

Leumeah Precinct

LAND USE AND INFRASTRUCTURE ANALYSIS

JULY 2015



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Figure 1: Report Structure

Introduction

Purpose of the Land Use and Infrastructure Analysis

This Analysis forms part of the Glenfield to Macarthur Land Use and Infrastructure Strategy and describes the methodology and evidence base that informed the vision and projected growth for the Leumeah precinct. Applying the principles of ecologically sustainable development has been intrinsic to this process.

The Analysis has incorporated a review of the character, demographics and economy of Leumeah.

A comprehensive audit of the precinct's environmental and built form characteristics identified areas to be protected and unconstrained land suitable for development.

The vision and growth projections for the precinct have been informed by economic feasibility and market demand analysis and reflect the long term housing and employment needs for the area.

Recommended improvements to the transport network aim to encourage more people to walk, cycle and use public transport for local and regional trips.

Improved connections to ecological corridors and open spaces have been identified and recommendations made to improve the quality of open spaces and the public domain.

A summary of the infrastructure requirements to support the precinct's growth is also provided to guide more detailed service and infrastructure delivery investigations.

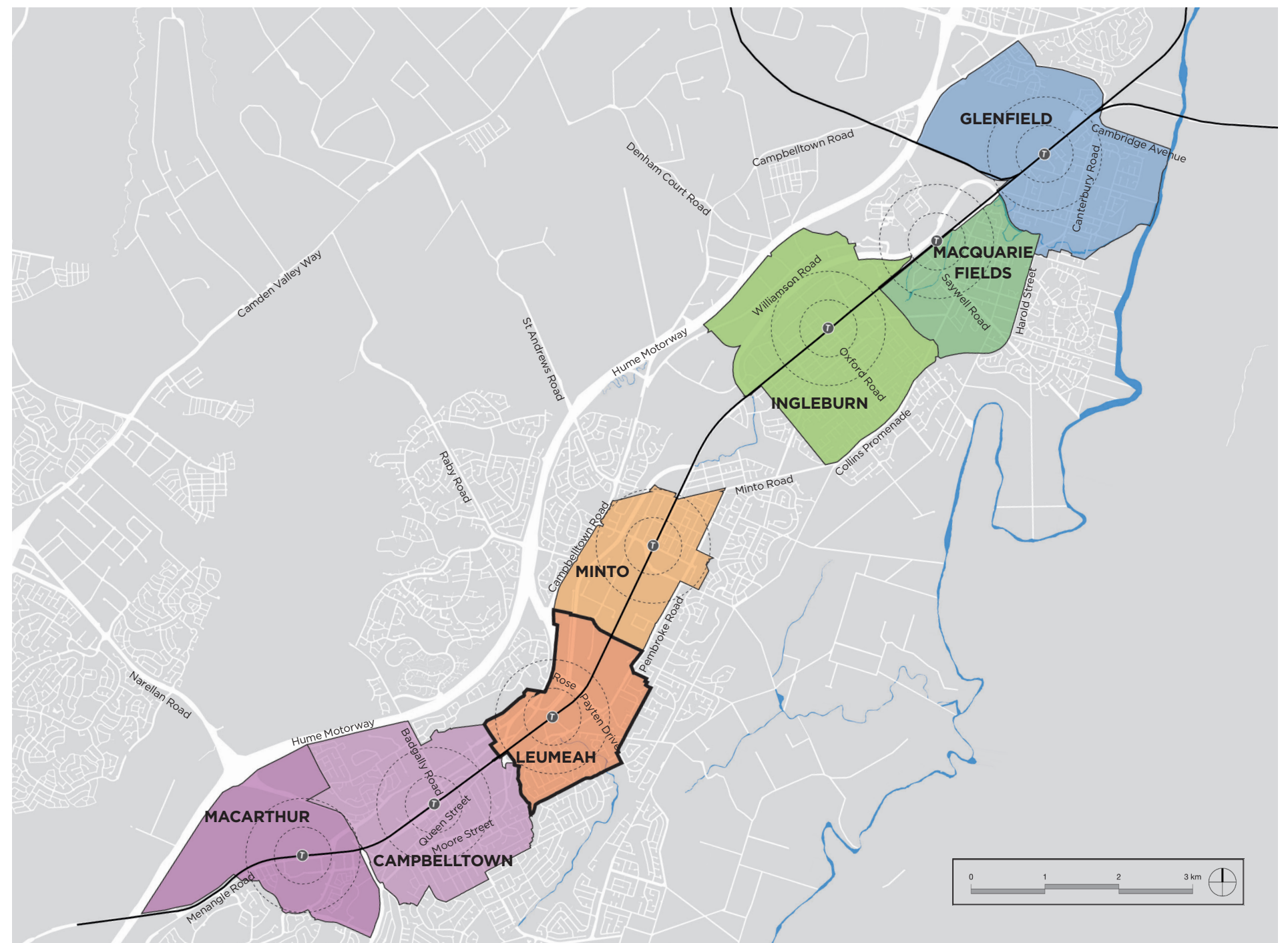


Figure 2: Glenfield to Macarthur Urban Renewal Corridor

Precinct Character

Leumeah is located approximately 39 kilometres from Sydney, between Minto and Campbelltown stations on the Cumberland, Airport, Inner West and South Lines.

The precinct is bound by Airds Road and Pembroke Park in the north, Campbelltown Road and Kanbyugal Reserve to the west, Lindesay Street in the east and Leumeah Creek to the south.

The boundary of the precinct is based on a radius of 800m - 1.5km from Leumeah Station, which represents a 10-20 minute walking trip.

Leumeah is slowly transitioning from a predominately major industrial precinct to a recreation, sports and entertainment precinct.

The precinct has a large focus on entertainment with the Campbelltown Sports Stadium and supporting services, such as West Leagues Club located to the east of the station. The precinct also contains a range of other sporting facilities including Wests Tennis Club, Campbelltown Indoor Soccer Arena and Campbelltown City Bowl.

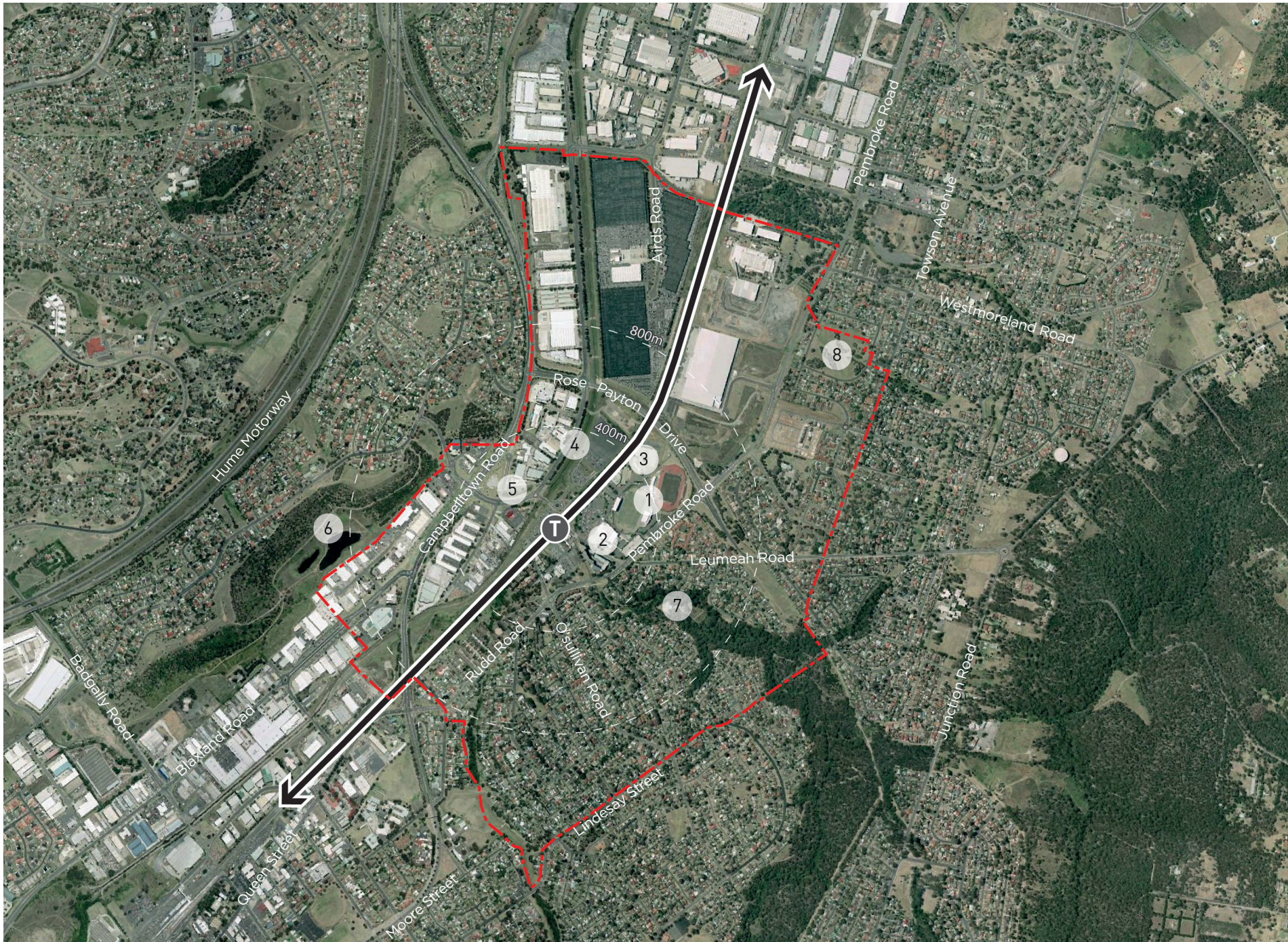
Residential uses are located on the eastern side of the station, characterised by predominantly low rise detached dwellings, with high rise mixed use apartments located close to the station.

