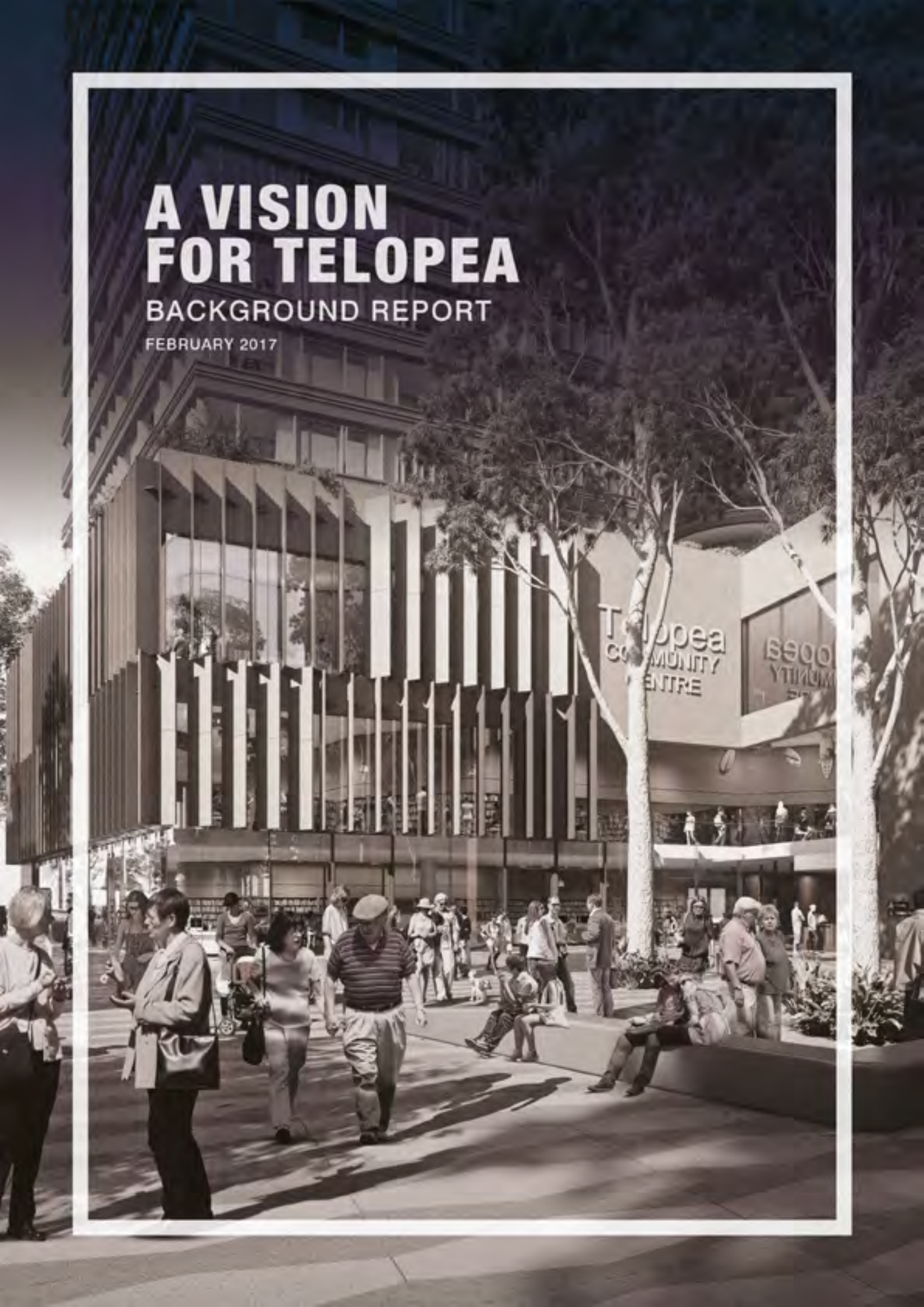
A VISION FOR TELOPEA

BACKGROUND REPORT

FEBRUARY 2017



1. INTRODUCTION

NSW Land and Housing Corporation (LAHC) have partnered with City of Parramatta Council (CoP) to plan for a sustainable and feasible urban renewal outcome for Telopea. The renewal plans to unlock Telopea's potential to be an active and safe neighbourhood with a unique identity within greater Parramatta.

This document supports the master plan, summarising the additional urban design and planning analysis and technical advice prepared during the master planning process.

The technical advice has been provided ensuring that the master plan responds to Telopea's existing capacity, future potential, community feedback and key drivers.

Advice was provided from the following specialists:

- Traffic and transport
- Social and community infrastructure
- Ecology
- Utilities and services infrastructure
- Contamination
- Flooding and stormwater
- Heritage
- Retail demand

In August and September 2016, LAHC and CoP presented the draft Telopea Master Plan at a series of community engagement events. The draft master plan was made available online and feedback was received from the community in the form of verbal comments at events, feedback forms and formal written submissions.

The Telopea Master Plan Stakeholder Engagement Report outlines the community engagement events, the comments received and how the final master plan responds to the comments from the community.

In October 2016, LAHC engaged an independent expert panel to review the draft master plan and comments received from the community during the engagement process. The independent panel included expertise regarding urban design, urban planning, architecture, traffic and transport, community engagement, social infrastructure, crime prevention and safety, development delivery and sustainability.

The outcomes and recommendations of the independent expert review panel are outlined in Expert Review: Draft Telopea Master Plan (October, 2016) and the final master plan's response to these issues are outlined in the Response to Expert Review of the Telopea Master Plan report.

The final Telopea Master Plan has been amended to respond to comments made by both the community and the expert review panel. The Background Report includes the additional analysis that has informed these changes.

REPORT STRUCTURE

The structure of this report is:

1. Introduction

2. Context and Site Analysis
   - Regional Context
   - Proximity to Services and Facilities
   - Access and Movement
   - Public Domain and Open Spaces
   - Existing Built Form
   - Existing Development Potential
   - Existing Planning Controls
   - Potential Apartment Typologies
   - Built Form Precedents

3. Detailed Analysis and Options
   - Urban Structure
   - Road Hierarchy and Traffic Management
   - Retail Options Analysis
   - Core Area
   - Proposed Height of Buildings
   - Options for 3-4 storey area
   - Yield and Population Projections

4. Assessment of the Master Plan
   - View Analysis
   - Shadow Impacts
   - Technical Advice

5. Key Changes to the Master Plan

URBIS

TELOPEA STUDY AREA

2. CONTEXT AND SITE ANALYSIS

The following section outlines the key considerations driving and informing growth and renewal in Telopea.

REGIONAL CONTEXT

Telopea is located within Sydney's Global Economic Corridor – the hub of economic activity stretching from Port Botany and Sydney Airport to Parramatta, Norwest and Sydney Olympic Park. Telopea is well located to benefit from access to employment and investment within this corridor.

Telopea is located within Sydney's first Collaboration Area, the Greater Parramatta and the Olympic Peninsula (GPOP), identified by the Draft Central West District Plan (released November 2016). The area is marked to play a pivotal role within the District and Greater Sydney's productivity, liveability and sustainability and is set to be the unifying heart at the centre of Greater Sydney.

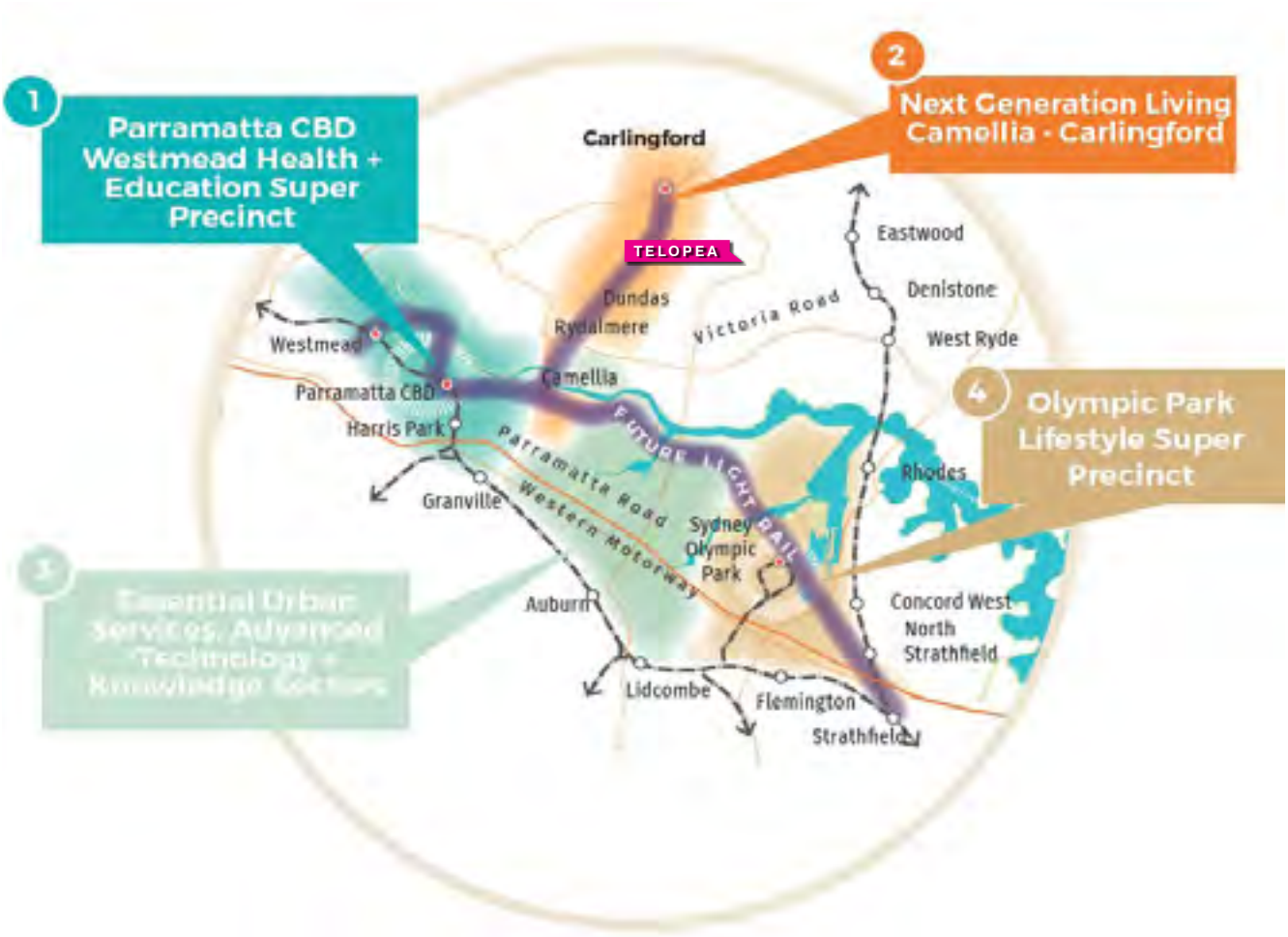
Telopea is located within the north-south arm of the GPOP that runs from Carlingford to Lidcombe and Granville, as shown in the Figure. This arm is identified as a focus for next generation living. This area is currently, and will continue to, undergo significant change and renewal as industries move out of this area of Sydney providing the opportunity for new homes, jobs and community facilities between Sydney and Parramatta CBDs. Telopea will benefit from the change and renewal as the area becomes a more attractive place to live.

The future Parramatta Light Rail network will improve public transport access to new services from Telopea to the Greater Parramatta to Olympic Peninsula Priority Area, including the Parramatta CBD, Westmead and Sydney Olympic Park. The light rail network will integrate with heavy rail, creating better connections to Sydney CBD.

The liveability priorities and actions set out for the West Central District include:

- Improving housing choice
- Improving housing diversity and affordability
- Coordinating and monitoring housing outcomes and demographic trends
- Creating great places
- Fostering cohesive communities
- Responding to peoples need for services Greater Sydney's and Australia's fastest growing population district.

These priorities have been paramount in the development of the Telopea Master Plan.



Strategic Context

PROXIMITY OF SERVICES AND FACILITIES

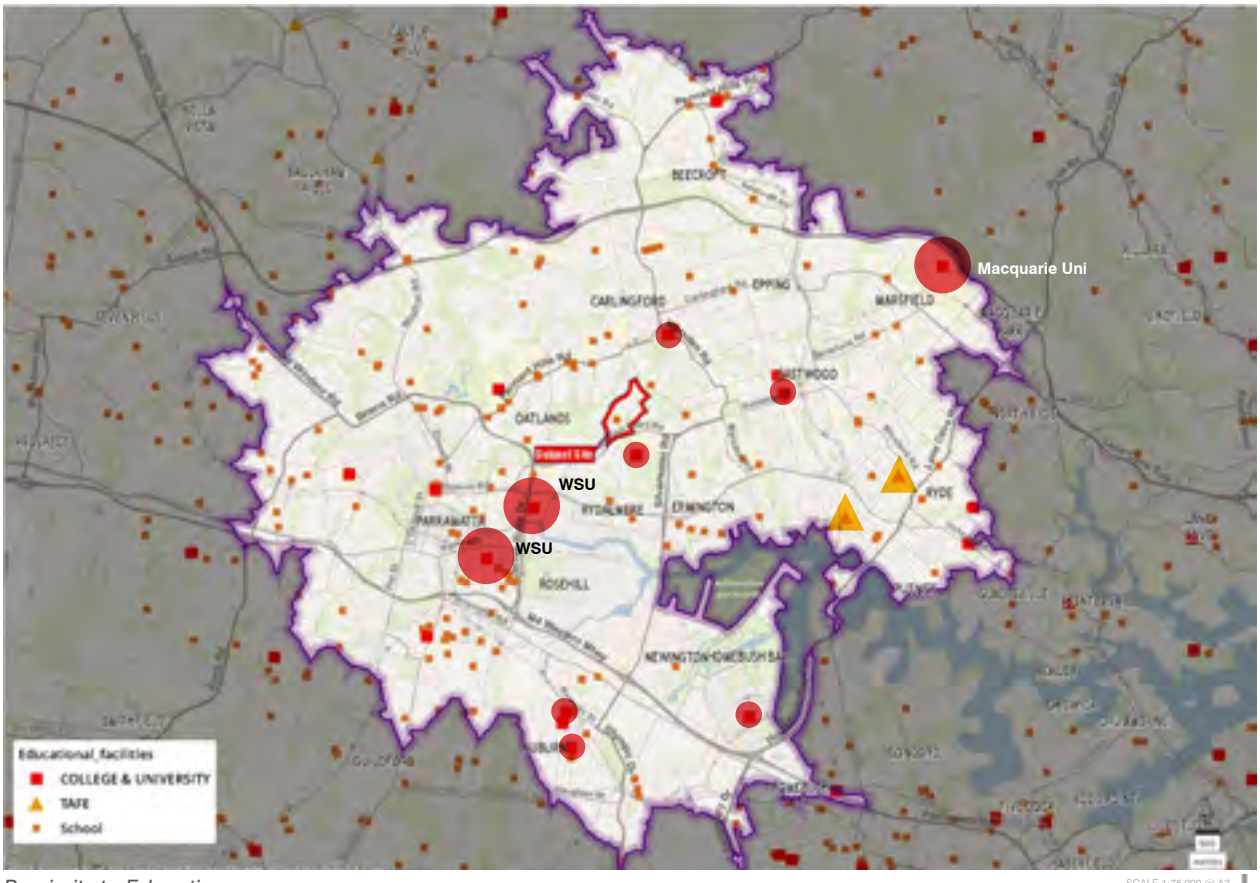
Telopea has good access to a wide range of services and facilities. This section outlines the facilities within easy driving, cycling and walking distance for residents.

The existing and future access to services makes Telopea a highly attractive location for people to live.

EDUCATION

Within 10 minutes driving catchment, Telopea has access to a range of public and private schools, as well as several established colleges, universities and TAFEs.

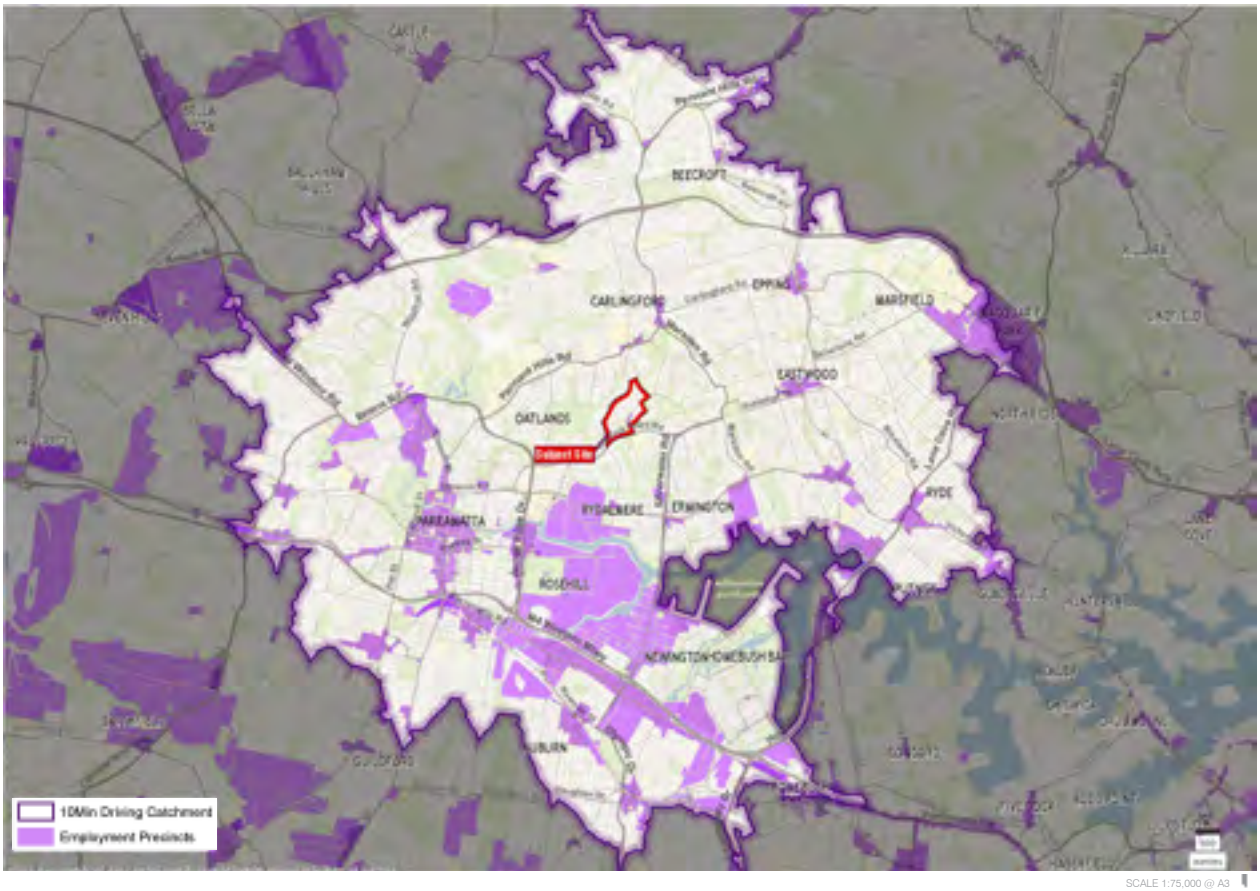
- **Primary School:** Carlingford Public School, Carlingford West Public School, Dundas Public School, Ermington West Public School, Yates Avenue Public School and Telopea Public School.
- **High School:** James Ruse Agricultural School, Cumberland High School, St Patrick's Marist College, Marsden High School, Tara Anglican School for Girls and The Kings School.
- **College and Universities:** Western Sydney University (WSU), Macquarie University, Macquarie Community College, United Theological College, James An College Eastwood.
- **TAFEs** : English Language Centre Meadowbank and the Northern Sydney Institute Ryde Campus.



