by Endeavour Energy's Network Connections Branch; and
- The assessment process typically takes 14 days, if sufficient information is provided with the application.

Endeavour Energy is responsible for the planning, funding and delivery of zone substations and distribution and transmission connections. All of these high-level infrastructure projects are approved by the Board of Endeavour Energy. In terms of the approval and delivery of substations, this process takes approximately four years, including one year for initial approval process and three years for construction. Endeavour Energy is responsible for the funding and the delivery of these projects. The land requirements are generally provided at a nominal cost by developers who are the main beneficiaries of the substation.

Endeavour Energy's Planning Process

Endeavour Energy will plan and invest in electricity infrastructure expansion based on effective returns on investment. Certainty on development activity as indicated by consolidated ownership of land parcels/allotments is a key factor in driving investments in additional infrastructure.

Endeavour Energy operates on a 'Strategic Asset Management Plan' (SAMP). The SAMP intends to guide and nominate required network expenditure that would be driven by organic or planned growth in urban areas. It highlights that Endeavour Energy needs to be comforted about the level of certainty on the timing of individual development proposals prior to committing to capital expenditure on infrastructure expansion. The SAMP aims to reduce the risk of investing in assets that may become stranded and underutilised.

Endeavour Energy is amicable to collaborate with developers to facilitate timely delivery of new development concurrent with the right provision of electricity infrastructure to support that new development. *Growth Servicing Strategy 2012* notes that Endeavour Energy initially explores the baseline capacity of nearby networks for new development to capitalise on spare capacity in the network prior to committing to expansion works.

3 Infrastructure Requirements

This section explores infrastructure planning issues and requirements as they relate to the Leppington Precinct.

3.1 Water Supply and Wastewater Treatment

Sydney Water has commissioned specific water and wastewater strategies for the South-West Growth Centre, which provides further details on the demand of infrastructure and planned trunk main networks for the precincts within the South-West Growth Centre.

Sydney Water's current indicative strategy for water supply and waste water facilities for the South West Growth Centre is shown in Figure 5 above. The water supply for the Leppington Precinct will be supplied via the Raby Reservoir and Leppington Reservoir. The Precinct currently has drinking water capacity until 2017. However, new trunk water infrastructure will be required post 2017 to support the anticipated population growth in the Precinct.

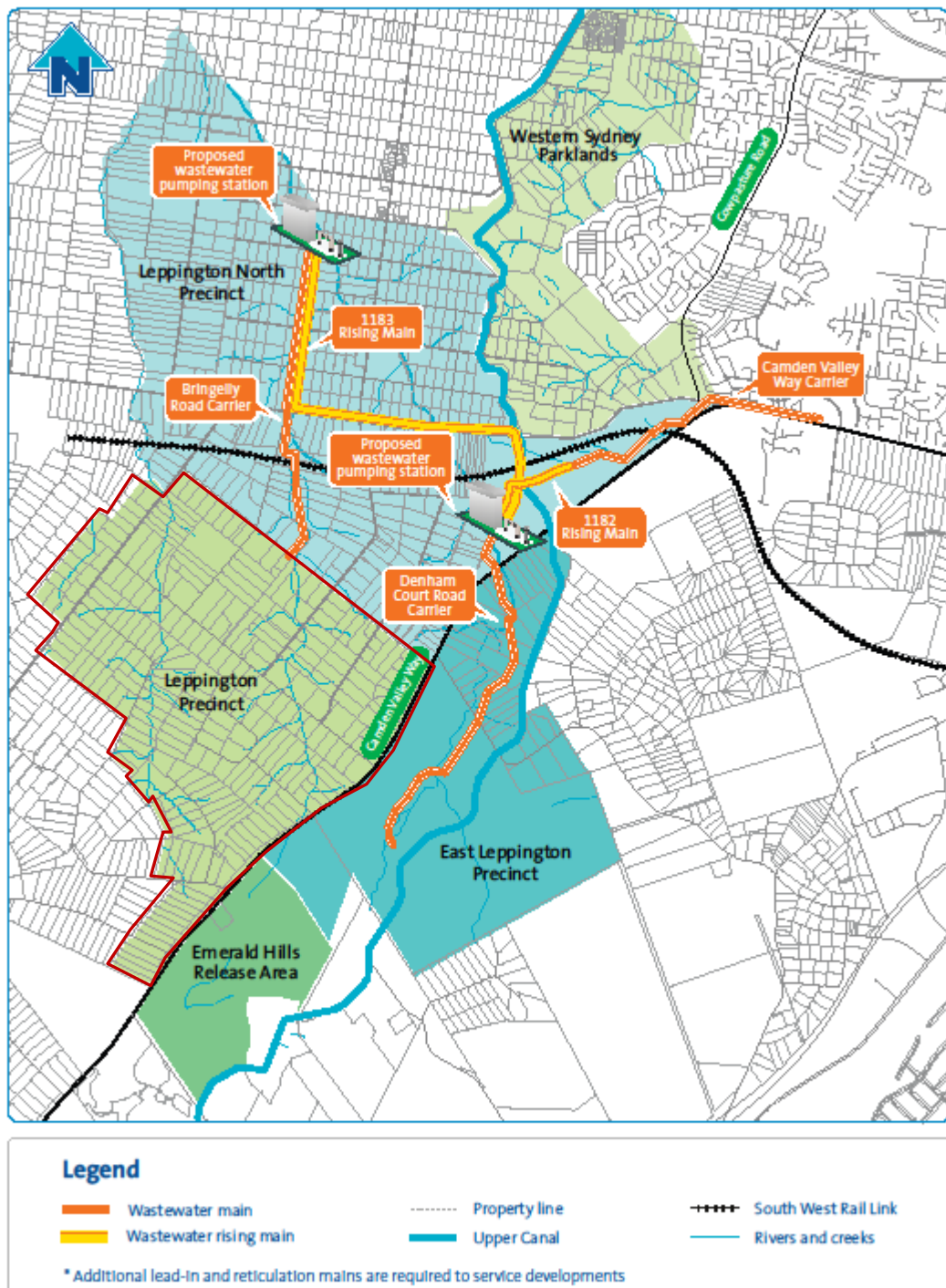
Sydney Water will be delivering wastewater trunk infrastructure to initially service lots in the Precinct from June 2016. This is an interim solution that will connect to the Liverpool sewer network.