A small local shopping centre is located directly opposite the station, on the eastern side of the precinct. The centre provides a range of local retail services for residents and commuters.

Land to the north west of the station is predominantly light industrial, separated from the rail line by a significant drainage easement. To the west of the station, bulky goods retailing is the predominant land use along Blaxland Road.

A large area of the precinct is also comprised of public and private car parking facilities. The precinct also contains significant green corridors, including Coolong Reserve and Smiths Creek reserve.

An aerial image of the precinct is provided in Figure 3. A series of photos that illustrate the existing built form and character of the precinct are provided on page 7.





Legend		Key Landmarks					
	Precinct Boundary	1	Campbelltown Sports Stadium	4	Bow Bowling Canal	7	Smiths Creek Reserve
	Station	2	Wests Leagues Club	5	Hollylea Reserve and Skate Park	8	Normandy Reserve
	Train Line	3	Wests Tennis Club	6	Kanbyugal Reserve		

Figure 3: Leumeah precinct, with key landmarks identified

Demographics and Economy

Demographics

The population of the precinct was 6,047 at the last census in 2011. Key characteristics of the precinct population include:

- ▶ A lower median age than Sydney and the Corridor but higher than the Campbelltown LGA
- ▶ A larger proportion of children and people in their twenties, fifties and sixties compared to Sydney as a whole, indicating relatively more families living in the area
- ▶ A smaller proportion of residents aged over 65 years than the Corridor and Sydney
- ▶ A smaller proportion of separate dwellings than Campbelltown LGA but a larger proportion than Sydney
- ▶ A larger proportion of unit and apartment dwellings than Campbelltown LGA but a smaller proportion than Sydney
- ▶ A lower proportion of families consisting of parents with children than Campbelltown LGA and Sydney as a whole
- ▶ A higher proportion of lone person households compared to both Campbelltown LGA and Sydney
- ▶ A smaller average household size than both Campbelltown LGA and Sydney, with 2.47 persons per household
- ▶ A slightly smaller proportion of dwellings that are owned outright or with a mortgage than Campbelltown LGA, but consistent with Sydney
- ▶ The majority of residents travel to work by car – although the precinct had a slightly higher proportion of residents taking the train compared to Sydney
- ▶ The lowest proportion of residents born overseas along the Corridor. The top three countries of birth other than Australia were England, India and Philippines