Proximity to Education

EMPLOYMENT

Telopea is located centrally to a number of employment precincts in Sydney, including Parramatta CBD, Macquarie Park, Norwest Business Park, Sydney Olympic Park and Rydalmere. The new light rail network will improve public transport access to a number of these centres.

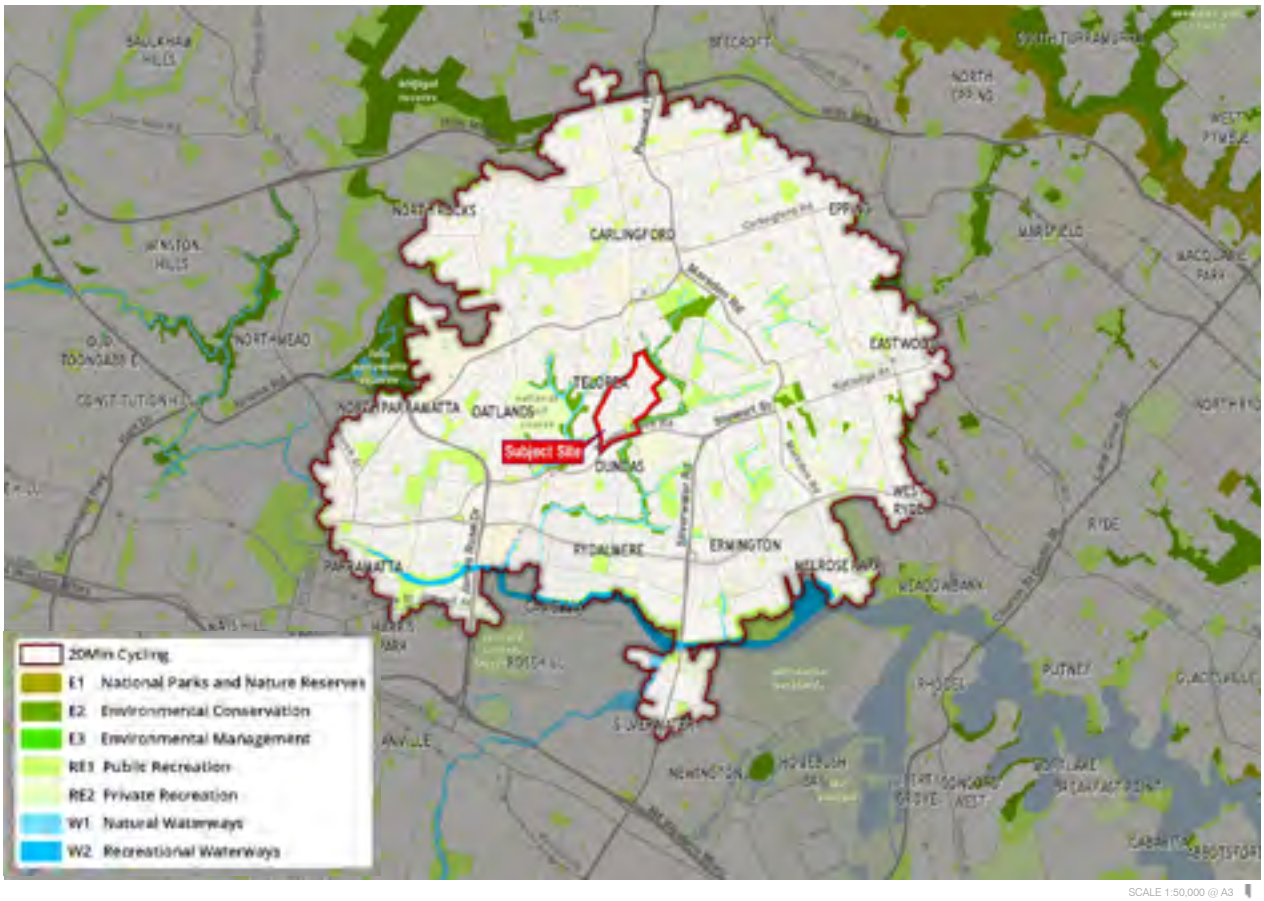


OPEN SPACE AND RECREATION

There is approximately thirty hectares of open space within or adjacent to the master plan area. The two key areas of open space are Sturt Park (3 ha) and Acacia Park (1.5 ha). Around the master plan area there is ample supply of passive and active open space, such as The Ponds Creek, Iona Creek, Subiaco Creek and Vineyard Creek. It is estimated that 197 ha of open space is available within a 2 km radius of the Precinct, with 330 ha of open space within a 20 minute cycle of the master plan area. The total area provided for open space exceeds benchmark standards for existing suburban areas (Department of Planning, 2010).

There is also an area of open space immediately east along the existing train line and north of Telopea train station identified as the Carlingford to Telopea Greenway,

There are also a number of existing sports and leisure facilities within 2 km of the master plan area, including: Oatlands Golf Club; Telopea Skate Park; TAB Dundas Sports & Recreation Club; Brush Park Bowling Club; Dundas Park; Curtis Oval; Carlingford Bowling Club; Vikings Sports Club; and TKS Sports Centre.



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RETAIL AND ESSENTIAL SERVICES

Telopea is currently serviced by a small shopping strip along Benaud Place which caters for day to day needs of existing residents. There are a number of larger shopping precincts around Telopea which provide residents with a wider range of retail options, including:

- Regional Centre: Westfield Parramatta (south-west).
- Sub-regional Centres : Westfield North Rocks, Carlingford Court Supermarket Centre: Carlingford Village, Eastwood Shopping Centre, West Ryde Urban Village, West Ryde Marketplace, Newington Marketplace and Northmead Plaza.

Any growing population in Telopea will support the expansion of retail services in Telopea and improve access to shops and services for existing and future residents.

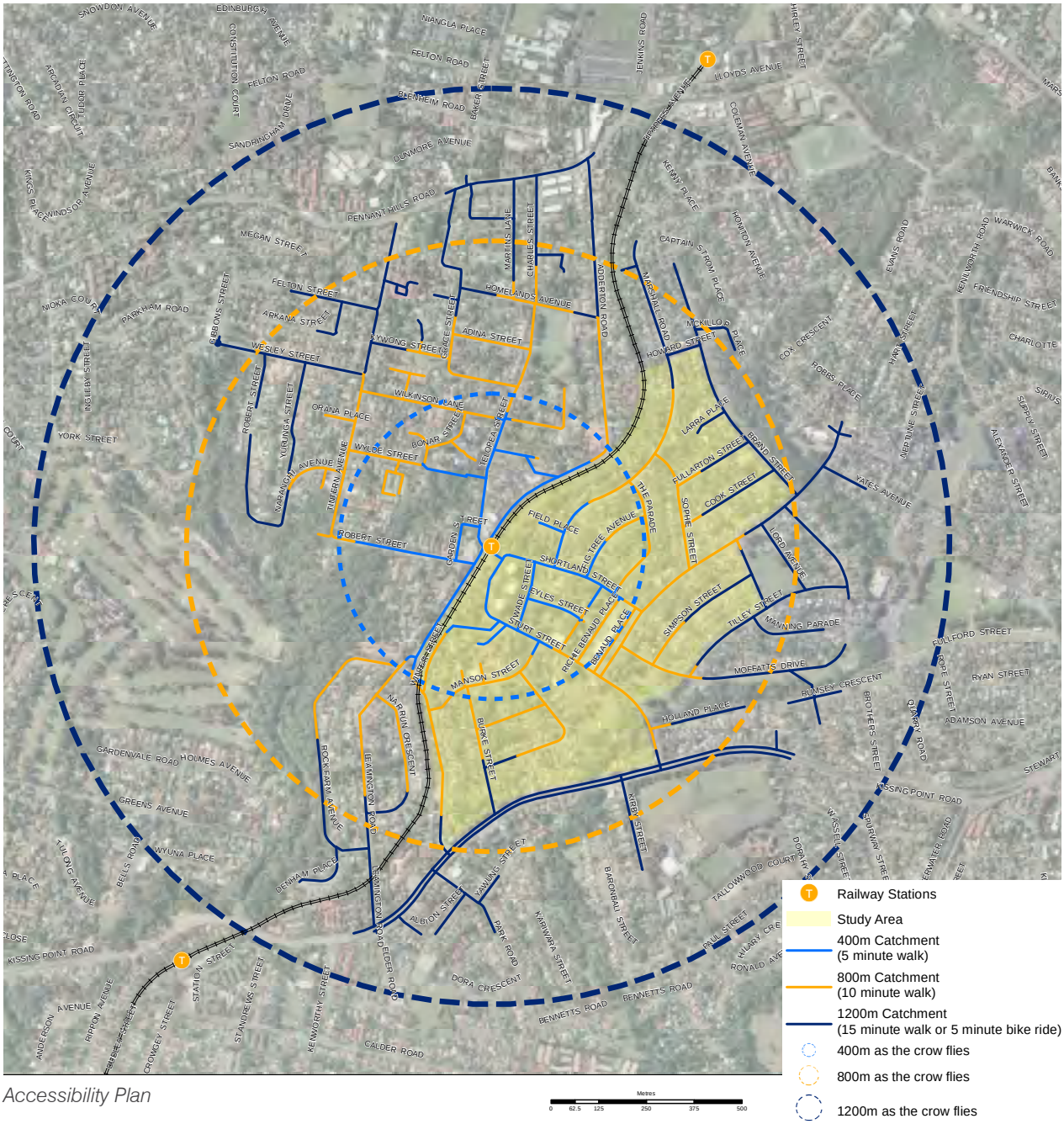
ACCESS AND MOVEMENT

The Telopea master plan area is located with an 800m radius east of the existing heavy rail station. Telopea is a well established suburb with a generally well functioning road, cycle and pedestrian movement networks. The majority of the precinct is within a 10 minute walking distance to the existing station.

The key issues affecting movement through Telopea are:

- the topography and impact on ease of walking and cycling;
- and the disconnected road network.

The renewal of Telopea provides the opportunity to improve the existing access and movement network, particularly in the core area.



Accessibility Plan

ROAD NETWORK

The existing road network provides good connections to the majority of the precinct. However, there are some areas where the existing road network is not ideal and improvements can be made to improve functionality and safety.

The key areas for improvement are:

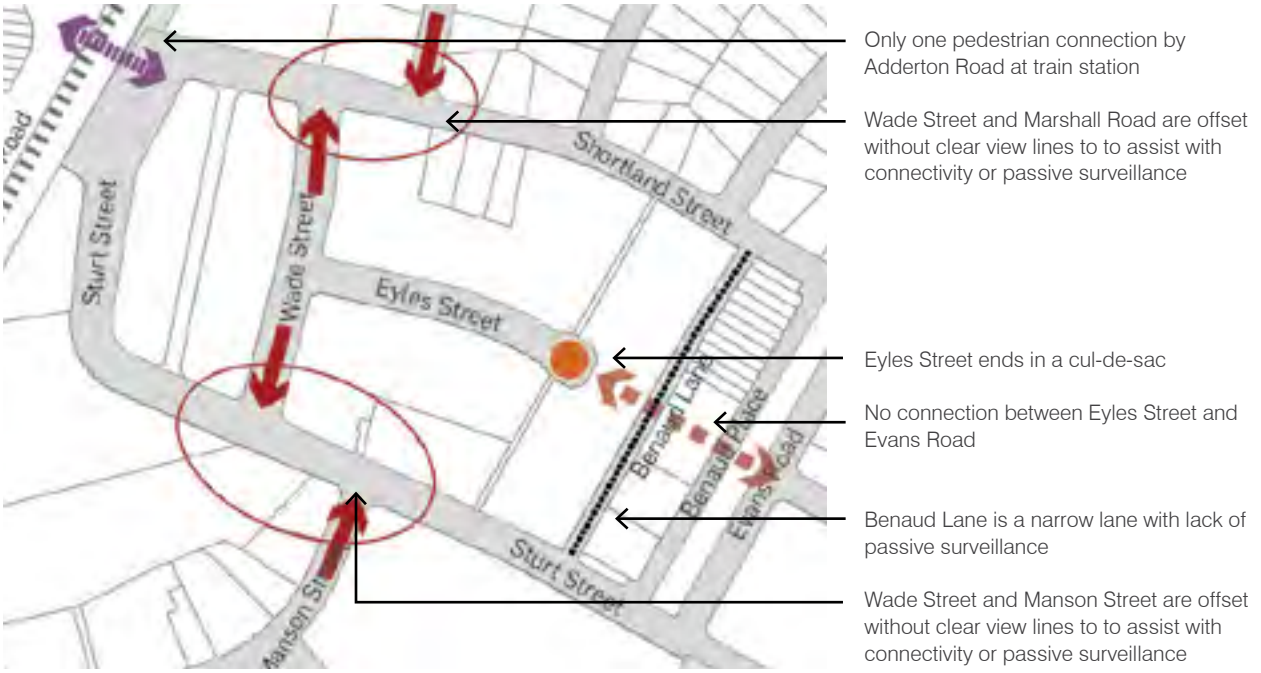
- **Road hierarchy:** the existing road network does not show a clear paths of travel for vehicles, resulting in some local roads and intersections being heavily trafficked (particularly with through-traffic).
- **Barriers to movement:** there are several barriers to movement within, to and from Telopea:
  - the heavy rail corridor affects movement across the rail line with only one narrow and awkward crossing at the existing train station and only one connection to the master plan area at the intersection of Adderton Road and Manson Street.
  - there are no direct connections north and south of Shortland Street and Sturt Street in the Core area.
  - Evans Road is a key connection between Pennant Hills Road and Kissing Point Road but intersects at a 90-degree angle with Sturt Street to link to Kissing Point Road.
- **Safety issues on narrow roads:** several local roads (eg. Marshall Road and Manson Streets) are narrow and, when combined with cars parked on both sides of the street, affect safety and movement for vehicles (particularly buses).

ACTIVE TRANSPORT

The existing road network provides good walking and cycling connections across the majority of the precinct, with most of it being within a 10 minute walk of the existing station. However, the following could be improved to encourage more active transport in the area:

- **Connectivity** - the walking and cycling networks suffer from the same barriers to movement as the road network (discussed above). The lack of crossing options over the rail line affect east-west movement and development in the core affect north-south movement within the precinct.
- **Topography** - the hilly landscape affects the ability for many residents to easily move around telopea, particularly with the heavy rail at the top of the hill and shops and Sturt Park at the bottom of the hill.
- **Lack of footpaths and cycleways** - there are few streets with footpaths in Telopea and where they are located they are often narrow.
- **Safety/comfort** - due to the topography and design of buildings, many pedestrian connections are not well utilised. Very few pathways are illuminated at night with lighting, covered by awnings to provide shelter from the sun and rain and are not supported by seating to provide rest points.

The Telopea master plan area is located with an 800m radius east of the existing heavy rail station. The existing road network provides good walking connections with the majority of the precinct, with most of it being within a 10 minute walk of the existing station.



Accessibility Constraints Plan

PUBLIC DOMAIN AND OPEN SPACES

OPEN SPACE AND RECREATION

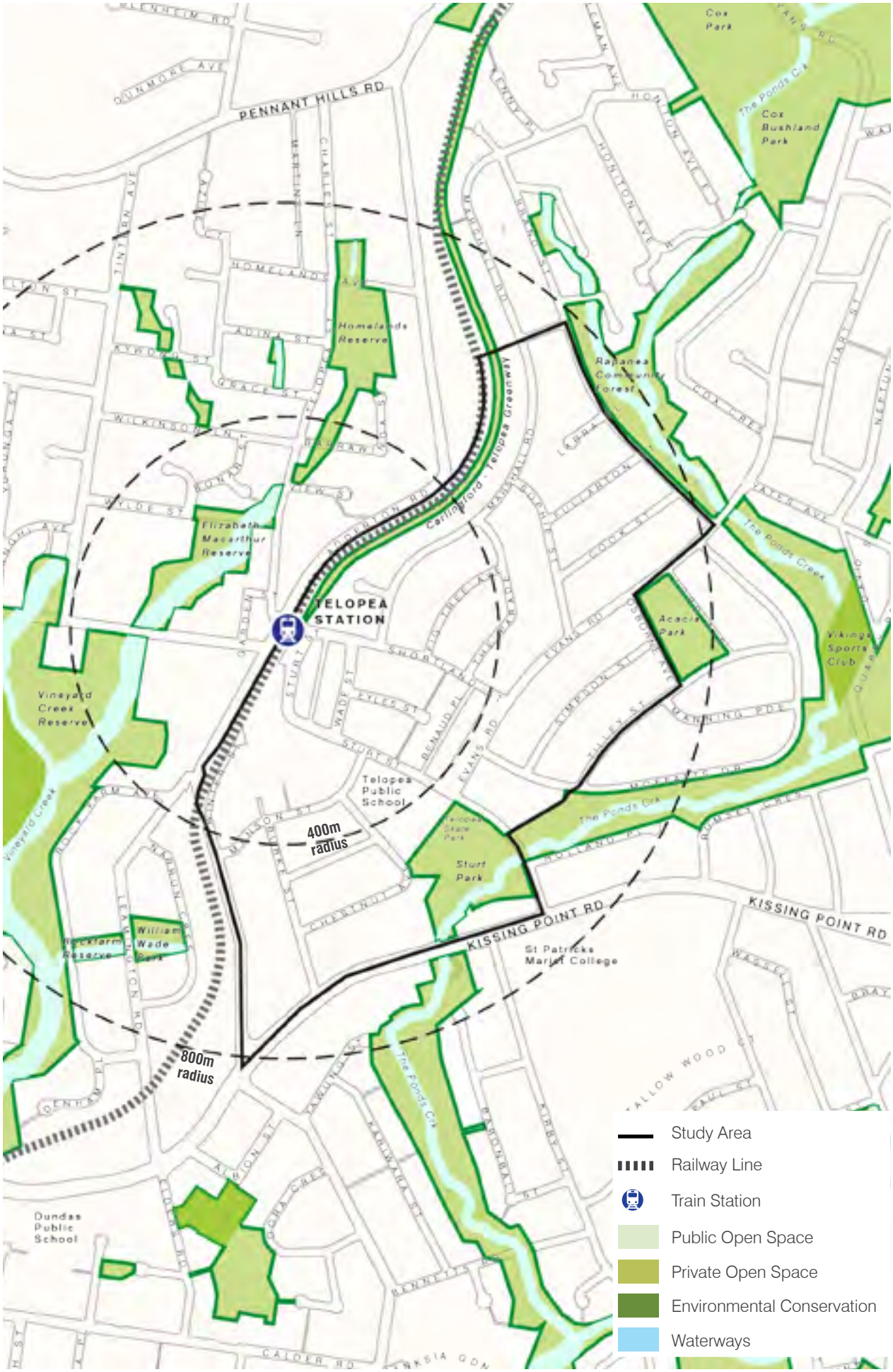
Residents of Telopea have access to a number of parks with a variety of functions, including active facilities in nearby Dundas Park, local active facilities in Sturt Park, passive recreation at Acacia Park, landscaped pathways in the Greenway and environmental features in Rapanea Community Forest.