The Leppington Precinct and adjoining Leppington North Precinct will be serviced by gravity mains that articulate wastewater to a proposed Wastewater Treatment Plant at Kemps Creek. In the interim, proposed gravity sewer main, temporary pumping station and a rising main will service both of these precincts until the Kemps Creek Wastewater Treatment Plant and gravity mains are built.

Figure 6 illustrates the second release package of works in the South West Growth Centre. The Denham Court Road Carrier, Camden Valley Way Carrier, 1182 Rising Main and SPS 1182 will be constructed by June 2015 with flows going to the Liverpool system. The Bringelly Road Carrier and SPS 1183 will be constructed by June 2016 and will service the northern catchment of the Leppington Precinct. An extension of this carrier will form part of a future infrastructure package of works dependent on demand and timing for rezoning

Discussions with Sydney Water revealed that a 100 to 150 dwelling benchmark or critical mass is applied in determining the need for expanding water servicing infrastructure (trunk mains).

Proposed wastewater infrastructure



Map is Indicative only and not to scale

Figure 7: Short Term Wastewater Strategy

3.2 Stormwater and Drainage

Parsons Brinckerhoff has prepared a Water Cycle Management Strategy (2013) that addresses water conservation, efficiency, stormwater management, drainage and flooding.

The objectives of the strategy are as follows:

- Avoid adverse impacts from stormwater runoff on other properties as a result of development in the catchment for all storm events up to and including a 1% Annual Exceedance Probability (AEP) event. This includes providing the required level of flood immunity for infrastructure and buildings without significantly altering the natural flow regime;
- Minimise potable water consumption and maximise re-use of stormwater in urban areas by managing water as a valuable resource; and
- Maintain and enhance quality of natural water bodies.

The key features of the water cycle management strategy include:

- Stormwater quantity management:
 - Stormwater detention – conventional pits and pipes conveyed by overland flow paths (i.e. roads and creeks). Trunk drainage channels (swales) are included as part of the drainage system;
 - Rainwater harvesting – installation of rainwater tanks to capture rainwater from roof areas for non-portable uses (e.g. toilet flushing, laundry and irrigation uses); and
 - Stormwater harvesting – extracting water from local waterways or existing and/or proposed pipe systems.
- Stormwater quality management:
 - Water Sensitive Urban Design principles to be applied in the planning and design of new development within the Precinct;
 - Sediment basins to be integrated in both the construction and occupation/operation phases of development;
 - Constructed bio-filters (rain gardens) within drainage land, open space and recreation areas designed to remove pollutants through sedimentation and absorption of nutrients and other associated contaminants; and
 - Bio-retention basins (vegetated areas where runoff is filtered).

The strategy identifies 19 detention basins that are proposed within the Precinct. The detention basins as part of the water cycle management strategy will be funded through the collection of developer contributions under the Camden Growth Areas Section 94 Contributions Plan. The funding and delivery of detention basins may be slow and staggered as development of the Precinct occurs over the next few decades. There may be a need to implement temporary stormwater and drainage solutions in the interim before the full water cycle management system is holistically implemented.

3.3 Electricity

The *Growth Servicing Strategy 2014* indicates approved projects as part of Endeavour Energy's Strategic Asset Management Plan relating to the South West Growth Centre, and more specifically, the Leppington Precinct. The Strategy also spatially identifies these projects. Figure 8 below is an extract of the Southwest Sector Greenfield Release Areas Map 1, which shows planned zone substations and distribution lines for the Leppington Precinct.

The Growth Servicing Strategy is an evolving document, dependent on the level of development activity occurring in other precincts within the South West Growth Centre (SWGC). A final version is expected to be published shortly but could still be subject to amendments later given the level of development activity occurring in the SWGC over the next two decades.