1. STURT PARK
Large public open space with skatepark

2. ACACIA PARK
Top of ridge, offering local vistas

3. RAPANEA COMMUNITY FOREST
Environmental conservation zone.

4. GREENWAY/GREEN LINK
Open space strip beside railway



Open space around Telopea

SCALE 1:7,500

STURT PARK

Sturt Park is located on Sturt Street, immediately south of Telopea Public School. It comprises walking paths, a skate park, playground and sporting fields (basketball and tennis courts). Other observations include:

- Adequate facilities, but needs more activation close to street to invite usage;
- Skate park is well located near school and existing retail facilities;
- Open lawn/playing field + kick about space in good condition;
- Toilet amenity is not easily visible or surveilled;
- Good canopy trees around open lawn area, offering shaded spaces rest and cooling;
- Poor passive surveillance due to street frontage limited to Sturt Street; and
- Provides connection to the environmental conservation zone of The Ponds Creek.

ACACIA PARK

Located at a high point terminating at the top of a ridge, Acacia Park offers local district views to surrounding areas. Other characteristics include:

- Land falls on all four sides of the bounding streets due to its high location;
- Its location at the top of ridge, offering views and vistas out towards the wider Telopea area, back towards the train station and across the valley;
- The park has a good quality children's playground;
- Open lawn and kick about space;
- Mature perimeter trees around the park offers good amount of shade; and
- Current usage of park appears restricted to immediate neighbourhood due to its high location and limited signage.

RAPANEA COMMUNITY FOREST

Located on the eastern edges of the Telopea master plan area, Rapanae Community Forest is a densely vegetated linear environmentally managed area occurring along the Ponds Creek corridor. Other characteristics include:

- Childrens play space located along grass strip;
- Potential to accommodate an off-road cycleway adjoining the environmental corridor;
- Access to Ponds Creek and bush walking; and
- Provides a high amenity interface for dwellings across the street.

GREENWAY CORRIDOR

The Carlingford-Telopea Greenway runs on the eastern side of the railway line. Characteristics include:

- Wide lawn strip between railway and private property boundaries;
- Poor security, views and passive surveillance; and
- Opportunity for active transport for cycleway/ pedestrian link once the light rail operates.

STREETSCAPES

There are a number of characteristics defining the streetscape in Telopea. The master plan will address how these streetscapes can be improved. The defining characteristics include:

1. UNDEFINED PUBLIC AND PRIVATE SPACES

- Poor definition between private boundaries and public space/footpaths;
- Lack of consistent setbacks in the core area around ageing housing stock; and
- Poor orientation of ageing buildings in the core area that does not address a clear frontage.

2. LACK OF AMENITY

- Lack of street furniture or rest stops;
- No footpaths or damaged footpaths caused by uprooted trees; and
- Lack of street definition or visual markers.

3. MATURE TREES

- Large amount of mature canopy trees in both public realm/streetscape as well as inside private property;
- Provides natural shading and cooling from harsh conditions; and
- Attracts birds and wildlife.

4. SLOPING LAND & POOR ACCESS

- Between Telopea rail station and the retail shops there is a steep slope with poor access and connectivity via central streets;
- The core area with ageing housing stock acts as a barrier for north-south movements due to poor spatial definition; and
- Benaud Lane opposite the back of Waratah Shops is steeply sloping with poor public domain definition due to the ramps and car parking.

Streetscape around Telopea

SCALE 1:7,500

GREEN LINK OPPORTUNITIES

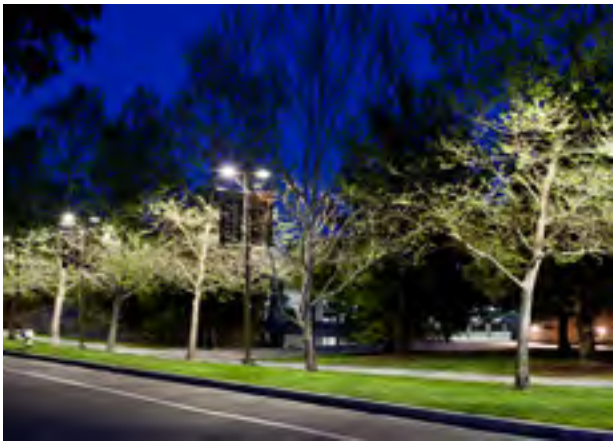
Telopea residents have good access to a range of parks and recreational facilities within and immediately outside the study area. There is the opportunity to improve connection to and between these parks to encourage more activity in Telopea.

However, all formalised public parks are located on the outer areas of Telopea and there is the opportunity to provide new public spaces (parks and plazas) within the central core of Telopea.

Green corridor light rail - Bilbao, Spain

Green connections within Telopea

On street cycle connection - Surry Hills



Street lighting at human scale

Off street cycle connection - Ottawa, Canada

Street seating amenity - fronting retail

EXISTING BUILT FORM

There is currently approximately 1,400 existing (or under construction) dwellings in Telopea. This is a mix of medium rise apartments, dwellings houses, high rise apartments and townhouses. The study area is characterised by very old housing stock with some recent infill development. Other characteristics of existing built form include:

- Ageing housing stock within the core area is set well back from the street with poorly defined territorial boundaries;
- Lack of street address with clearly identifiable dwelling numbers or letter boxes;
- Poor surveillance of streets and public domain;
- Inconsistent street orientation and setbacks of ageing housing stock for surveillance of natural solar access;
- Homogenous building forms, scale, colours and materials create the appearance of sameness across the estate; and
- Low visual and physical quality of some buildings detracts from the streetscape.

OWNERSHIP

Fragmented ownership limits the opportunity for redevelopment. However, within Telopea there has been gathering interest from the private sector in consolidating smaller blocks to develop into attached dwellings or apartment buildings. Ownership of land in Telopea includes:

- City of Parramatta Council owns the Dundas Community Centre, roads and parks.
- LAHC own approximately 45% of the housing stock in the study area. Most of the LAHC stock is located within the core area.
- Remaining parcels are privately owned.

Building Types in Telopea

PEOPLE & DEMOGRAPHICS

Telopea's current population is estimated around 3,000 people (based on an occupancy rate of 2.1 persons per dwelling). The key existing demographic characteristics of the master plan area are (by comparison to Parramatta LGA and Greater Sydney):

- Well below average yearly incomes;
- Higher than average proportion of people aged 40 years and above;
- Lower than average proportion of people aged under 14 years. Lower levels of home ownership and higher levels of rent;
- Lower rates of car ownership; and
- Higher rates of non-family and lone person households.

This characteristics are likely to change as new development occurs and the mix of housing moves away from a high properties of social housing

EXISTING APARTMENT BUILDINGS

ATTACHED DWELLINGS

SINGLE DWELLINGS

VILLAS

EXISTING DEVELOPMENT POTENTIAL

A majority of the study area is currently zoned R4 High Density Residential or R3 Medium Density Residential and allows for some redevelopment. Some development has occurred over recent years, but is generally limited to larger or corner sites that do not require amalgamation of adjoining sites. This is indicative of a lack of viability of the current controls.

The existing development potential in Telopea permits up to 2,000 – 2,500 additional dwellings. This includes the previous Part 3A Concept Plan approved in 2010 for the LAHC owned land which, if delivered, would provide approximately 1,300 additional dwellings on the sites that have not recently been developed.

Telopea Concept Plan 2010 (Source: AAUD)

EXISTING CONTROLS

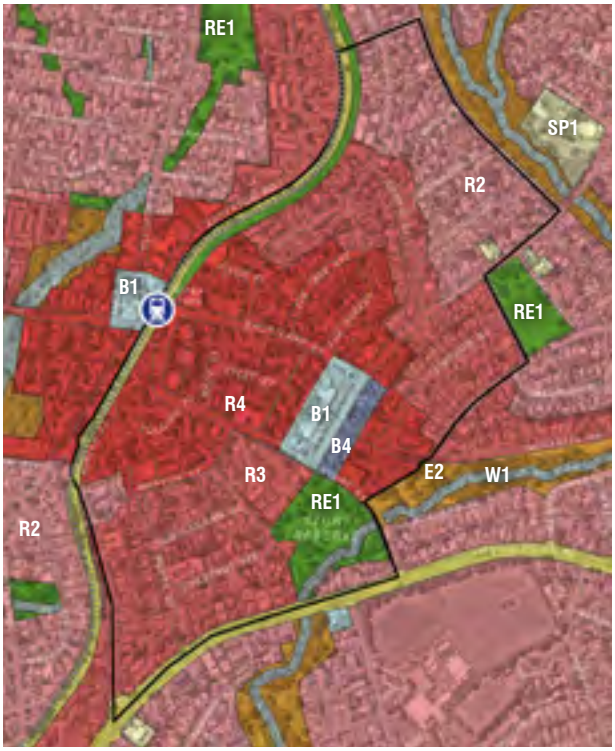
HEIGHT

Proposed maximum heights are currently at 20m limited to the core area bounded by Polding, Benaud Place, Sturt and Shortland Street.

FSR

No FSR control is currently designated for the core area. Beyond this, FSR currently ranges between 0.5:1 to 2:1 proposed for the neighbourhood centre and mixed use zoning.

However, under the Part 3A approval, FSRs up to 2.0:1 apply to the core.



B1	Neighbourhood Centre
B4	Mixed Use
E2	Environmental Conservation
E3	Environmental Management
R2	Low Density Residential
R3	Medium Density Residential
R4	High Density Residential
RE1	Public Recreation
RE2	Private Recreation
SP1	Special Activities
SP2	Infrastructure
W1	Natural Waterways

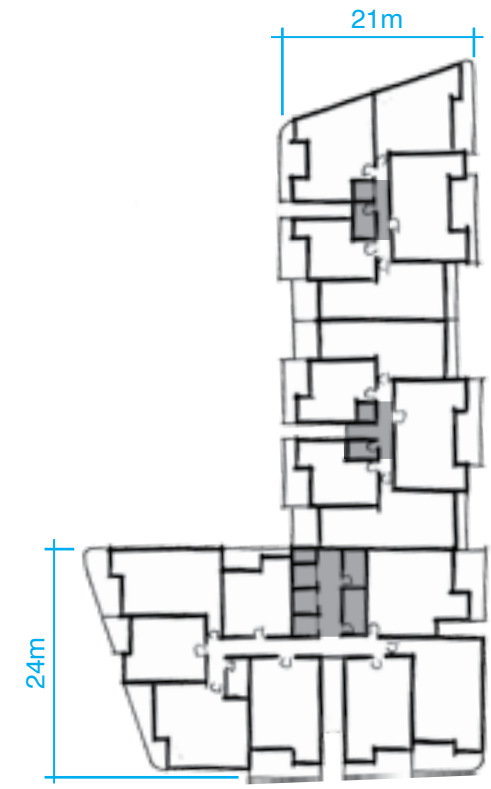
LEP Map 2011 - Zoning (LZN)

LEP Map 2011 - Height of Building Map (HOB)

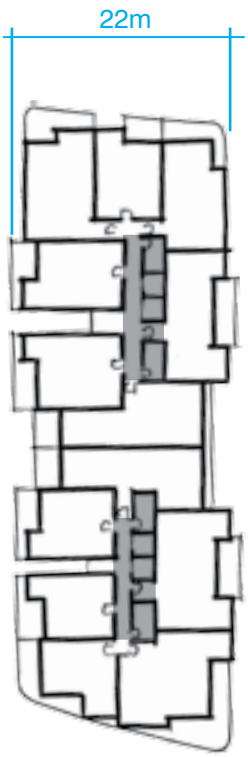
LEP Map 2011 - Floor Space Ratio (FSR)

POTENTIAL APARTMENT TYPOLOGIES

The following diagrams illustrate potential apartment typologies that can be accommodated in the core to meet the Apartment Design Guide (ADG).

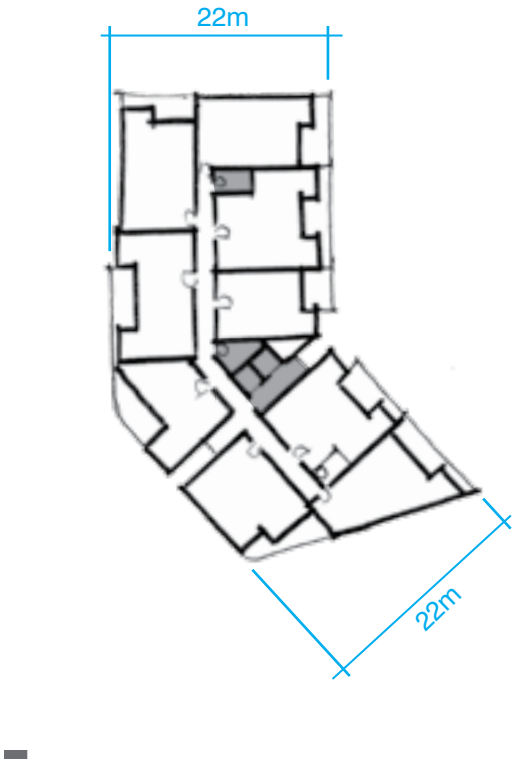


Apartment Floor plan - type 1



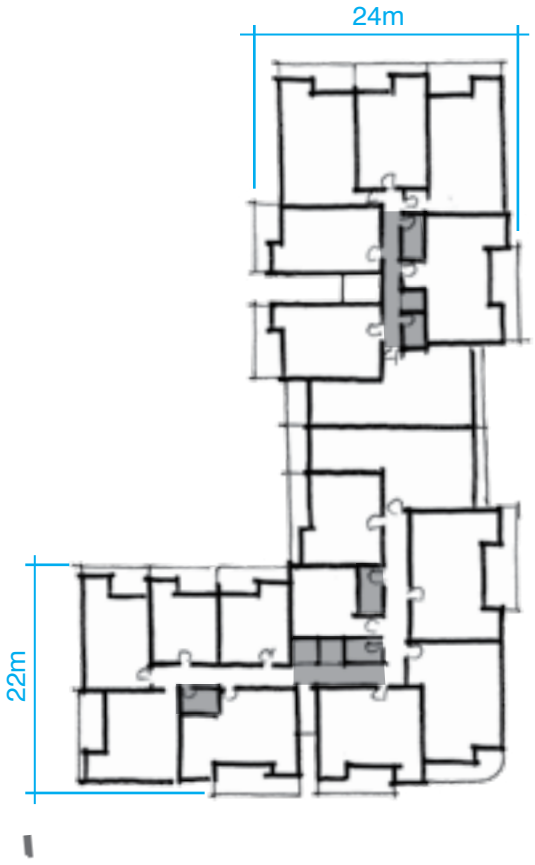
Apartment Floor plan - type 2

Apartment Floor plan - type 3



Apartment Floor plan - type 4

Apartment Floor plan - type 5



Apartment Floor plan - type 6

BUILT FORM PRECEDENTS

Built form across Sydney has evolved significantly over recent years, particularly with taller buildings and higher densities in previously suburban areas with good access to public transport. The higher densities allow for more people to live in areas that are accessible to employment, education and other services and benefit from other urban amenities.

Some examples for higher densities have been assessed to identify potential approaches to built form in Telopea such as the examples shown in the following pages.

Typical medium density typology in Carlingford (Source Google Streetview)

Typical medium-high density typology in Carlingford (Source Google Streetview)

Typical medium-high density typology in Carlingford (Source Google Streetview)

CARLINGFORD

Is an example of a mix of high density (up to 16 storeys) and medium rise apartments (4-5 storeys). Take up indicates a strong market of people wanting to live in apartments in the local area.

Typical medium density typology in Carlingford (Source Google Streetview)

Typical high rise, high density typology (25 storeys) in Rhodes (Source Google Streetview)

Typical medium density typology in Rhodes (Source Google Streetview)

Typical medium density typology in Rhodes - 8 storeys (Source Google Streetview)

RHODES

Is an example of area with street defining buildings with taller buildings located at important location such as open spaces.

Typical medium density typology in Rhodes - 5 storeys (Source Google Streetview)

Typical high density typology in Victoria Park

Typical retail/ ground floor activation in Victoria Park

Typical high density typology in Victoria Park

VICTORIA PARK

Is an example of high quality design with retail and community uses integrated with high and medium rise apartment buildings.

Typical retail / ground floor activation in the Village Balgowlah

Typical high density typology in the Village Balgowlah

Major entrance to the shopping centre in the Village Balgowlah

THE VILLAGE BALGOWLAH

Is an example of residential development integrated with retail and cafes, allowing easy access to services by residents living immediately above.

Internal escalator to accommodate circulation through different levels in the main retail of the Village Balgowlah

3. DETAIL ANALYSIS AND OPTIONS

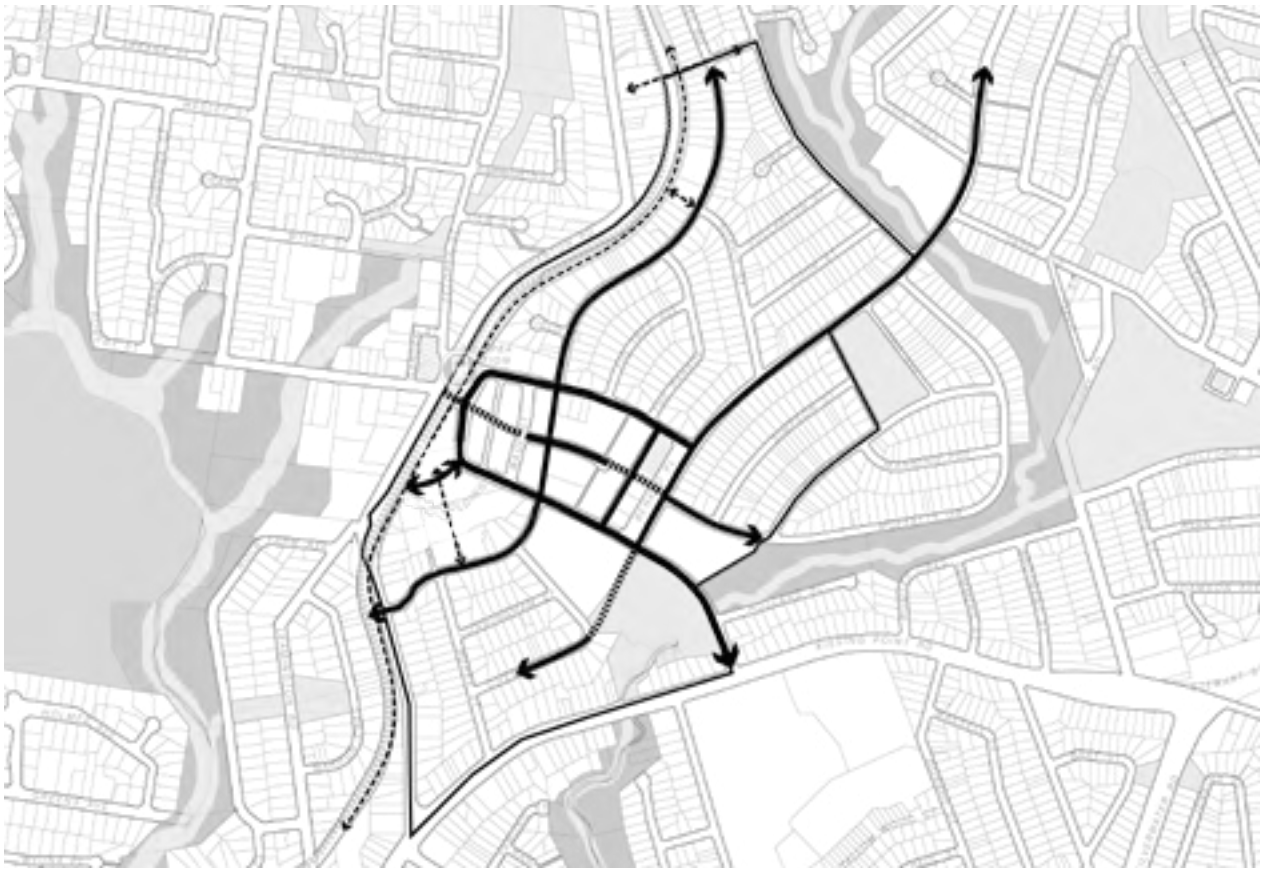
URBAN STRUCTURE

A key objective of the Telopea Master Plan is to improve movement through, to and from Telopea. The existing road network can be adjusted to improve connections through Telopea, opening sites, making them more visually connected to surrounding areas, thus, improving safety. Below are two ways to improve the structure of Telopea.

01 IMPROVE PERMEABILITY

The core of Telopea currently acts as a barrier for north-south movement in addition to the lack of permeability between east and west of the railway line. The master plan proposes the following measures to improve permeability by:

- Providing more pedestrian links across the future light rail line
- Providing an alternative road connection across the future light rail line that can increase permeability between the eastern and western sides of Adderton Road.
- Relocating Wade Street to align with Manson Street and Marshall Road
- Extending Eyles Street to Benaud Lane and providing a connection to both Evans Road and Sturt Street as a main pedestrian corridor in the centre of the core.



01 IMPROVE PERMEABILITY: *The core of Telopea currently acts as a barrier for north-south movement in addition to the lack of permeability between east and west of the railway line.*

02 ESTABLISH LEGIBILITY

The topography and lack of clear sight lines affects the ability to navigate through Telopea. There are opportunities to improve intuitive way finding by connecting open spaces, services and facilities, therefore providing legible and identifiable journeys around the neighbourhood. The master plan proposes the following measure to establish legibility by:

- Providing meaningful way finding opportunities centred on the high value amenities of Telopea which include:
  - A north-south axis linking Acacia Park and Sturt Park following Evans Road
  - An east-west axis through and outside Telopea linking Vineyard Creek Reserve to Ponds Creek Reserve via the new Arrival Plaza near the future light rail stop, a new Civic Plaza, new community facilities and shops along Evans Road.
- Connecting services and facilities, these links create nodes of activities and providing opportunities for landmark buildings which may also incorporate the following:
  - Retail activity at both end of the Core Area
  - Community facilities around the Telopea Public School and the future Civic Plaza
- Locating taller landmark buildings near the light rail stop and arrival plaza to act as markers to improve way finding and identity.

02 ESTABLISH LEGIBILITY: *The topography and lack of clear sight lines affects the ability to navigate through Telopea. There are opportunities to improve intuitive way finding by connecting to green spaces providing legible and identifiable journeys around the neighbourhood.*

ROAD HIERARCHY AND TRAFFIC MANAGEMENT

Limitations of the existing road network and traffic management within Telopea was raised as a key issue by the local community and as part of the expert review panel process. There are a number of areas where the existing road network and traffic management mechanisms can be introduced to improve the existing conditions, and manage the road impacts of the incoming population.

ROAD HIERARCHY

The Master Plan considers a more defined road hierarchy that is better structured and allows for clear connections and functionality through the precinct. The development of a road hierarchy plan helps to establish the appropriate conditions for each road and informs required future upgrades. The upgrades to roads and intersections will help to clearly define the function of particular roads (eg. through-connection, local traffic only, etc.) and discourage unsuitable traffic movements.

The road hierarchy aims to achieve a fine-grain network that will allow better connectivity for both internal traffic movement and the broader road network.

The hierarchy of streets, as shown on the plan in the next page, comprises :

Hierarchy	Role and Function	Streets
Sub-arterial roads	Provide regional traffic and public transport connections	• Kissing Point Road • Pennant Hills Road
Collector roads	• Provide the main connections between sub-arterial roads, in the case of Telopea provide the key links between Kissing Point Road and Pennant Hills Road • Ability to accommodate local bus movements • Traffic movement and safety will be prioritised over on-street parking	• Adderton Road • Evans Road • Sturt Street • Shortland Avenue • Marshall Road • Manson Street
Local roads	• Predominantly to be used for local traffic, with slow vehicular traffic with on-street parking and pedestrian amenities	All streets that are not collector or sub-arterial
Minor connectors	• Predominantly thoroughfares that priorities pedestrian movements, may be a pedestrian street and/or shared street	• Eyles Street extension – east of Benaud Lane • Eyles Street extension – west of Wade Street

All new connections, resolutions to narrow roads, parking strategy and traffic management mechanisms will respond to the proposed road hierarchy.

Street Hierarchy

RESOLVING BARRIERS TO MOVEMENT

In order to resolve the existing barriers to movement, a number of new connections are proposed in Telopea. These new connections will improve traffic flow, help to define the key roads, provide safer intersections and crossing points for pedestrians and improve the walkability and legibility of movement through Telopea.

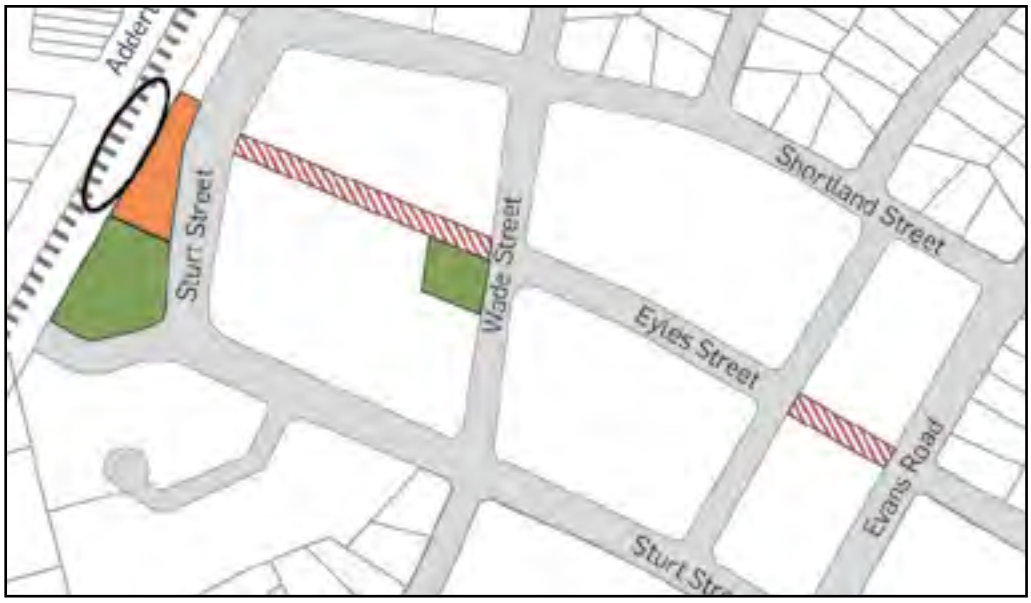
The new connections are:

Hierarchy	Connection	Improvements/ Benefits
Connector roads	A new road crossing over the rail line linking Adderton Road and Sturt Street.	This road will: ▪ create a new link between Adderton Road and Kissing Point Road ▪ reduce the impact of increased traffic on Manson Street which is very narrow and the existing intersection at Manson Street and Adderton Road can be difficult to navigate. ▪ provide the ability for buses to cross the rail line and reduce the reliance on the narrow Marshall Road. Future bus routes to and through Telopea will be subject to a separate study undertaken as part of the Parramatta Light Rail project.
Local Streets	Relocate Wade Street to link Manson Street and Marshall Road:	This street will: ▪ improve legibility and connectivity for local vehicles and pedestrians through the Core. ▪ discourage through traffic and rat running with traffic managements measures (eg. left in/left out, priority lanes, signal timing, and other methods to slow traffic).
Local Streets	Benaud Lane upgrade to create verge with footpaths and landscape area	A 3 metre verge should be provided along both sides of Benaud Lane as adjoining land redevelops. This street will: ▪ improve legibility and connectivity for local vehicles and pedestrians through the Core. ▪ discourage through traffic and rat running with traffic managements measures (eg. left in/left out, priority lanes, signal timing, and other methods to slow traffic).
Local Streets	A potential new street on the boundary of the Telopea Public School and Sturt Park	This street is to be considered by Council and Department of Education as part of any future detailed master plan for the Telopea Public School. This street could: ▪ provide an additional frontage to the Telopea Public School and Sturt Park improving the permeability and passive surveillance. ▪ provide additional areas for 'drop n' ride' for the Telopea Public School. ▪ improve access to the residential areas south of Sturt Street.
Minor connector	New thoroughfare extending Eyles Street between the light rail stop and Evans Road	This street will: ▪ create a continued east-west link focused on pedestrian amenity away from the existing collector roads ▪ provide additional access to new buildings fronting Sturt Street and Shortland Street, providing alternative parking access away from the collector roads There are several potential options to deliver this new thoroughfare. These options should be explored and resolved as part of the detailed design through a development application process. Three indicative options are shown in the following page.

All new connections, resolutions to narrow roads, parking strategy and traffic management mechanisms will respond to the proposed road hierarchy.

Alternative 1: Narrow carriageway with wide footpaths and parking

Alternative 2: Cul-de Sac with a narrow carriageway with wide footpaths and parking or taxi rank. Steps and/lifts linking to Civic Plaza



Alternative 3: Pedestrian walkway with ramps and/or stairs linking the Civic Plaza with the Arrival Plaza

NARROW ROADS

A number of roads within Telopea are narrow and, when combined with cars parked on both sides of the street, affect safety and movement for vehicles (particularly buses).

Manson Street and Marshall Road are considered collector roads as they link with Adderton Road and Pennant Hills Road, respectively. It is recommended that bus routes in the future should avoid using Manson Street and Marshall Road due to their width. In order to reduce the conflict of buses, travelling vehicles and parked cars, it is proposed that the DCP makes provision for a parking strategy that amends parking availability along very narrow roads. On-street parking provision is discussed further below.

All new or relocated roads will be built with widths to accommodate safe traffic movement and parking where appropriate.

TRAFFIC MANAGEMENT

Traffic advice was provided to identify any road or intersection upgrades or limitations to support the incoming population generated by the master plan. The recommended intersection upgrades to support the population growth are (and shown on the plan above):

- Upgrades to the intersection of Adderton Road and Manson Street.
- Upgrade of the signalised intersection of Kissing Point Road and Sturt Street.
- New signalised intersection along Adderton Road to ensure a safe crossing over the light rail line.
- Upgrades to the intersection at Pennant Hills Road and Evans Road.
- Upgrades to the intersection at Sturt Street and Manson Road to encourage pedestrian movements between Telopea Public School, the mixed use core and future community facilities. This intersection could function with a roundabout, but traffic signals will deliver the safest crossing path for students.
- Upgrades to the following intersections:
  - Shortland Street and Marshall Street
  - Shortland and Evans Road
  - Evans Road and Sturt Street

These upgrades can be delivered as development occurs to respond to the additional traffic using the internal and external intersections. More detailed traffic analysis to confirm the exact upgrades will be undertaken as part of the rezoning process.

New Road Connections and Road Improvements Plan

PARKING PROVISIONS

ON-STREET PARKING

On-street parking is generally used by visitors, shoppers and overflow from surrounding residences.

There are few limitations to on-street parking in Telopea. Due to the narrow widths of some roads, on-street parking in some areas of Telopea creates a hazard for cars. It is recommended that Council considers implementing an on-street parking strategy that adopts the following restrictions based on the width of the carriageway:

- less than 8 metres – no on-street parking to be provided
- between 8 to 10.5 metres – parking on one side only
- more than 10.5 metres – parking allowable on both sides.

This strategy will ensure clear paths of travel for vehicles on the roads that are identified for the most traffic movements. Council should also consider implementing time-limitations for on-street parking in highly trafficked areas, particularly near the future light rail stop and future shopping precinct.

OFF-STREET PARKING

Off-street parking will generally be incorporated into basements (for apartments, shopping centres and community facilities) and utilised by the occupants or visitors to the facilities.

A key redevelopment objective of the Master Plan is to encourage the use of public transportation and reduce the reliance on private cars. However, there is the need for balanced off-street parking provisions taking into account the planned transport infrastructure development (i.e. the Parramatta Light Rail) and existing and future demand for parking in Telopea.

It is recommended that Council considers amending the existing car parking rates in Telopea to respond to future demand and encourage use of the Parramatta Light Rail network. The recommended rates are included in the table below and allow for reduced parking in the areas within 400m of the light rail stop.

The off-street parking rates shown in the table below are higher than the parking provided in recently developed buildings on Evans Road and Shortland Street and higher than what is currently available to the existing social housing in the core.

Area for Parking Rate

Table 1 – Apartment buildings parking rates

Apartments	Area 1	Area 2
Studio and 1 bedrooms	0.6 spaces	▪ 0.5 spaces ▪ 1.25 spaces ▪ 1.5 spaces
2 bedroom	0.9 spaces	
3 + bedroom	1.4 spaces	
Residential visitors	1 space per 10 dwellings	▪ 1 space per 7 dwellings

Table 2 – Retail and commercial uses parking rates

Apartments	Rate
Supermarket and Specialty Shops	▪ 1 space per 25m² of Gross Lettable Area
Commercial (including medical and professional consulting)	▪ 1 space per 40m² of Gross Lettable Area
Community Uses	▪ Assessed on merits, will take into account integration of retail/community uses and ability to share car parking as it would facilitate multi-stop facilities

Table 3 – General Parking Requirements

Car Share Space	▪ A minimum of 1 space is to be allocated to car share for developments

PEDESTRIAN AND BICYCLE CONNECTIVITY (ACTIVE TRANSPORT)

As the existing road network is upgraded (with new connections and upgraded intersections) the pedestrian and cycling facilities will be improved. Formalised intersections (particularly signalised intersections) will provide safer crossing options for pedestrians and an on-street parking strategy will improve safety for cyclists.

Four key issues were identified with the existing active transport network in Telopea – connectivity, topography, lack of footpaths and cycleways, and safety/comfort. The master plan recommends the following to respond to these issues:

CONNECTIVITY:

- Extend Eyles Street as a connection from Evans Road to the light rail stop
- Provide new level pedestrian and cycling crossing facilities over the rail line with any new light rail stop
- Provide new level pedestrian crossing facilities with the new road crossing over the rail line
- Extend the existing public pedestrian path on the north side of Manson Street through to Polding Place to link with the Hilltop Park, Arrival Plaza and Light Rail Stop.
- Upgrade the Greenway Corridor with a new shared pathway adjoining the light rail corridor between Telopea and Carlingford.
- Provide a new shared pathway between Marshall Road to the Greenway Corridor opposite Sophie Street.
- Provide a new off-road cycleway along Sturt Street that will link the Light Rail Stop with the Ponds Creek reserve (via Moffatts Drive) and Dundas Park (via Ramsey Crescent and Quarry Road).
- Provide a new off-road cycleway along Shortland Street that will link the Light Rail Stop with the on-street cycleway at Evans Road.

TOPOGRAPHY:

- Provide new seating and shaded resting points along the key pedestrian routes with difficult topography (particularly along Sturt Street, Shortland Street and the new Eyles Street connection)
- Provide publicly accessible lifts/escalators/travelators through any new retail or community facilities between the relocated Wade Street and the light rail stop

FOOTPATHS AND CYCLEWAYS:

- Provide new footpaths on all streets (minimum width 1.5 metres) as new development occurs, including upgrades to kerbs to ensure accessible paths of travel

SAFETY AND COMFORT:

- Upgrade street lighting, particularly within the Core along Sturt Street, Shortland Street, Wade Street and the extended Eyles Street.
- Provide new street tree planting along streets in the Core to provide shade and amenity.
- Provide awnings adjoining all new retail and community facility frontages

Providing adequate streetscape elements to encourage pedestrian activities

Integrating pedestrian link and public domain along infrastructure corridor

Improving street trees and street lightings particularly in the core area

Providing various public domain typologies for different pedestrian activities and experiences

RETAIL OPTIONS ANALYSIS

Retail demand advice was provided to assess the existing retail offering, and identify the amount of retail required to support a growing community in Telopea.

The existing shops at Telopea generally offer convenience based food and non-food retail. Residents appear to be travelling to higher order centres (eg. Carlingford Court) for their weekly grocery needs. As a result, it is likely there are high levels of existing expenditure leakage from residents of Telopea to surrounding centres with full line supermarkets.