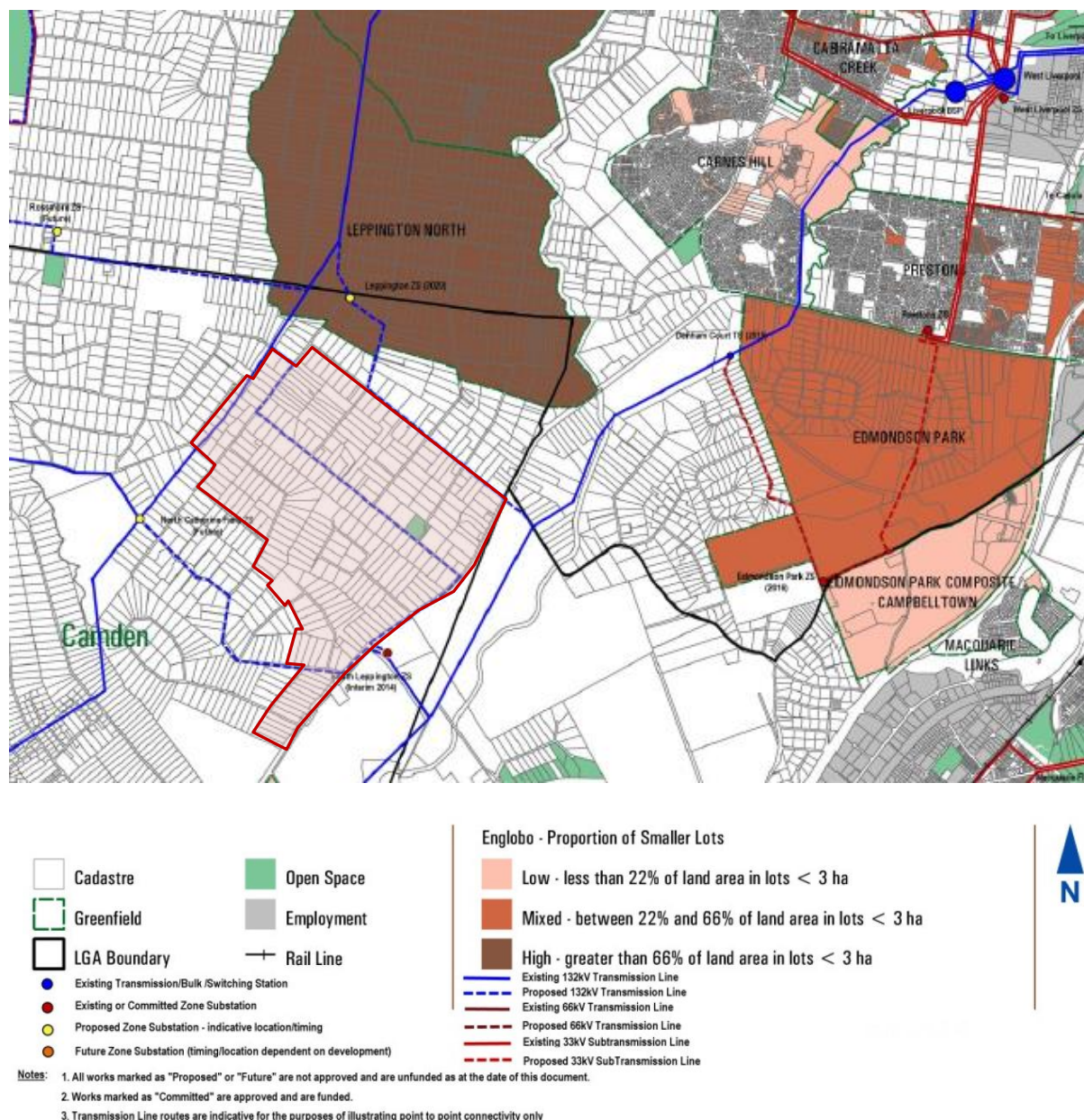


Figure 8: Endeavour Energy's planned infrastructure for the Leppington Precinct

The following is a summary of existing capacity and planned infrastructure for the Leppington Precinct:

- Endeavour Energy approved an interim zone substation (known as South Leppington), which is located outside of Precinct and east of Camden Valley Road;
- South Leppington Zone Substation is an interim measure to service East Leppington in lieu of a full/complete substation that has not yet been approved and delivered. A full substation at

this location, when delivered, will have the capacity to service the southern half of the Leppington Precinct;

- There are plans and a proposal for a substation located in the North Leppington Precinct (known as Leppington Zone Substation). This project has not been approved yet. A specific site has not yet been dedicated for this substation. This substation at North Leppington, when delivered to its full capacity, will be able to service the northern section of the Leppington Precinct;
- Endeavour Energy has confirmed that an additional substation would not be required within the Leppington Precinct;
- The Precinct can, for the most part, be adequately serviced by the two planned zone substations (i.e. South Leppington and Leppington substations). If required, some servicing capacity for the final stages of the Leppington Precinct may ultimately be available from the proposed North Catherine Field Zone Substation at a later date, but there are no current plans for this zone substation to be advanced ahead of the Leppington Zone Substation; and
- Proposed 132kV transmission lines notionally planned along portion of Ingleburn Road (northern Precinct boundary), Heath Road, Camden Valley Road (eastern Precinct boundary), and George Road. These projects may be delivered as 'standalone' projects that are driven by development activity. These will provide transmission connections to and between zone substations.

The South Leppington Zone Substation is currently under construction in its interim configuration. The Leppington Zone Substation will be constructed in the Leppington North Precinct close to the Leppington Town Centre. This is still a proposed project and not expected before 2020.

3.4 Gas

Jemena is the provider of gas services in south-western Sydney and responsible for the design of reticulation of gas mains in greenfield development sites as shown in Figure 9. Jemena will commit to the funding of reticulation projects if a foreseeable return of investment is achieved and in close proximity to existing feeder mains. Discussions with Jemena indicated that nine in 10 cases Jemena will fund reticulation of gas mains for urban development.

Reticulation Process

Gas services are reticulated from pressure reducing stations, known as cocons, to premises. Jemena will design and fund these reticulation works. Developers are required to provide trenches within road reserves for Jemena to easily install pipes. These pipes follow the electrical conduits that have been designed by electricity distributors, such as Endeavour Energy. A new installation (cocon 26) is proposed at the intersection of Camden Valley Way and Heath Road.

Jemena enters into an agreement with Electricity Distributor and other infrastructure providers to share trenches. Jemena are responsible for carrying out of pipes parallel to roads and contractors, who are engaged to carry out civil works, are responsible for pipes that cross-over.

Jemena's internal design and approval process for reticulation has a typical six week timeframe and comprises the following stages:

- Network Development Manager receives request;
- Request sent to engineer to design reticulation network;
- Design concept issued to Network Development Manager;
- Field costs for carrying out works are ascertained;

- Total costs issued to Network Development Manager for approval and sign off; and
- A 'letter of offer' is issued to developers that outlines conditions of sharing trenches and schedule of works associated with reticulation.

Drivers for Investment in Infrastructure

Jemena will invest in reticulation of gas services and high-end infrastructure if there is a probable rate of return (capital being spent to roll-out infrastructure will be recovered by future customers paying for gas usage). Development activity and the property market in general are also factors in investment decisions regarding expansion of gas trunks and mains.

Jemena will commit to investing in new infrastructure at the subdivision and master-plan stage of development projects. Developers are required to provide Jemena with the following information:

- A subdivision and road layout plan showing the planned electrical reticulation network (conduits);
- Details on number of lots and staging of the delivery of housing stock (overall and rate per year); and
- Potential temporary easements for Jemena to reticulate services generally where roads will be built (NB: after works are complete these easements may cease).