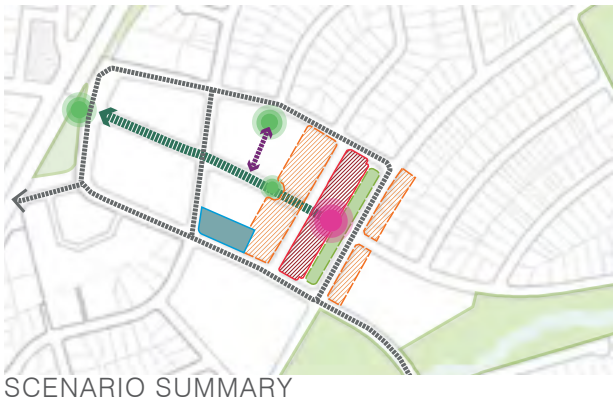
As new housing in Telopea is delivered, there will be a need for more shops to service the growing population. As the shops grow, particularly if a full line supermarket were to be provided, it is likely expenditure leakage will decrease as more residents do most of their shopping in Telopea.

The retail demand advice indicated that with the incoming population of up to 9,500 people, there will be the demand for approximately 7,000m^2 of retail floor space. This would include 3,200m^2 for a supermarket and the balance for supporting specialist shops and services. The retail advice indicated that the population could not support a significantly expanded shopping precinct in the short term, but it could be delivered in the medium-long term once the population in Telopea had grown.

The master plan report demonstrates that the existing retail strip along Benaud Place could not physically accommodate 7,000m^2 of retail floor space to support the growing population. Furthermore, the existing retail strip could not accommodate any community facilities to create an integrated village hub for residents.

SCENARIO 1 | MINIMAL CHANGE | **FOCUS**

Retain existing location of Telopea Shops with future expansion towards Station



SCENARIO SUMMARY

Retain existing location of Telopea Shops with future expansion towards the new light rail stop

Pros

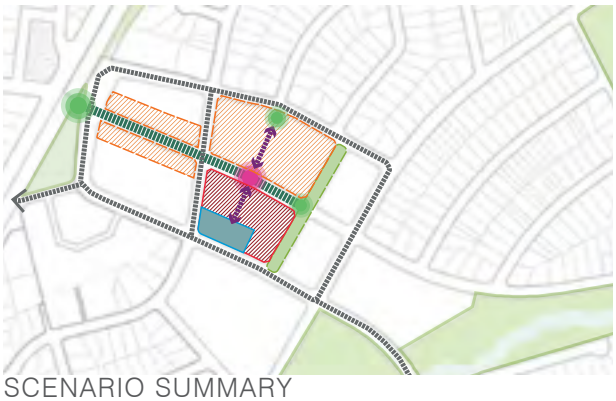
- Retains existing shops in its current location
- Accommodates 7,000m2 of retail floor space and 3000m2 of community facilities

Cons:

- Poor connectivity between retail facilities and community facilities due to width of Evans Road, topographical changes and Benaud Lane
- Would not activate light rail precinct
- Does not facilitate accessible movement up the hill with use of escalators and/or lifts in community/retail buildings

SCENARIO 2 | MEDIUM CHANGE | **CENTRAL**

This investigates the option of retail and relocated to closer to the community facilities.



SCENARIO SUMMARY

Create a new retail centre half way up the hill supported by community facilities and some retail linking Eyles St to the new light rail stop

Pros

- Site is large enough to accommodate an integrated retail and community facility
- Accommodates 7,000m2 of retail floor space and 3000m2 of community facilities
- Ability to use sites between Wade St and Benaud Lane to accommodate internal vertical movement (via escalators and/or lifts)
- Community facilities can be retained along Sturt St opposite Telopea Public School

Cons:

- Does not facilitate accessible movement from Wade St and the light rail stop
- Only limited activation of the light rail stop
- Removes all retail from Benaud Place

Alternative scenarios for the future location of retail and community facilities within Telopea were considered by the master planning team. The scenarios, and their pros and cons, are outlined below.

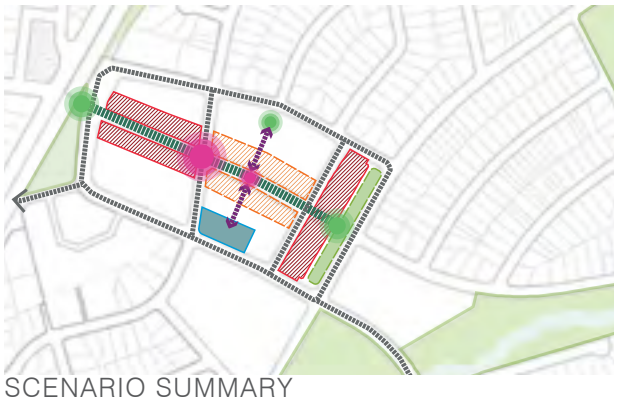
Scenario 4 was chosen as the preferred scenario for the future residents of Telopea for the following reasons:

- It will achieve a consolidated retail environment with integrated community facilities within a safe pedestrian environment;
- Due to proximity to the railway line, the new retail facilities are likely to benefit residents on both sides of the railway line;
- The retail along the railway line will activate the new plaza and park adjoining the new light rail stop; and
- Publicly accessible escalators, travelators and/or lifts can be incorporated into the retail to help movement up and down the hill.

The preferred scenario would allow for the existing shops to maintain their presence along Benaud Place, particularly in the short term before the growing population could support a significantly expanded shopping strip. In the longer term, the preferred scenario allows for some new shops to be provided in any future development scenario along Benaud Place, but not require it if the land owners do not wish to provide retail.

SCENARIO 3 | MAJOR CHANGE | **LINEAR**

Create nodes of along extended Eyles Street



SCENARIO SUMMARY

Retain retail in existing location and extend retail and community facilities along extended Eyles Street to the light rail stop

Pros

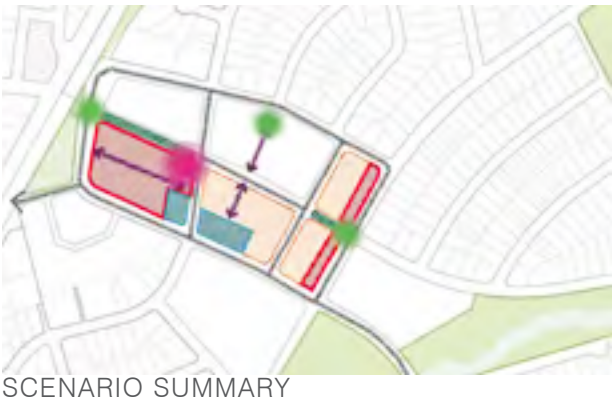
- Retains existing shops in its current location
- Accommodates 7,000m2 of retail floor space and 3000m2 of community facilities

Cons:

- Only limited activation of the light rail stop
- Significant level changes along an extended Eyles Street would require significant earthworks to create an accessible shopping and community facility strip
- Elongated design would not accommodate a supermarket
- Narrowness of sites could not accommodate internal vertical movement (i.e. escalators/lifts)

SCENARIO 4 | MAX CHANGE | **URBAN CORE**

Provide a mixed use precinct close to new light rail stop.



SCENARIO SUMMARY

Create a new retail centre opposite the light rail stop supported by community facilities and some retail along Evans Road

Pros

- Site is large enough to accommodate an integrated retail and community facility
- Accommodates 7,000m2 of retail floor space and 3000m2 of community facilities
- Ability to use retail and community facilities to accommodate internal vertical movement (via escalators and/or lifts) up the steepest parts of the hill
- Community facilities can be retained along Sturt St opposite Telopea Public School
- Due to proximity to the railway line, the new retail facilities are likely to benefit residents on both sides of the railway line

Cons:

- Changes retail function along Benaud Place and Evans Road.

CORE AREA

The Core Area includes the land bounded by Sturt Street, Shortland Street and Evans Road. The Core Area presents the greatest urban renewal opportunity to create a positive change in Telopea as:

- It has an ageing housing stock that is inefficient and does not support a safe environment
- It is located within a 5 minute walk of the future light rail stop
- Most of the area is in single ownership
- It can cater for new services and facilities including community facilities, public space and shops
- It can be used to manage vertical movements of pedestrian along the steep area between Wade Street and the future Light Rail Stop.

The Core Area was identified by the community as needing upgrades and renewal to improve the appearance and functionality of Telopea. The expert review panel identified the core as an area that needed a clear set of principles and outcomes to deliver:

- amenity and solar access to the key public domain areas
- higher densities to ensure viability of redevelopment and additional housing opportunities near public transport and other services
- activation to the public domain
- a clear function of Eyles Street and its extension to both Evans Road and Sturt Street / future Light Rail Stop.

The principles and key projects for the Core Area are outlined below.

CONNECTIVITY

PRINCIPLES:

- Create a clear connection, primarily for pedestrians between the future Light Rail Stop and the Ponds Creek Reserve.
- Improve north-south connectivity through the core by linking surrounding roads
- Improve the quality, safety and comfort of existing east-west and north-south links through the core (for vehicles, pedestrians and cyclists)

KEY PROJECTS:

- Relocate Wade Street to align with Marshall Road and Manson Street.
- Provide a new road connection between Sturt Street and Adderton Road across the railway line.
- Change future environment on Benaud Lane as a local street with wider footpaths.
- Improve at-grade pedestrian and cyclist crossing facilities at a new light rail stop
- Provide a pedestrian connection between Manson Street and Arrival Plaza / Hilltop Park across Polding Place using the existing pedestrian footpath.

Core Area Principles Diagram

- Plaza
- Hilltop Park
- Light Rail Stop
- Active Frontage with Retail
- Potential Active Frontage with Retail
- Active Frontage Residential Entries/ Lobbies
- Community Facilities
- New Retail Facilities
- Pedestrian Connection
- Minor Connector
- Road Reallignment
- Green Corridor

USES AND ACTIVATION

PRINCIPLES

- The Telopea Core Area will be developed for predominantly residential purposes, with shops and community facilities integrated on the lower levels to support the existing and incoming population
- Activate the light rail stop with ground floor retail along Sturt Street
- Provide more shops and community facilities to accommodate the growing population at centralised locations
- Provide for shops at the top and bottom of the hill to reduce the need for residents to navigate the steep hill.
- Improve and upgrade community facilities and allow for consolidation and integration with shops and other services
- Provide active retail frontages to main public domain areas and along key pedestrian routes

KEY PROJECTS

- A new shopping precinct is to be accommodated at the western end of the core, including retail and community uses to activate the Arrival Plaza, the Civic Plaza and the extension of Eyles Street between the light rail and relocated Wade Street. The new shopping precinct is to accommodate a supermarket and other services to support the growing population and reduce the need for residents to leave Telopea for shopping needs.
- Retail uses to be accommodated on Evans Road/Benaud Place to maintain the existing Waratah Shops and/or as part of any new development. This will allow for smaller shops, cafes, restaurants and other services to be located along the key road route of Evans Road and maintain facilities for those residents at the bottom of the steep hill.
- Community facilities will be centred around the existing Dundas Area Community Centre and Telopea Public School and the new Civic Plaza.
- Throughout the rest of core, streets will be activated with residential entrances to individual properties and/or residential lobbies.

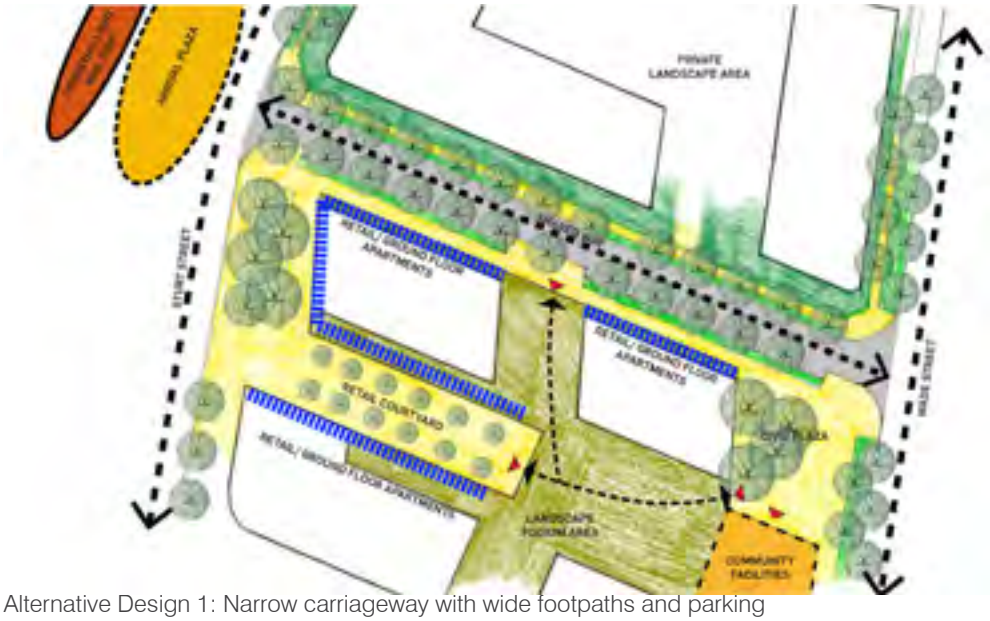
PUBLIC DOMAIN

PRINCIPLES:

- Provide new public spaces that allow for centralised meeting and passive recreational space at key activity nodes.
- Ensure new public spaces are activated, safe and achieve solar access to encourage use.
- Upgrade streetscapes to improve safety and comfort for pedestrians.

KEY PROJECTS:

- Plan for a new Arrival Plaza and Hilltop Park between Sturt Street and the future Light Rail Stop. The new plaza will be located adjacent to the light rail stop and integrated with shops, cafes and restaurants, forming a new retail centre. The pavement design will extend across both sides of Sturt Street to reinforce the civic nature of the space. The built form on Sturt Street, opposite the light rail, should be splayed to allow for the retention of mature trees and create a small active frontage that is perceived as an extension to the Arrival Plaza.
- Provision of a Civic Plaza at the south-west intersection of Eyles Street and the relocated Wade Street. The plaza will be the forecourt to the future multi-purpose community centre and provide access to the lower level of the new retail centre. The Civic Plaza is to have an area of 900m2. The extension of Eyles Street between Wade Street/Civic Plaza and Sturt Street/Arrival Plaza is to be designed to:
- Respond to the level change by providing an accessible vertical transportation (lift, escalator and/or travelator) during the operational hours of the light rail service.
  - Promote pedestrian movement through the provision of wide footpaths.
  - Be active which may include retail frontages, residential entrances to individual properties and residential lobbies.
  - Discourage significant traffic flows.
  - Promote, if used for vehicles, parking for adjoining retail frontages, taxi stands and access into residential basements.
- Streets will be upgrades with footpaths, lighting and seating areas as discussed in Pedestrian and Bicycle Connectivity section previously.
- Alternative design outcomes for the Eyles Street Extension (West) are provided in the below figures.



Alternative Design 1: Narrow carriageway with wide footpaths and parking

Alternative Design 2: Cul-de Sac with a narrow carriageway with wide footpaths and parking or taxi rank. Steps and/lifts linking to Civic Plaza

Alternative Design 3: Pedestrian walkway with ramps and/or stairs linking the Civic Plaza with the Arrival Plaza

BUILT FORM

PRINCIPLES

- Locate the tallest buildings and greatest densities at the top of the hill, opposite the light rail stop.
- Higher residential densities will ensure the financial viability of future developments and allow for the renewal of the existing older buildings.
- Building heights will transition down the hill and away from the light rail stop.
- Buildings will be designed to ensure appropriate solar access to key public spaces and existing / new dwellings.
- Development above 8 storeys to have a maximum floor plate area of 950sqm to reduce bulk and create slim building forms.
- Taller buildings should generally be located on a north-south orientation to minimise overshadowing impacts and increase sun access to apartments.

KEY PROJECTS

- Two towers will be located on Sturt Street fronting the Arrival Plaza and the Light Rail Stop. The towers frame the public domain and are visual markers to identify the Telopea light rail stop and the new mixed us area.
- Land between Sturt Street, Shortland Street and Evans Road will range in height up to 12 storeys.
- The built form surrounding the Civic Plaza, should be designed so that the plaza achieves 3 hours of solar access to 50% of the plaza during mid-winter.
- Buildings up to 8 storeys can be located along the new extension of Sturt Street to Adderton Road (over the rail line) to promote passive surveillance to the Hilltop Park and the Arrival Plaza.
- The building form around Polding Place should ensure that is minimum impacts to the low scale townhouse areas located south and east of the site through a maximum height of 4 storeys and/or additional setbacks.
- Buildings opposite the core (on the opposite sides of Sturt Street, Shortland Street and Evans Road) can be built up to 8 storeys to allow for a transition to the adjoining residential areas.
- Landscaped podiums over mixed use building and/or roof terraces can be used as communal open space. Community gardens should be encouraged in these areas.
- Unless otherwise stated, buildings should have at least a 5 metres front setback to promote the retention of existing trees or the planting of new ones. An additional setback of 3 metres should be provided for all upper levels.
- The placement of buildings should be carefully considered to provide maximum solar access to residents and minimise overshadowing to adjacent buildings.
- The scale of the urban renewal provides an opportunity to collect and reuse wastewater.
- Stormwater volumes can be reduced by careful selection of plants / trees and on-site rainwater harvesting.
- Building rooftops provide space for on-site energy production through solar PV or solar hot water systems.

Diverse building heights to ensure development viability and to accommodate greater density

Building to be designed in compliance to ADG with adequate separation and solar access to the units

Building siting to maximises sun access to dwelling units

Retail at ground floor level for activation with residential uses on the podium level

PROPOSED HEIGHT OF BUILDINGS

The master plan proposes 5 built form areas. They are:

MIXED USE AND RESIDENTIAL CORE (8-12 STOREYS)

The core comprises predominately buildings between 8 to 12 storeys with taller buildings opposite the light rail stop and the community facility plaza.

Higher densities are promoted in the core to encourage the redevelopment of the Wade Towers, existing aged social housing apartment stock and the Waratah Shops.

TRANSITION AREA (5-8 STOREYS)

The residential densities in these areas allow for the redevelopment of old housing stock and the amalgamation of single dwelling lots. The transition area is within a 400 - 500 m walking catchment to the light rail stop and is within close proximity of shops, community facilities and the school. Buildings of 8 storeys will be limited to sites opposite the core (eg. along Shortland Street, Sturt Street and Evans Road). Buildings will be predominantly 6 storeys and transition down to 5 storeys where directly adjacent to the Low Rise Apartment Areas.

LOW RISE APARTMENT AREA (3-4 STOREYS)

The low rise apartment area allows buildings up to 4 storeys to be located over 600 m from the light rail stop. This lower building form manages the interface between the transition area (5 to 8 storeys) and areas that will be developed for town houses, duplexes or detached dwellings.

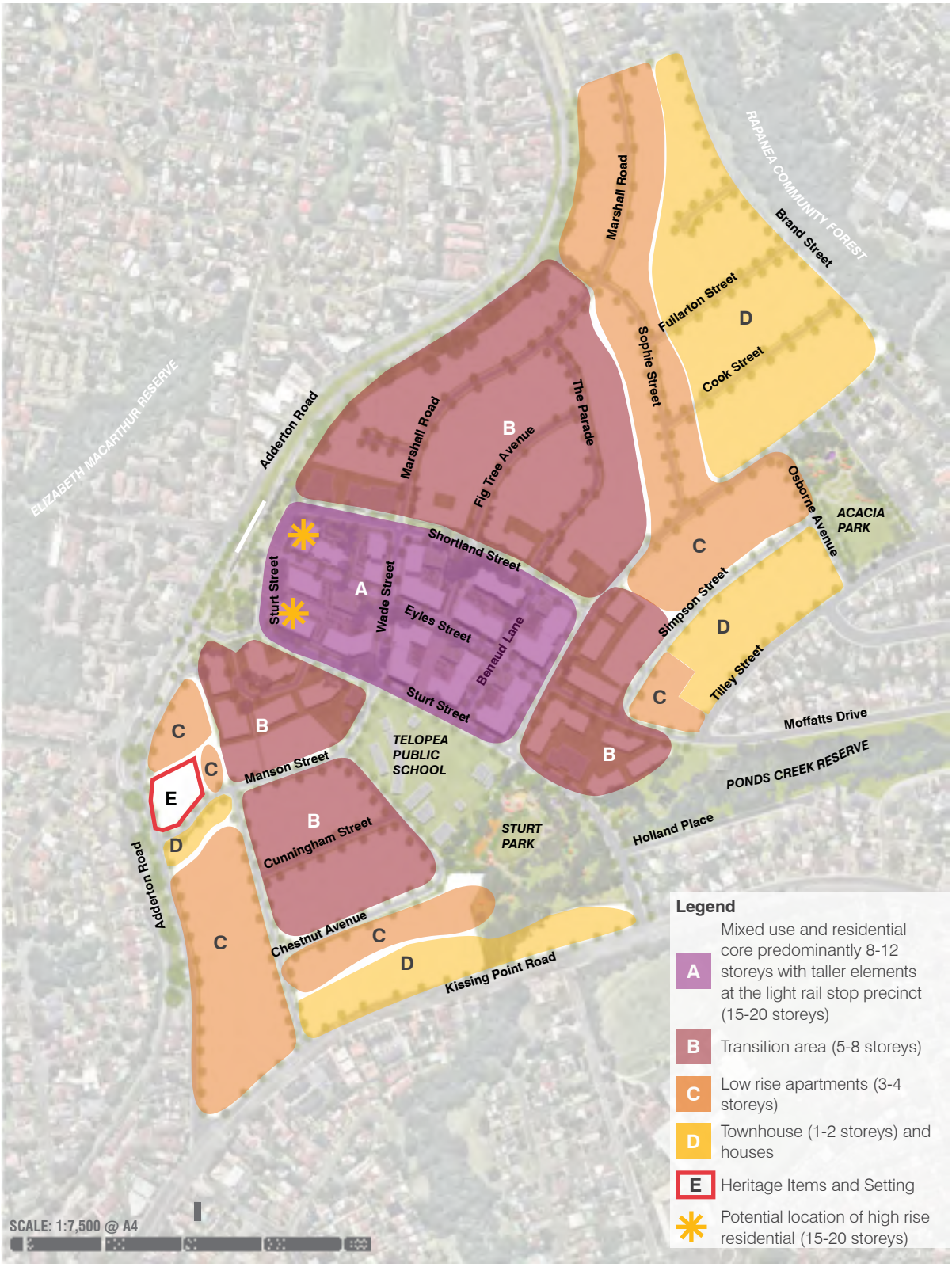
The extent of the low rise apartment area between Sophie Street and Brand Street was raised in a number of submissions during the community engagement process and has been considered in detail over the page.

TOWNHOUSE AND HOUSE AREA (1-2 STOREYS)

The townhouse and house area, located at the fringe of Telopea, manages the interface with the existing low scale built environment and sensitive land uses - particularly the riparian corridors. Townhouse, terrace, duplexes and house developments are encouraged in this area.

TOWERS

The Master Plan proposes 2 towers ranging from 15 to 20 storeys to be located opposite the future light rail stop and arrival plaza. Providing these towers at the top of the hill will create a built form markers and increase surveillance of the public domain. They will also deliver the greatest residential density in the most accessible and serviced location within Telopea.



Building Height and Typology Map

OPTIONS FOR 3-4 STOREY AREA

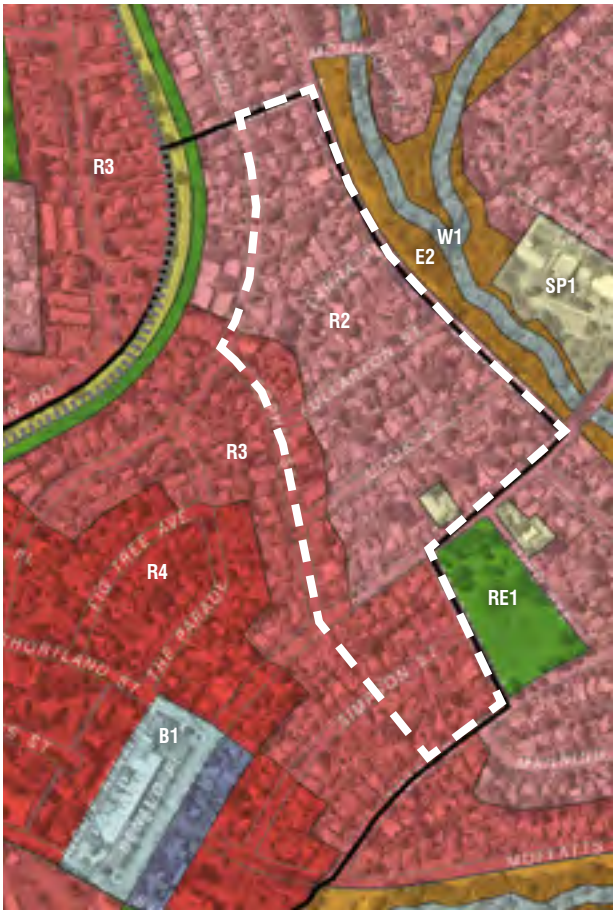
A number of submissions queried the extent of the 3-4 storey area within the northern and north-eastern areas of Telopea. Some submissions suggested reducing the area to which the 3-4 storey area applied, others requested the area be extended.

The existing zoning of the area is shown below and potential options considered are outlined over the page.

EXISTING DEVELOPMENT CONTROLS

The area to the north-east of Sophie St is zoned a mix of R3 Medium Density Residential (where land immediately fronts Sophie St) and R2 Low Density Residential. Land south of Evans Road (fronting Acacia Park) is currently zoned R3 Medium Density Residential

The area zoned R3 Medium Density Residential currently has a height limit of 11m (i.e. 3 storeys) and FSR of 0.6:1. The area zoned R2 Low Density Residential has a height limit of 9m (i.e. 2 storeys) and FSR of 0.5:1.



LEP Map 2011 - Zoning map (LZN)

B1	Neighbourhood Centre	RE1	Public Recreation
B4	Mixed Use	RE2	Private Recreation
E2	Environmental Conservation	SP1	Special Activities
E3	Environmental Management	SP2	Infrastructure
R2	Low Density Residential	W1	Natural Waterways
R3	Medium Density Residential		
R4	High Density Residential		

LEP Map 2011 - Floor Space Ratio map (FSR)

J1	0.5 : 1
L	0.6 : 1
N2	0.8 : 1
O1	1.1 : 1
P2	1.5 : 1
Q	2.0 : 1

LEP Map 2011 - Height of Building map (HOB)

J1	9m
L	11m
N2	14m
O1	15m
P2	18m
Q	20m

Option A – Draft Master Plan

Option B

Option C

Option D

Option E (Preferred)

	Option A	Option B	Option C	Option D	Option E
Description	Draft Master Plan - 4 storeys apartment along Sophie Street and Evans Road	Sophie Street as a boundary	Extend 3-4 storeys area all the way to Brand St and extend to front Acacia Park	Extend 3-4 storey area to include properties along Evans Road up to Osborne Ave and extend to front Acacia Park along Osborne Avenue	Retain zone boundaries but leave northern side of Sophie Street with a maximum height of 3 storeys
Pros	**NE Sophie Street** Potential changes to FSR and Height controls would align with current east of Sophie Street boundaries. **SW Osborne Ave** Increase density near Acacia Park between Simpson Street and Evans Road	**NE Sophie Street** Sophie Street would be a clear boundary to change future FSR and Height controls.	**NE Sophie Street** Brand St is a clear physical boundary. **SW Osborne Ave** Increase density along Acacia Park Boundary	**SW Osborne Ave** Creates a similar scale of development along Evans Street to Osborne Avenue.	**NE Sophie Street** A three storey transition on the north side of Sophie Street would allow: ▪ Increase densities within a 10 minute walk to the future light rail stop ▪ Create a built form transition and manage the interface with the adjoining lower density areas. ▪ Allow for a similar scale of development on both sides of Sophie Street This option would allow for an uplift that follows existing boundaries without increasing the height of buildings. **SW Osborne Ave** The area south of Stewart Street would remain for townhouses to transition from apartment to low density dwellings. This is considered as the preferred option.
Cons	**NE Sophie Street** Four storey buildings on the northern side of Sophie Street would impact on the scale of the adjoining low density areas.	**NE Sophie Street** Would not leverage off the accessibility that Sophie Street has to future light rail stop to increase density. **SW Osborne Ave** Would not leverage the opportunity to increase density fronting Acacia Park	Larra Place is a cul de sac and further away from the light rail stop. Land fragmentation, topography and distance from light rail stop is not conducive for higher density. **SW Osborne Ave** The 3 storeys building south of Simpson St would not fit with the scale of surrounding areas.	**SW Osborne Ave** Land fragmentation, topography and distance from light rail stop is not conducive to higher density particularly along Cook St and Osborne Ave.	

Evaluation of low rise apartment area between north east (NE) of Sophie Street and south west (SW) of Osborne Avenue

YIELD AND POPULATION PROJECTIONS

DWELLING YIELD ESTIMATES

The master plan outlines dwelling typologies which indicate a range of building heights throughout Telopea. Market analysis indicates the likely take up of private dwellings in Telopea will be 170-210 dwellings per annum (pa), social and affordable housing will be in addition to this figure.

The table below indicates likely additional dwellings in Telopea over the next 20 years will be 3,500 – 4,300 additional dwellings. However, all figures are estimates and a range of 3,500 to 4,500 additional dwellings has been assumed to determine maximum impact of the future population at Telopea on services and infrastructure (e.g. traffic upgrades, services and utilities and social infrastructure).

Existing dwellings	**1,400**
Dwellings unlikely to redevelop	**600**
Private dwellings (20 years)	**3,300 - 4,100**
Social and affordable housing dwellings	**1,000**
Total future dwellings	**4,900 – 5,700**
Additional dwellings over the next 20 years	**3,500 – 4,300**
Round figures	**3,500 - 4,500**

*Market take up indicates demand for 170-210 dwellings p.a.

POPULATION PROJECTIONS

The existing population in the study area is estimated at approximately 3,000 people, assuming a dwelling occupancy rate of 2.1 persons per dwelling. Based on a similar occupancy rate, the population of Telopea is likely to reach 11,000 people over the next 20 years. For the purposes of testing potential impact on social infrastructure, a capacity of 12,000 people has been used (an increase of 9,000 residents).

The future demographic profile in Telopea will change from its current characteristics, particularly due to the reduced concentration of social housing. These changes will have implications for the types of community and social facilities in demand in Telopea in the future.

The key projected changes to the future demographic profile are:

- An increase in new home buyers, which may challenge renting as the predominant tenure choice of the master plan area.
- Increase in all categories of average household income and education attainment, which may increase demand for a range of educational, recreational and cultural/art related services and facilities.
- The relatively high proportion of overseas born people, with Chinese remaining the most popular overseas-born country
- Potentially higher car ownership rates, which results in higher demand for on and off-street parking, which can have an impact on urban amenity.
- Similar proportions of non-family households and lone person households.
- The proportion of private-renter households remaining the same, although home ownership rates are likely to increase (with the proportion of social housing rentals decreasing in line with population growth).

4. ASSESSMENT OF THE MASTER PLAN

VIEW ANALYSIS

With new development in Telopea, taller buildings will be visible from surrounding areas, particularly as Telopea is located on a ridge line.

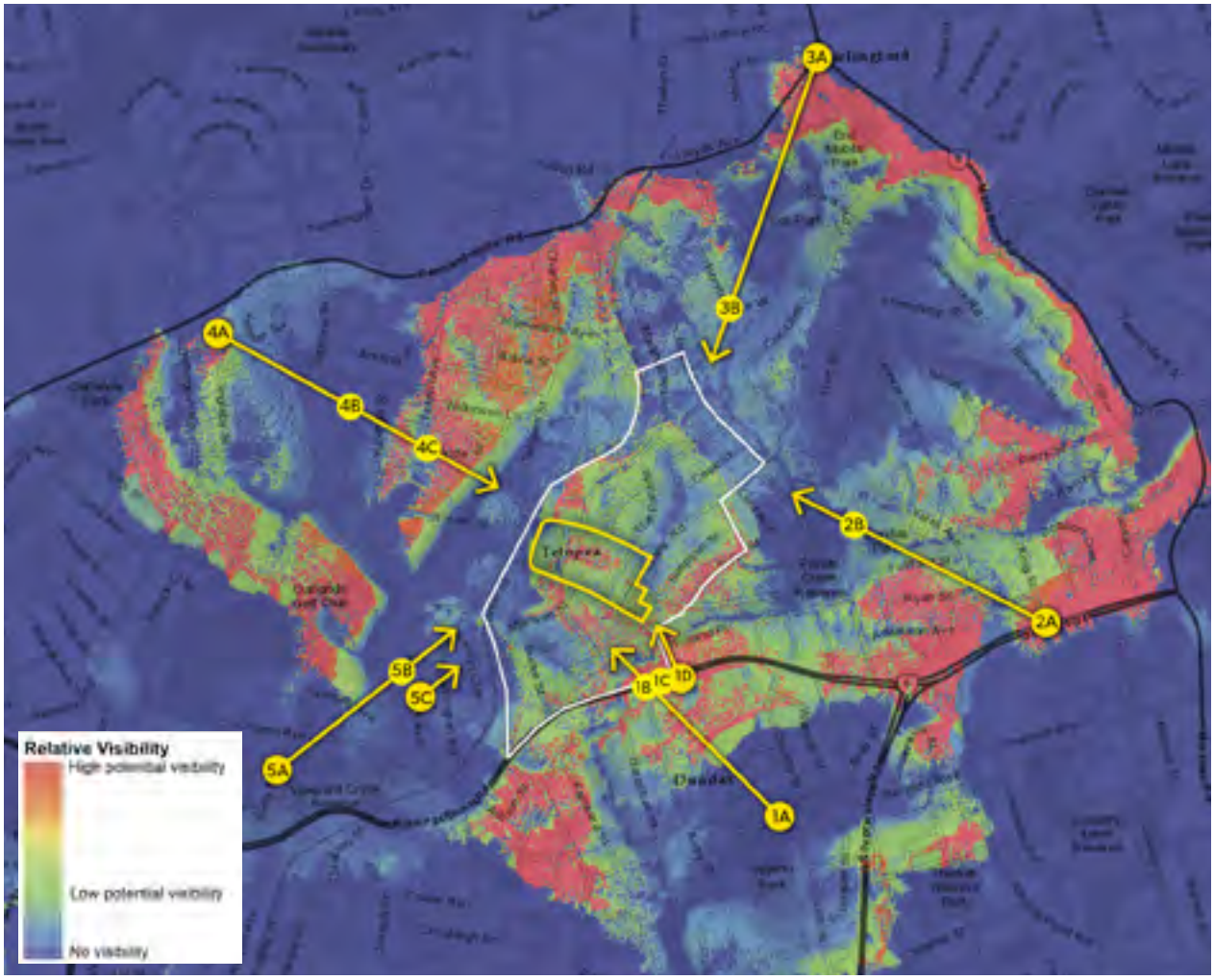
View analysis has been undertaken to understand how new development in Telopea will be visible from surrounding public places (parks, reserves and key streets). The study considered 14 views that could have potential to see future development in Telopea.In particular, views from the following locations have been assessed:

1. Kissing Point Road between Kirby Street and Sturt Street
2. Stewart Street at Kissing Point Road
3. Homelands Reserve at Homelands Street
4. Robert Street at Tintern Avenue
5. Kissing Point Road at Burke Street

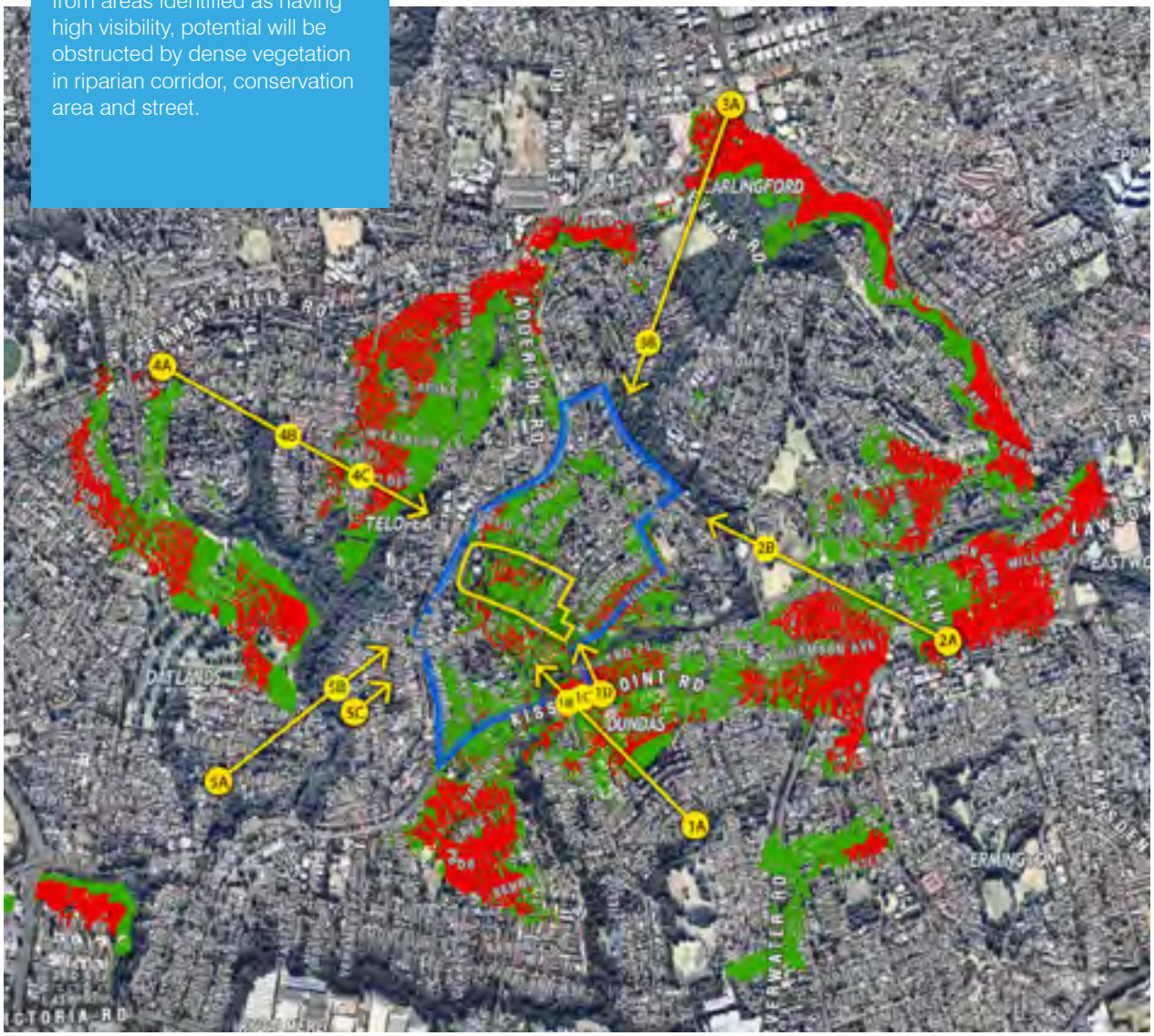
ZONE OF THEORETICAL VISIBILITY

This plan illustrates the extent to which the site is potentially visible from the local area;

- It only accounts for landform
- It does not consider the cumulative visual effect of existing trees and built-form.