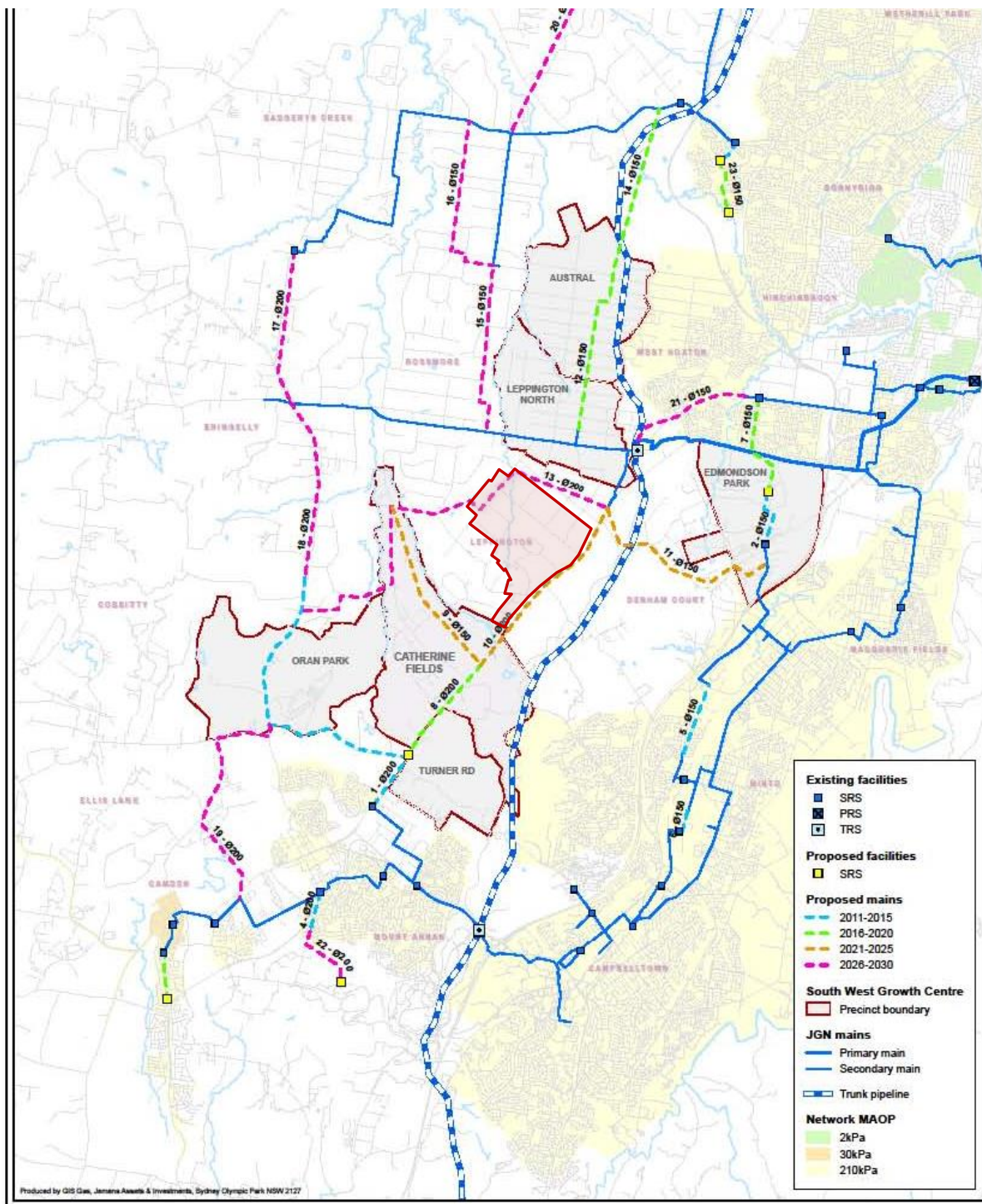


Figure 9: South West Growth Centre gas network planning

The following is a summary of existing and planned gas infrastructure for the Precinct and its immediate surrounds:

- An existing feeder main (trunk) terminates at Camden Valley Way and Ingleburn Road intersection.

- Expansion of the feeder main is planned further south to meet proposed cocon. The cocon is a black box that will be situated in a pit underground at the intersection of Camden Valley Way and Heath Road.
- The reticulation network for East Leppington has been designed and Jemena advise that this precinct is ready to be serviced.

Jemena concluded that the Leppington Precinct will be adequately supplied given its close proximity to existing and planned feeder mains and proposed cocon at the intersection of Heath Road and Camden Valley Way.

3.5 Roads, Public Transport, Cycling and Walking

A Transport Assessment prepared by AECOM (2013) assesses a range of transport options including the road network both external to and within the precincts and also covers public transport, walking and cycling.

The proposed road hierarchy for the Leppington Precinct has been based upon the South West Growth Centre Road Network Strategy, neighbouring precincts and the expected traffic flows in the road network. The key strategic highway route servicing the Precinct is Camden Valley Way. Camden Valley Way upgrades are currently under construction, and at its ultimate development will provide three lanes in each direction and form a strategic traffic function for the South West Growth Centre.

An overall grid road hierarchy is shown in Figure A will service the Precinct and provide connections to the wider South West Growth Centre. This includes the east/west routes along Ingleburn Road, Heath Road and St Andrews Road, as well as the north/south routes along Byron Road, Rickard Road, Dickson Road and Eastwood Road. Rickard Road is a designated Transit Boulevard and will run parallel to Camden Valley Way and provide a transit function between the Leppington Town Centre and urban areas to the south within the Growth Centre. Dickson Road is proposed to provide a direct link to Oran Park Town Centre and will also form an important part of the strategic bus network.

All collector roads and local roads within the precinct require only one traffic lane in each direction, with localised widening at intersections and parking lanes if required.

The Precinct will benefit from good public transport accessibility through a comprehensive proposed bus network and bus servicing strategy linking key centres, Leppington Rail Station, Campbelltown Rail Station, schools, employment opportunities and residential areas.

The following roads within the Precinct are intended to be funded using Special Infrastructure Contributions (SIC):

- Camden Valley Way;
- Rickard Road;
- Eastwood Road; and
- Ingleburn Road.

Higher order roads not covered by the SIC or separately under construction by the Roads and Maritime Service are the responsibility of Council. These works are funded under section 94 contributions and are often constructed as works-in-kind by developers. The following roads within the Precinct are intended to be funded using Section 94 contributions:

- St Andrews Road;
- Heath Road;
- Dickson Road;
- Park Road;
- Byron Road;
- Philip Road;
- Joseph Road;
- McCann Road;
- Anthony Road;
- Cordeaux Street;
- Woolgen Park Road; and
- Hills Road.

3.6 Rail

The South West Rail Link, which will comprise two stations at Edmondson Park and Leppington Major Centre, is expected to be completed by 2015. Once complete and operational, the rail link will enhance the accessibility of the Leppington Precinct to regional centres (such as Liverpool and Campbelltown) and the Sydney Central Business District. Further investigations into the corridor extension north to St Marys via the Badgerys Creek Airport, and south to Narellan, are currently being undertaken.

3.7 Health

An audit of existing health services and facilities surrounding the Leppington Precinct has been carried out by SGS Economics & Planning (SGS). SGS has also projected the number and type of health services and facilities required to accommodate the future population of the Precinct.

The capacity of the three public hospitals in Liverpool, Campbelltown and Camden will need to be expanded to cater for increased demand caused by urban development within the South West Growth Centre. These hospitals have a regional service catchment and will jointly service the South West Growth Centre.

The NSW Department of Health, South Western Sydney Local Health Network and private sector are responsible providers of health facilities and services for the Leppington Precinct and the South West Growth Centre. An Integrated Primary Care Centre is proposed for the Leppington Major Centre which will require funding by the NSW Department of Health.

3.8 Education

The NSW Department of Education and Communities (DEC) is responsible for the provision and operation of public primary and secondary schools, and TAFE colleges. The private sector can play a role in the delivery and operation of primary and secondary schools in addition to government operated schools. The uptake of private schools is dependent on market demand. SGS has undertaken an audit of existing education facilities within the immediate areas of the Leppington Precinct and determined the number and type of educational facilities required to be located within the Leppington Precinct.

The Leppington Precinct is currently served by an existing government primary school located on the eastern side of Rickard Road and just outside of the northern Precinct boundary. SGS projects that four primary schools and one secondary public school are required to cater for demand in education services and facilities for the Leppington Precinct. The ILP has accordingly reserved sites for these demanded school facilities. Additional demand for school facilities is expected to be accommodated through private school providers. Sites for private schools are not required to be nominated/reserved

at the precinct planning stage as the majority of residential and business zones that will be adopted for the Precinct permit 'educational establishments'.

3.9 Emergency Services

SGS has also analysed the demand for emergency services for the Leppington Precinct. Emergency service facilities include police, ambulance and fire stations. Two police stations are proposed at Leppington Major Centre and Catherine Fields North Precinct. Camden Ambulance Station will provide ample capacity in the short term and be supplemented by a proposed new ambulance station at Catherine Fields North Precinct.

SGS concluded that the existing and proposed emergency services in the Precinct's surrounds will cater for the Precinct up to the year 2046.

3.10 Community and Cultural

Community and cultural infrastructure requirements for the Leppington Precinct are outlined in the *Leppington Precinct Study (2012)* prepared by SGS Economics & Planning.

In general, the Leppington Precinct will benefit from planned community and cultural infrastructure (with a district catchment) planned in the Leppington North Precinct, such as a central library and performing arts centre. The community and cultural facilities required to serve the local needs for a projected population of approximately 20,000 (now revised to 23,680 as part of the precinct planning) in the Leppington Precinct are as follows:

- Cultural Facilities:
 - One (1) branch libraries; and
 - One (1) place of worship.
- Meeting Facilities:
 - Three (3) community halls;
 - One (1) multi-purpose community centre; and
 - One (1) youth centre.
- Early Year Services:
 - Four (4) child care centres; and
 - One (1) out of school hours care facility.

The provision and delivery of these facilities and services will lie with Camden Council, the private sector and non-government organisations. Three (3) sites for community centres have been nominated in the ILP. One of the community halls will be co-located with the multi-purpose community centre. The delivery of these centres will be funded through the Section 94 Contributions Plan. The early year facilities and services and place of worship would be funded through the private sector.

3.11 Open Space and Recreation

SGS has identified requirements for open space and recreation infrastructure for the Leppington Precinct. The specific requirements are outlined in the *Leppington Precinct Study (2012)* prepared by SGS.

The Precinct will benefit from regional open space, such as Western Sydney Parklands

SGS has recommended the following open space and recreation facilities to meet the local needs of the project population of 20,000 (now revised to 23,680 as part of the precinct planning) people for the Leppington Precinct:

- Four (4) local sportsgrounds;
- Three (3) playgrounds;
- Five (5) play spaces;
- Seven (7) local parks; and
- One (1) district park.

The need for additional district level sportsgrounds will be investigated based on an assessment of current and anticipated usage levels. The location, connectivity and quality principles of open space are considered in the *NSW Recreation and Open Space Planning Guidelines for Local Government*. These principles include:

- Converting or adapting existing open space;
- Strategic land acquisition to improve linkages and maximise open space resources;
- Integrating recreational facilities and programmes and co-locating with other services (e.g. schools);
- Using alternative, commercial facilities and venues for recreation on an opportunistic basis;
- Using new technologies and enhanced design;
- Providing increased indoor recreation facilities to ensure an equitable mix of outdoor and indoor recreation opportunities; and
- Rationalising facilities.

Open space and recreation planning for the Precinct also has regard to the *Camden Recreation and Leisure Strategy*, which encourages the provision of multi-purpose playing fields to maximise the use of high maintenance fields.

4 Infrastructure sequencing, coordination and next steps

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 infrastructure providers 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 Leppington Precinct.

4.1 The infrastructure delivery challenges

The development of the precinct will create demand for the provision of and upgrade to essential and non-essential infrastructure. Infrastructure needed to service greenfield development sites include roads, water and sewer, drainage facilities, public transport, health and community facilities, emergency services and open space. The demand for these infrastructure items requires input from infrastructure providers, State Government agencies, Councils and developers in the planning and delivery of these items.

The planning and delivery of essential and non-essential infrastructure for greenfield sites should be carried out in a coordinated and efficient manner. This ensures the provision of infrastructure at suitable locations and times during the various stages of urban development in greenfield sites.