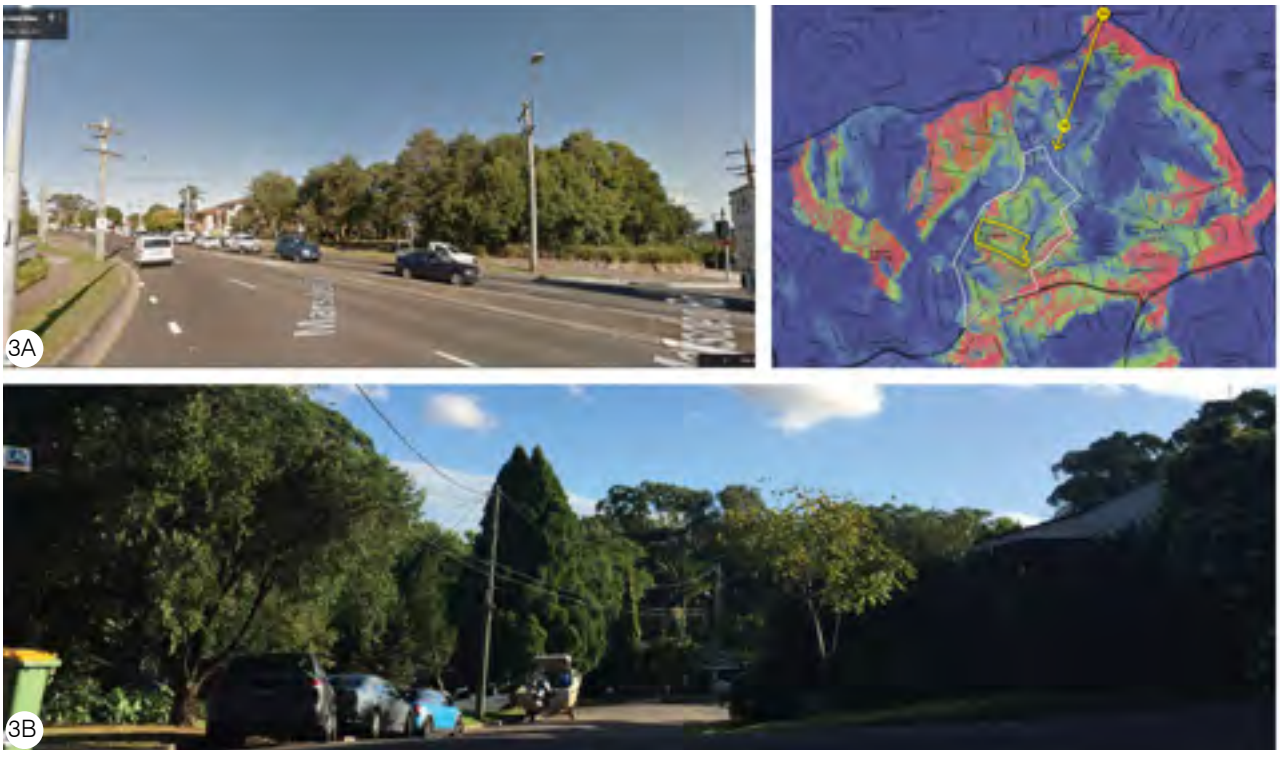


The map below shows how views from areas identified as having high visibility, potential will be obstructed by dense vegetation in riparian corridor, conservation area and street.

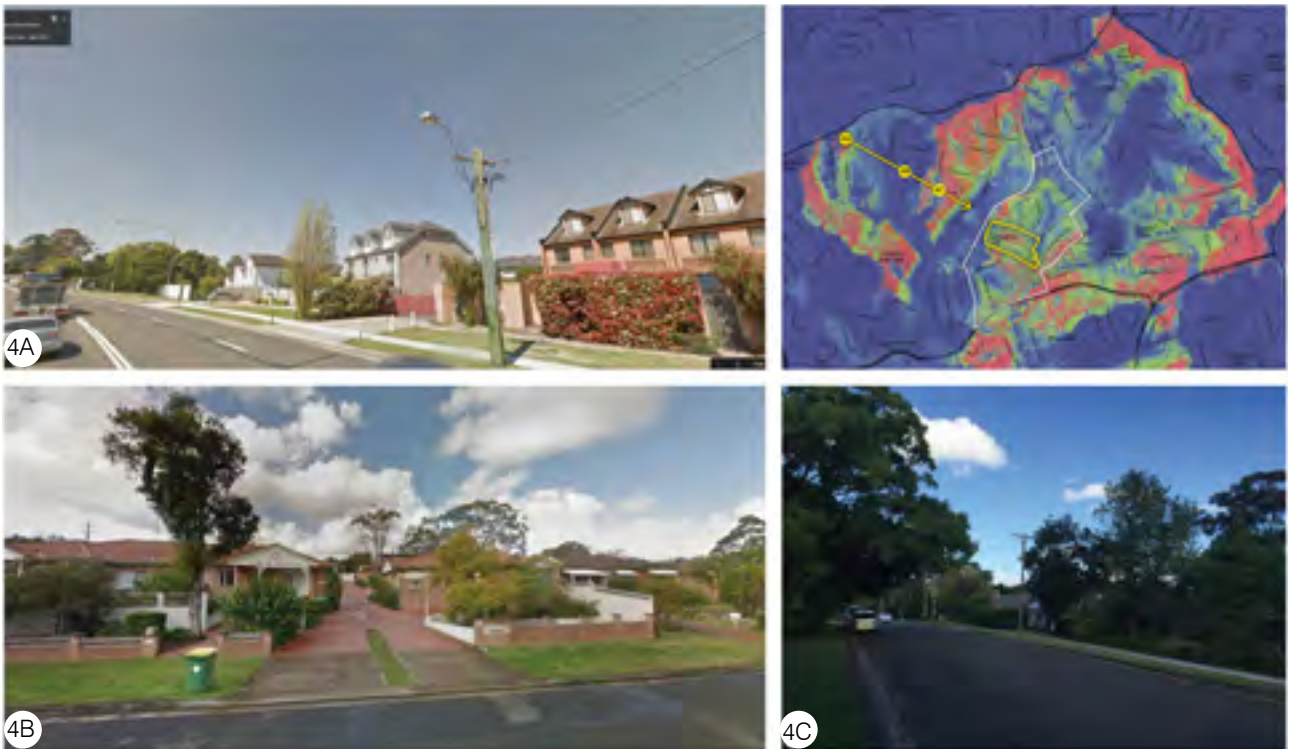


Views from Dundas along Kissing Point Road and Upjohn Park limited to distant skyline views obscured by foreground elements such as existing buildings, significant tree canopies and visual clutter such as poles and wires.

Views from Dundas Valley along Kissing Point Road and Upjohn Park limited to distant skyline views obscured or screened by foreground elements such as existing buildings and significant tree canopies.



Views from Carlingford at the intersection of Marsden Road and Pennant Hills Road limited to distant skyline views obscured or screened by foreground elements such as existing buildings and significant tree canopies.



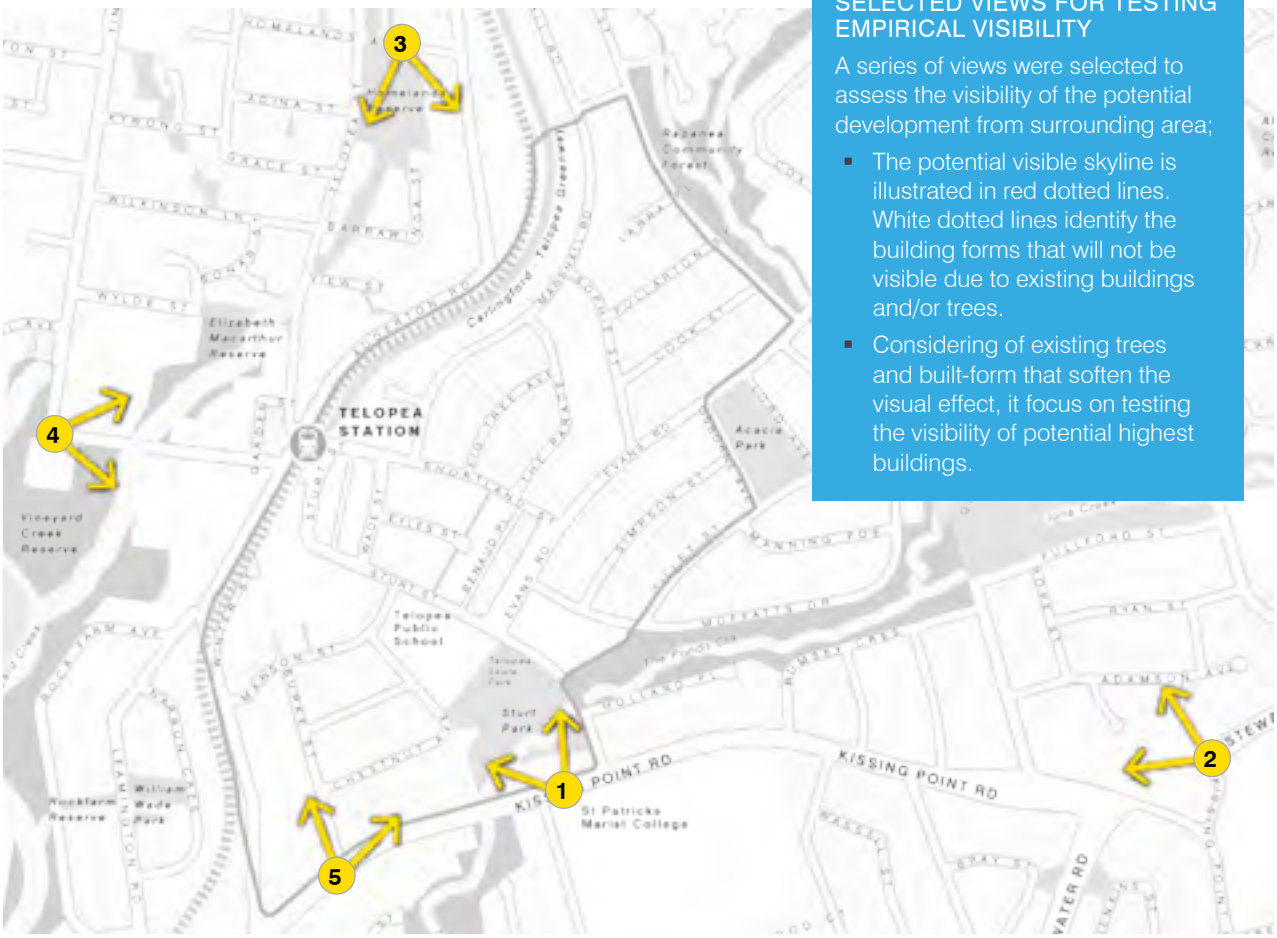
Views from Oatlands along Nioka Crescent, Robert Street and Tintern Avenue limited to distant skyline views obscured or screened by foreground elements such as existing buildings and significant tree canopies.

Views from Oatlands along Bells Road and Rock Farm Avenue limited to distant skyline views obscured or screened by foreground elements such as existing buildings and significant tree canopies.

SELECTED VIEWS FOR TESTING EMPIRICAL VISIBILITY

A series of views were selected to assess the visibility of the potential development from surrounding area;

- The potential visible skyline is illustrated in red dotted lines. White dotted lines identify the building forms that will not be visible due to existing buildings and/or trees.
- Considering of existing trees and built-form that soften the visual effect, it focus on testing the visibility of potential highest buildings.



Key map of the selected views

VIEW 1

Taken from Kissing Point Road toward north-west heights of Telopea

VIEW 2

Taken at the intersection of Kissing Point Road & Stewart Street toward Telopea

VIEW 3

Taken from Homelands Reserve toward north-west ridge of Telopea

VIEW 4

Taken at the intersection of Robert Street & Tintern Ave toward Telopea Station

VIEW 5

Taken at the intersection of Kissing Point Road & Burke Street toward north-west heights of Telopea Station

SHADOW IMPACTS

Increased density in Telopea will create more shadows. However, buildings can be designed and orientated to limit shadow impacts, particularly on key public spaces to deliver a level of comfort for pedestrians.

Potential future shadows (of building footprints that comply with the master plan building typologies) across Sturt Park, Acacia Park and the new station park/plaza are shown below. Shadows are shown between 9am and 3pm on the winter solstice (21 June).

The impact of shadows and solar access to residential units will be assessed in detail as the design for buildings is further developed.

9am

10am

11am

12pm

1pm

2pm

3pm

NEW STATION PLAZA AND PARK

The new station park and plaza will be in shadow at 9am but from 10am will be predominantly in full sunlight during mid-winter

NEW COMMUNITY FACILITIES PLAZA

The new community facilities plaza will occasionally receive decent amount of sunlight from 10 am to 1pm during mid-winter

12pm

9am

1pm

10am

2pm

11am

3pm

STURT PARK

Sturt Park will largely be in full sunlight throughout mid-winter. Parks of the Evans Road frontage will be in shadow, similar to the existing level of shadow cast by recent development

12pm

9am

1pm

10am

2pm

11am

3pm

ACACIA PARK

Only limited development potential is proposed around Acacia Park (limited to townhouse development of no more than 2 storeys). Acacia Park is located at a high point sloping down from all sides to the street. There will be no increased shadow impact across Acacia Park in a future development scenario.

12pm

9am

1pm

10am

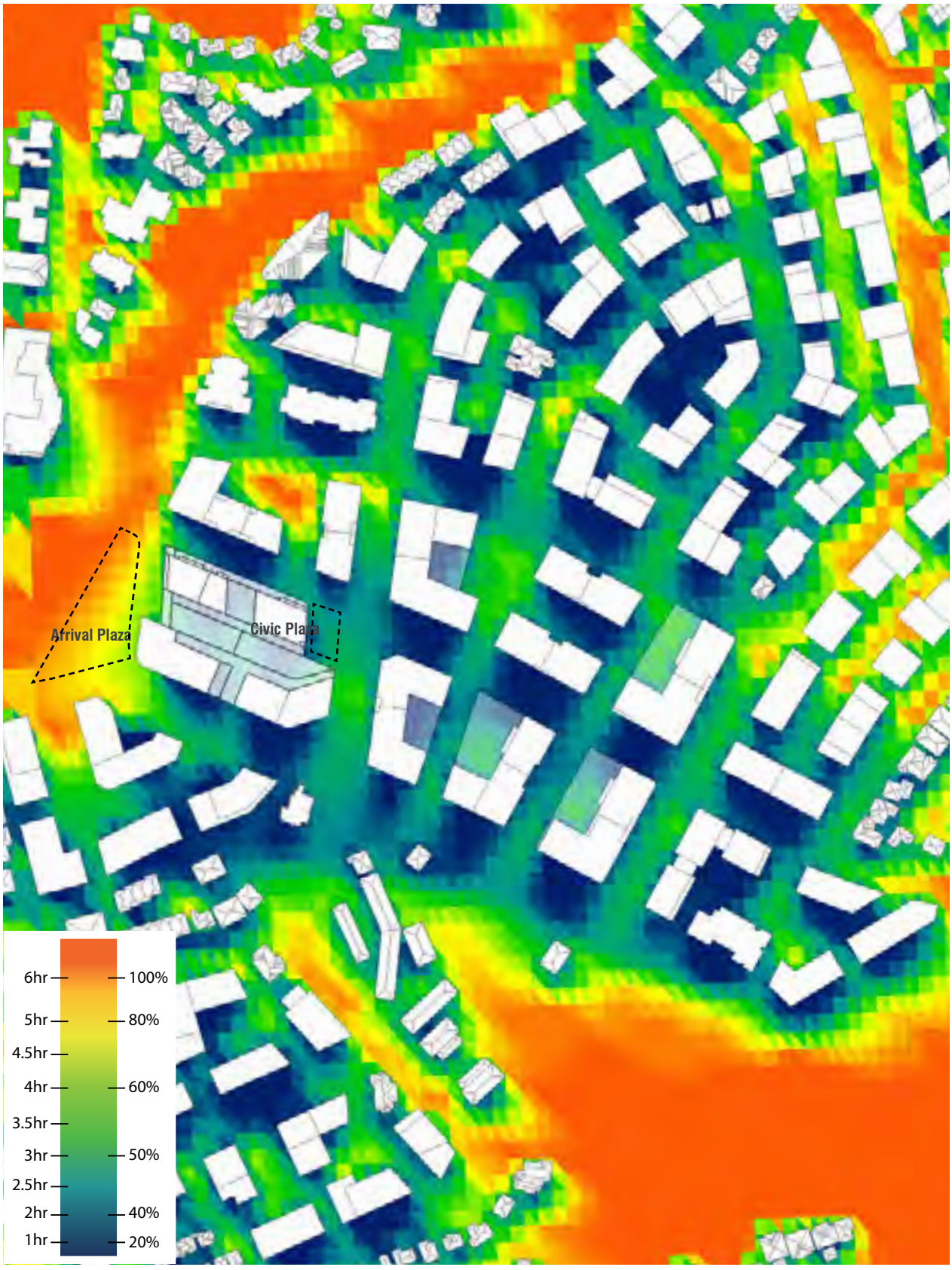
2pm

11am

3pm

CENTRAL POTENTIAL DEVELOPMENT SOLAR STUDY - HEAT MAP

The heat map illustrates sun hour study and assesses the shadow impact of the central area particularly the major pedestrian walkways and community open spaces during mid winter. As Eyles Street is located on the east-west orientation, it will be overshadowed by north facing buildings, however, key public domain area such as arrival plaza and civic plaza will receive at least 3 hours of sun access during mid winter which is an accepted standard for public urban spaces.