This IDP communicates the processes involved in the planning, funding, staging and delivery of necessary infrastructure to support new urban development within the Leppington Precinct. Its core aim is to assist stakeholders understand these processes and how urban development should be staged in conjunction with known and unknown provision of infrastructure affecting the Leppington Precinct.

However, there are a number of fundamental challenges facing the efficient provision and timing of infrastructure within the Precinct. These challenges include the following:

- Funding arrangements and allocation;
- Fragmented land ownership and difficulties in land acquisition; and
- Planning approval processes.

Each of these challenges have been detailed in the following sections.

Funding Arrangements and Allocation

Sydney Water and Endeavour Energy operate on business principles of efficiency, value for money and return on investment. In essence, these infrastructure providers are reluctant to invest in infrastructure unless there is tangible evidence of future returns based on strong and steady development.

This is further complicated by the number of potential development fronts opened through the rezoning of land within the growth centres and acceleration precincts.

Fragmented Land Ownership

Fragmentation of land ownership in greenfield sites constrains orderly development of urban development and the delivery of necessary infrastructure to support new urban development. High levels of land ownership fragmentation can prove difficult for Council or other government authorities to acquire land for infrastructure or public benefit purposes.

These areas of fragmented land ownership can significantly delay the provision of lead-in infrastructure for the both the public sector (service mains and treatment/generation facilities) and the private sector (reticulation services). However, although the State government has greater acquisition powers, they require justification to demonstrate that development will be provided with sufficient numbers and within a reasonable time before a commitment can be made to fund the lead-in infrastructure delivery.

Large land holdings in single ownership, or a coordinated consortium of landowners/developers, have greater ability to demonstrate a commitment to providing urban development.

Infrastructure Providers

Each of the infrastructure providers have, or are developing, a program for the delivery of service infrastructure to the Leppington Precinct.

As the rate of development of the Leppington Precinct will be dependent on the market, the current programs for infrastructure delivery assumed by the infrastructure providers 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. Sewer capacity will be limited to the northern portion of the Precinct with no further commitment for the extension of the Bringelly Road Carrier into the Precinct. This extension will not be provided until significant development is anticipated within a known timeframe. 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.
- The Leppington South Zone Substation will provide electricity supply, due for construction in 2014, as part of the adjoining East Leppington Precinct. 132kV lines can be readily aligned within existing road reserves throughout the Precinct. However, the ultimate development of the Precinct will require the planning, land acquisition, development approval and construction of the Leppington Zone Substation.
- 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.
- While the trunk infrastructure will generally be provided by the infrastructure providers, 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.

4.2 Initial Development Areas

The fragmented nature of the Leppington Precinct makes it extremely difficult to determine the likely development fronts for the Precinct. However, there are a number of factors that can be taken into consideration to identify potential development fronts, or significant pockets of development opportunities. These factors are:

- The serviceability of the area based on existing infrastructure, or infrastructure requiring minor upgrades, extensions and/or augmentations;
- Market demand for development within a particular area; and
- Areas of consolidated land ownership.

Serviceability

The provision of urban development requires critical infrastructure to service the needs of the new development. The Precinct currently has access to limited spare capacity for water, gas and electricity. However, this spare capacity may be utilised by developments within adjoining Precincts.

The major service limitation to initial development within the Leppington Precinct is the alignment of the Bringelly Road Carrier. This carrier serves the Leppington North Precinct but will stop at the northern boundary of the Leppington Precinct. Any future extension of this carrier would require a coordinated landowner/developer proposal and commitment. This area would be the most likely initial urban development opportunities within the Precinct and are illustrated Figure 10.

The Stockland development in East Leppington provides an opportunity for service connections, subject to detailed design requirements and infrastructure provider approvals, to the eastern portion of the Leppington Precinct.

Market Demand

It is anticipated that market demand for urban development will increase in the Precinct as a result of current and likely developments within the adjoining Precincts. The construction of the South West Rail Link, and supporting rail infrastructure, and the future Leppington Town Centre will likely increase market demand within the northern portion of the Precinct.

The Stockland residential development within the East Leppington Precinct may potentially increase demand for further residential development to the eastern portion of the Leppington Precinct.

Land Ownership

The land ownership within the Precinct is extremely fragmented. There are no clear pockets or areas of single land ownership. Any potential infrastructure delivery acceleration to the Precinct would

require significant coordination between landowners/developers, with a strong commitment to providing urban development.