Sun hours assessment of the central area on the winter solstice (21 June).

TECHNICAL ADVICE

Technical advice has been provided from specialist consultants to inform the master plan. This advice included (and is outlined in this section):

- The management of traffic and car parking to accommodate the growth of Telopea.
- The community infrastructure needs for the projected population of Telopea.
- Identification of potential flooding issues within Telopea and suggested design solutions for run off and stormwater management.
- Any impacts on heritage matters within the Telopea development area and how to manage these.
- Identification of any flora and fauna species of ecological value and ways to preserve these.
- The utility requirements to service the proposed development growth within Telopea.
- Any land contamination matters within the development area and how to address these.
- The quantum of retail floor space required to service the growth of the Telopea population (as outlined earlier in this report).

The technical advice provided for these matters has been considered and incorporated into the draft master plan presented for community feedback. This advice will be formalised and presented in detail as part of the rezoning documentation.

TRAFFIC AND TRANSPORT

The traffic and transport advice identified the implications of the proposed master plan on the local traffic network. The traffic advice identifies the likely maximum impacts by assessing the implications of 4,500 additional dwellings and 7,000m^2 of additional retail floor space.

The following traffic advice was provided:

- The redevelopment of Telopea will benefit significantly from the proposed light rail stop. Advice on the location and integration of the light rail stop has been incorporated into the master plan and informed by discussions with Transport for NSW.
- The upgrade of key intersections within the master plan area will be required to accommodate the growth in traffic movements. These upgrades can be accommodated within existing road reserves, predominantly through the provision of roundabouts.
- The provision of a new road connection across the rail corridor between Sturt Street and Adderton Road would provide alternative local access to improve circulation throughout the master plan area. This road will support access to the light rail and associated transport interchange and require signals.
- The key external intersections that service Telopea are currently at capacity and experience delays at peak periods. These matters can generally be addressed through appropriately designed intersection upgrades to accommodate the growth of Telopea and solve current congestion issues.
- Traffic calming measures will be incorporated in Telopea to discourage through traffic on local roads, such as roundabouts and the provision of on-street parking.
- The incorporation of new pedestrian and cycling links and the construction of shared roads to improve the permeability of the active transport network throughout Telopea have been recommended.
- All new developments should accommodate on-site parking in accordance with the relevant planning controls.

A detailed traffic assessment will be undertaken in consultation with TfNSW, particularly in relation to the Parramatta Light Rail project, during the rezoning process.

UTILITY INFRASTRUCTURE

Discussions with the relevant service providers have determined that the growth shown within the proposed master plan can be appropriately serviced by water, energy, telecommunication, wastewater infrastructure.

CONTAMINATION

There are two existing and historical uses within the master plan area that may pose more of a risk of contamination, namely the site of the former dry cleaner and the existing mechanical repairs and services business. Any future development application including one or both of these two sites should include a more detailed assessment of potential contaminants.

RETAIL DEMAND

Economics advice has informed the master plan to understand the supportability of a new retail centre within Telopea. Initial feedback has found that there will be increases in demand for an enhanced retail provision. Provision for retail floor space has been made in the master plan in accordance with this input and includes a shopping centre with a full line supermarket, specialty retailing and complementary commercial uses (e.g. gym, medical, childcare).

SOCIAL INFRASTRUCTURE

There is a wide range of community facilities currently located in Telopea, and it is generally a well serviced community. However, some of the facilities are ageing and not representative of current best practice for social infrastructure (particularly the Dundas Community Centre including the Branch Library). Furthermore, the additional population generated by the master plan, and the changing demographic profile, will increase and change demand for social infrastructure in Telopea.

The social infrastructure advice outlined the likely demand for social infrastructure as a result of the incoming population generated by the master plan. The social infrastructure assessment was based on a maximum increase in population of 9,500 additional people and utilised a number of industry accepted benchmarks and standards.

The social infrastructure advice recommends that all existing services are maintained in Telopea, but that the facilities be upgraded and expanded to respond to the growing population.

The key recommendations for future provision of social infrastructure are:

- A new multi-purpose community facility of 3,000 sq.m to replace the Dundas Community Centre. This facility would be 1,200 sq.m larger than the existing centre, spread over several levels, and can be located close to the retail area.
- A multi-purpose community facility could accommodate the following:
  - New neighbourhood centre (2,100sqm) accommodating Dundas Area Neighbourhood Centre (DANC) services (including office space and program rooms), community health services, multi purpose hall (200 seats) and meeting rooms.
  - A new branch library (900sqm) which more than doubles the size of the existing library. The total area and multi-level design will allow Council to change and adapt the facility to respond to future detailed designs and meet evolving requirements of a changing and growing population.

It is recommended a multi-purpose facility is co-located or located nearby shops and services, the Telopea Public School and the existing Dundas Community Centre.

As outlined in the master plan, other community facilities (including child care centres, after school care and a performance hall) may be accommodated within Telopea to cater for the incoming population. These facilities may be co-located on the Telopea Public School or other community facilities.

ECOLOGY

Advice from an ecological consultant identified a patch of Alluvial Woodland and hollow bearing trees in the southern recreation reserve, this is not proposed to be impacted on through the master plan.

Additional small fragmented patches of Blue Gum High Forest have been identified and are proposed to be retained where possible within landscaped areas shown in the master plan. These can be supported through future plantings of native species in these landscaped areas.

Located amongst Creek catchments, Telopea is rich in mature vegetation and is set within significant tree canopies. These qualities are valued by the community and are to be retained where possible.

- Ecological values found in Telopea which are to be comprise some high biodiversity values such as critically endangered ecological community (CEEC), Endangered Ecological Community (EEC) and Hollow bearing Trees that provide potential habitat for threatened species. These values are to be retained, protected and improved where possible.
- Low to moderate values which are to be retained where possible to maintain connectivity consist of:
  - Fair to good riparian corridor such as within Sturt Park and Rapanae Community Forest; and
  - Urban landscape corridor which is urban vegetation such as mature trees that can provide links between core habitat vegetation; and
  - May contain hollow-bearing trees that have not been mapped.

Ecology

FLOODING AND STORMWATER MANAGEMENT

Telopea is located in the Ponds/ Subiaco Creek catchment, which is part of the larger Lower Parramatta River Catchment. There is flood risk at the southern portion of Sturt Park, however, most of the proposed development area is outside of this 100 year ARI flood extent.

A small section of partially affected properties within the study area are located on Kissing Point Road at the Sturt Road intersection and would typically be categorised as medium to high risk categories and would requiring a flood risk assessment to be undertaken to assess any development.

Advice on the flooding and stormwater issues associated with the site has provided feedback on the following:

- The existing stormwater pit and pipe network
- The on-site detention requirements for the master plan development
- Ways to improve runoff quality
- Any impact of flooding related to Ponds Creek
- Any drainage upgrades that may be required to alleviate any flooding impacts

The technical input has informed the master plan as follows:

- Development has been appropriately located to avoid flood prone land and can be managed.
- Provision has been made in the design for the medium and high-density residential lots and commercial/retail development to incorporate their own water treatment facilities.
- There are a number of options available to incorporate in the master plan to maintain appropriate water quality, such as the use of vegetative filter strips, infiltration swales and installation of rainwater ponds to address water quality.
- Drainage upgrades have been identified and can be managed through the master plan.

100 ARI flood extent

Detail of the properties affected by the 100 ARI flood extent

HERITAGE

There are listed heritage items located within and in the vicinity of the Study Area, such as Redstone, Acacia Park, and the Rapanea Community Forest.

- Redstone is a residential dwelling designed by Walter Burley Griffin and constructed in 1935. It is listed on both the Parramatta LEP 2011 as a local heritage item of state significance (I01795) and on the state heritage register (SHR) as a state heritage item (Listing No. 01795).

Other sites in area include items associated with Aboriginal cultural heritage. They include:

- Acacia Park (45-6-240), registered as an historical archaeological site identified as artefact scatters located on the northern boundary of Acacia Park and on Evans Road.
- Rapanea Community Forest (45-6-2572), Sturt Park (45-6-2569) and the Ponds Creek Reserve (45-6-2571) are identified on the Aboriginal Sensitivity Map provided at Appendix 11 (Map 11.1) of the Parramatta DCP 2011 as areas of high Aboriginal archaeological sensitivity.

Heritage Map

State Heritage Register Curtilage (Source: Heritage Council of NSW)

View of Redstone from Manson Street

ASSESSMENT

As part of the master plan process a heritage assessment of the opportunities and constraints within the master plan area has been undertaken (Urbis, 2016).

Based on a review of the opportunities and constraints relating to both built heritage and Aboriginal cultural heritage, the following conclusions and recommendations have been made:

BUILT HERITAGE

- Listed heritage items located within and in the vicinity of the Study Area, being particularly Redstone, Acacia Park, and the Rapanea Community Forest, should be maintained in their existing settings, without change. Proposed building typologies in the vicinity of these items are assessed as appropriate;
- Significant view corridors to and from Redstone specifically must be considered with reference to the existing planning controls in the current LEP;
- Building typologies proposed in the vicinity of Redstone are considered acceptable;
- It is noted that any development that is to occur within the vicinity of Redstone, or of any other listed heritage items in the vicinity of the Study Area (i.e. Acacia Park and the Rapanea Forest) will require a specific heritage impact statement at the relevant stage of the applicable planning approvals process;
- Redstone will not be affected by the scale of new potential development given the sufficient distance will not result in any adverse visual impacts to the items visual curtilage or setting. Its existing setting (defined by its SHR curtilage, has been extended north by the current plan) will be protected going forward, with appropriate scale/building typologies proposed in its vicinity
- The building height and typology map nominates a curtilage for the house that exceeds the identified state heritage listing curtilage, particularly to the north, thereby affording a greater level of protection for the item's immediate setting and significant grounds;
- The building typology nominated to the immediate east and south (across Manson Street) of the item is comparable to existing, being a 'townhouse' typology of 1-2 storeys;
- Development further north will be relatively of a limited scale, (low-rise apartments 3-4 storeys) and it is considered that the proposed curtilage of the item provides an adequate buffer between Redstone and potential new 3-4 storey apartments further north. The slope of the land downwards to the north will further reduce any apparent visual impacts as viewed from Manson Street;
- The potential 8 storeys development at Polding Place will be located in a sufficient distance from Redstone to ensure that it does not adversely impact the item's significance.

ABORIGINAL CULTURAL HERITAGE

- As Acacia Park is registered as an historical archaeological site, works to the Park must consider the potential impacts to any archaeological resource that may be present. If works are proposed in the Park an archaeological assessment will be required to determine the potential impact of these works. If little to no impact is determined, no further assessment will be required. If impact is likely, a s140 Application for an Excavation Permit will be required. Further archaeological assessments for Acacia Park could be completed at a later stage of the applicable planning approval pathway;
- Registered Aboriginal sites within and in the vicinity of the Study Area must not be impacted and should generally be avoided;
- In the event that any proposed development becomes likely to impact these sites (including landscaping works, installation of fencing or playground equipment, creation of bike tracks etc), further investigation will be required, and an Aboriginal Heritage Impact Permit (AHIP) may need to be obtained. This applies to both of the sites and is discussed in detail at Section 4. Further assessments for Aboriginal cultural heritage could be completed at a later stage of the applicable planning approval pathway;
- To avoid triggering any further assessment or approvals processes under the National Parks and Wildlife Act 1974, it is recommended that existing riparian corridors, land zoned as E2, and relatively undisturbed land (such as parkland and reserves, including Second Ponds Reserve) be maintained as is; rezoning and/or development generally should be concentrated in areas that have already been subject to development/have already been disturbed. This applies also to land identified in the DCP 2011 as having high Aboriginal archaeological sensitivity;
- Provided that proposed rezoning and potential redevelopment is restricted to areas that have already been subject to development/disturbance, no further assessment or approvals with regards to Aboriginal cultural heritage will be triggered.

5. KEY CHANGES TO DRAFT MASTER PLAN

Following the community engagement in 2016 and the Expert Review Panel in October 2016, the project team made a number of changes to the master plan. These changes have been incorporated in the A Vision for Telopea Master Plan Report and the analysis informing these changes is documented in this Background Report.

The key changes to the master plan are outlined below and shown on the plan over page.

BUILT FORM

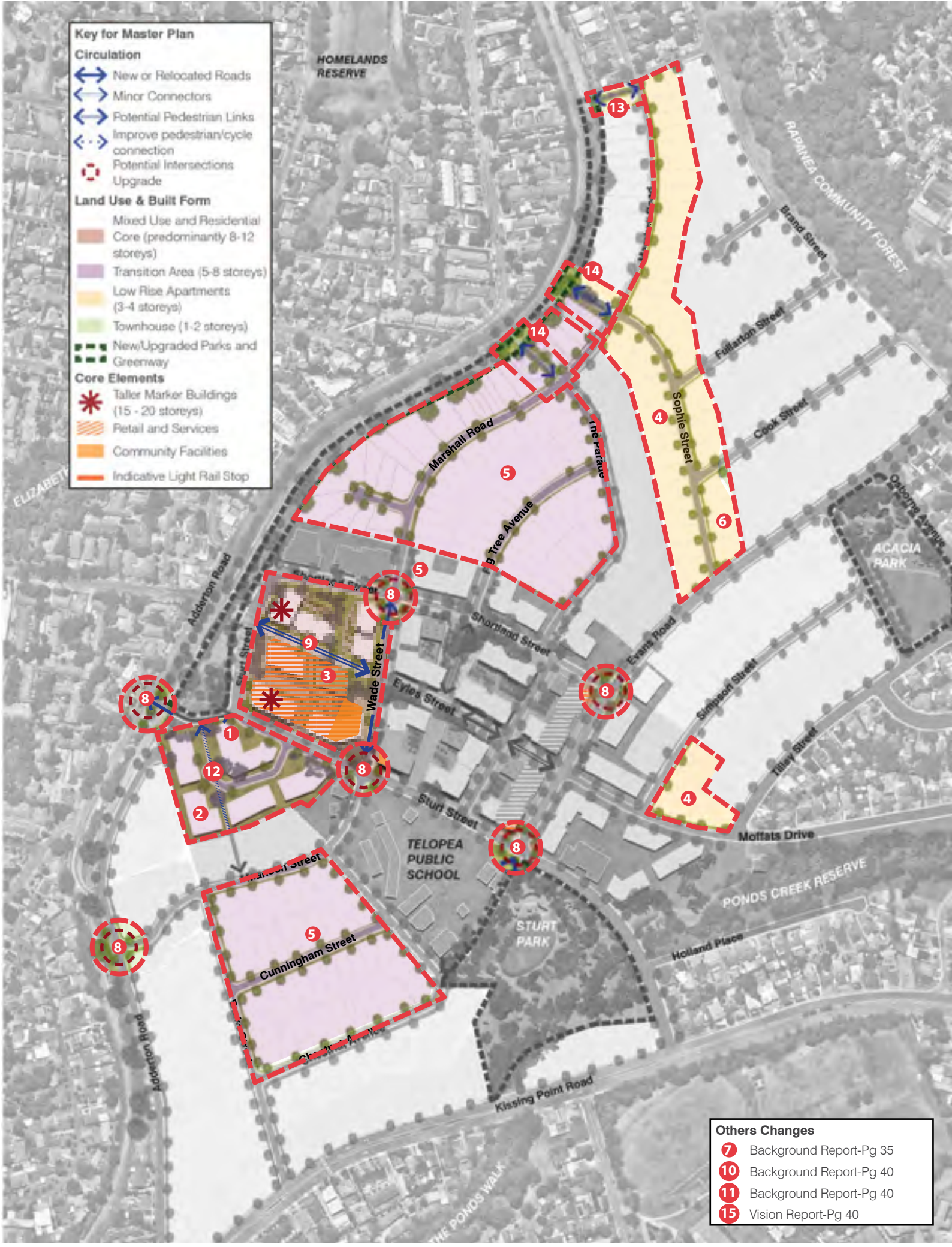
1. Remove the taller tower from the Polding Place precinct and reduce the maximum height to 8 storeys – to ensure solar access is achievable to existing and future neighbouring properties.
2. Amend the building envelopes on Polding Place precinct – to ensure solar access is achievable to existing and future neighbouring properties.
3. Amend the building envelopes in the core – to ensure adequate solar access to public spaces, particularly the new public square on Wade Street.
4. Confirm the extent of the Low Rise Apartment area – to ensure it is appropriately located within accessible locations and accurately reflects existing development controls.
5. Limit 8 storeys in the Transition Area to sites opposite the core – to ensure future buildings will reduce in height away from the light rail stop.
6. Limit buildings to 3 storeys in the Low Rise Apartment Area to the north-east of Sophie Street – to ensure buildings will transition down and to limit shadow and privacy impacts on the adjoining Townhouse Area.

ROAD NETWORK AND PARKING

7. Confirm a road hierarchy - to clarify the function of roads within Telopea with appropriate travel lanes, on-street parking and pedestrian footpaths.
8. Identify more intersections requiring upgrades - to ensure the road network can accommodate the incoming population. The upgrades may include the implementation of traffic lights, roundabouts or other mechanisms to manage the additional population.
9. Prepare options for the future design of Eyles Street – which will be further developed as part of a future development application.
10. Recommend an approach to on-street parking - particularly along narrow roads to ensure adequate paths of travel for cars on key routes through Telopea.
11. Recommend new off-street parking rates – to balance the demand for parking and to encourage increased public transport upgrades.

PUBLIC DOMAIN

12. Identify a new public pedestrian/cycle connection between Manson Street and the light rail stop – to ensure a direct path of travel for residents between the light rail stop and south of Manson Street.
13. Identify a new potential public pedestrian/cycle connection from Marshall Road to the Greenway as an extension from Howard Street – to provide connections to encourage use of the new park space along the Greenway.
14. Confirm options to deliver the potential public pedestrian/cycle connection from Marshall Road to the Greenway as an extension of either The Parade or Sophie Street – to provide flexibility regarding its location and ensure a link will be delivered.
15. Identify more public domain upgrades in the core – including new street trees, street lighting, seating and footpaths



Final Master Plan