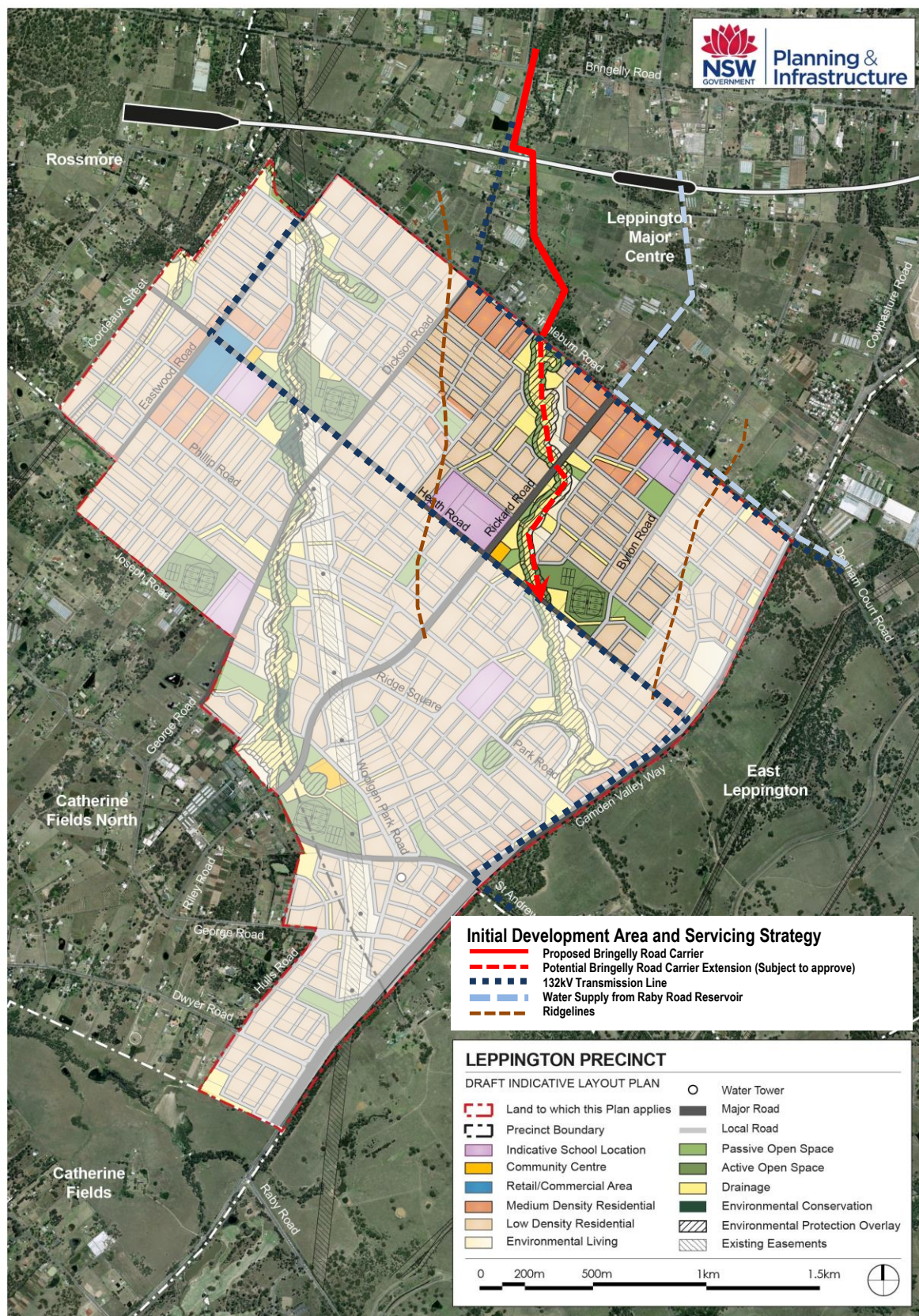


Figure 10: Indicative Initial Development Areas and Servicing Strategy

4.3 Key Issues for coordinated infrastructure delivery

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

- Alignment of drainage corridors and major road alignments;
- Allowances and appropriate land uses within existing easements of the electricity transmission lines; 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 Leppington Precinct.

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.

4.4 Local infrastructure delivery strategy for the Precinct

A Section 94 Contributions Plan is currently being prepared to address the local infrastructure requirements for the Precinct. This contributions plan will include essential and non-essential infrastructure. The staging plans for this infrastructure should accord with the indicative initial development areas identified in this IDP.

The development contribution limits and the existing constraints on the Camden Council's ability to fund infrastructure means that even greater emphasis should be placed on partnering with developers to provide the necessary local infrastructure. Such arrangements must be consistent with any contributions plan and the constraints set by the cap and could include mechanisms such as planning agreements and works-in-kind agreements.

Camden Council, with assistance from the State Government, should consider preparing an infrastructure strategy, oriented toward making it easier for developers and other parties to deliver local infrastructure. A similar strategy has been prepared for the Austral Leppington North Precinct.

4.5 Next steps in infrastructure delivery

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

During the ILP exhibition period, there will be opportunities for interested parties to view the various studies and plans and to discuss infrastructure servicing issues with representatives of the Department of Planning and Environment. Landowners are particularly encouraged to take this

opportunity to learn as much as possible about the issues surrounding, and the opportunities available for, the future development of land within the Precincts.

Infrastructure providers will also commence more targeted planning and detailed design of infrastructure to specific timeframes and prepare preliminary costs for the works.

5 References

AECOM Australia Pty Ltd (2013), *Leppington Precinct – Transport and Access Strategy*, prepared for NSW Department of Planning and Environment.

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NSW Department of Planning (2010), *Local Development Contributions Practice Note for the assessment of contribution plans by IPART*.

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Sydney Water Corporation (2010), *Sydney Water's Growth Servicing Plan July 2010 to June 2015*.