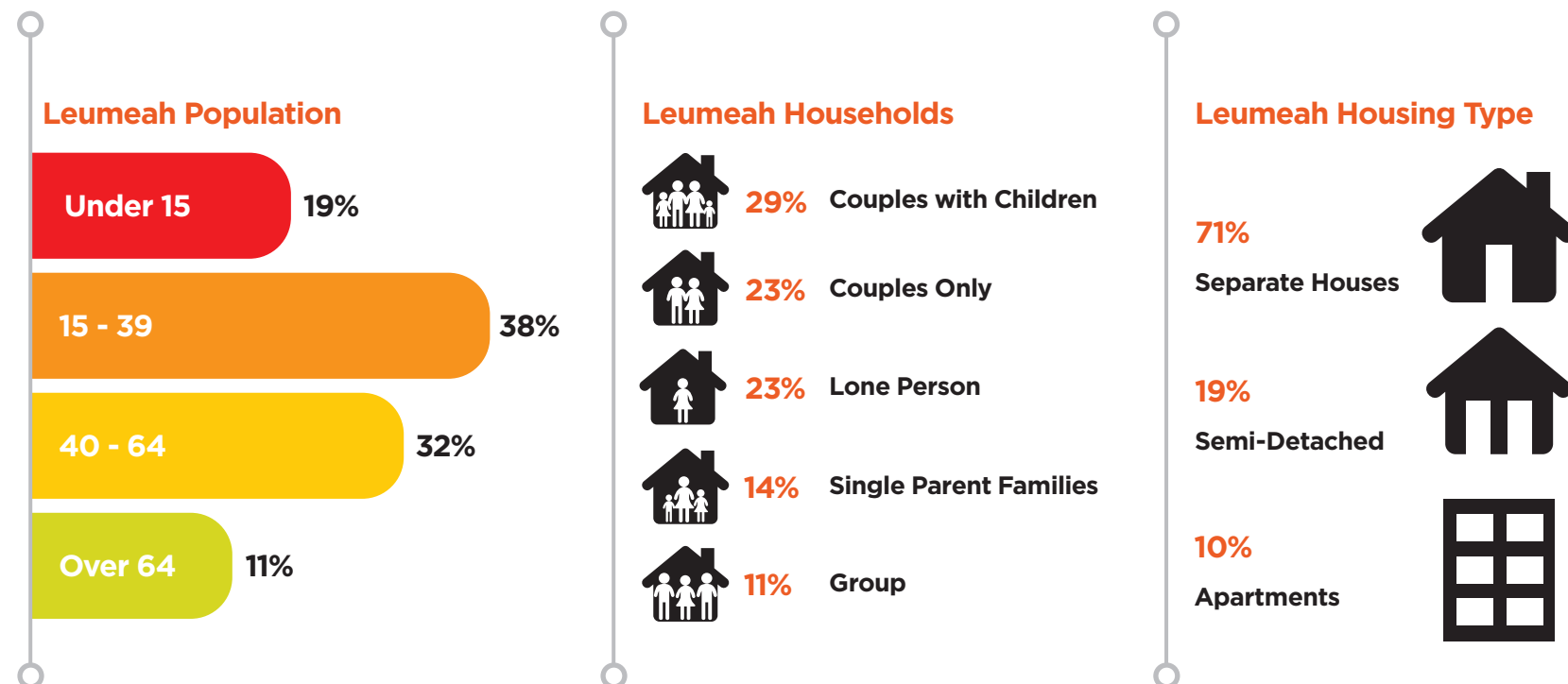


Figure 4: Key demographic facts for the Leumeah precinct

Economy

In 2011 there were 5,083 jobs in the precinct. Just under half of all jobs were in the industrial sector, with about a third of jobs in retail. Combined, they comprise the vast bulk of jobs in the precinct.

Leumeah has also developed into a centre for cultural, recreational and tourism activities in the Campbelltown Local Government Area, which contributes to a growing number of jobs in accommodation and food services.

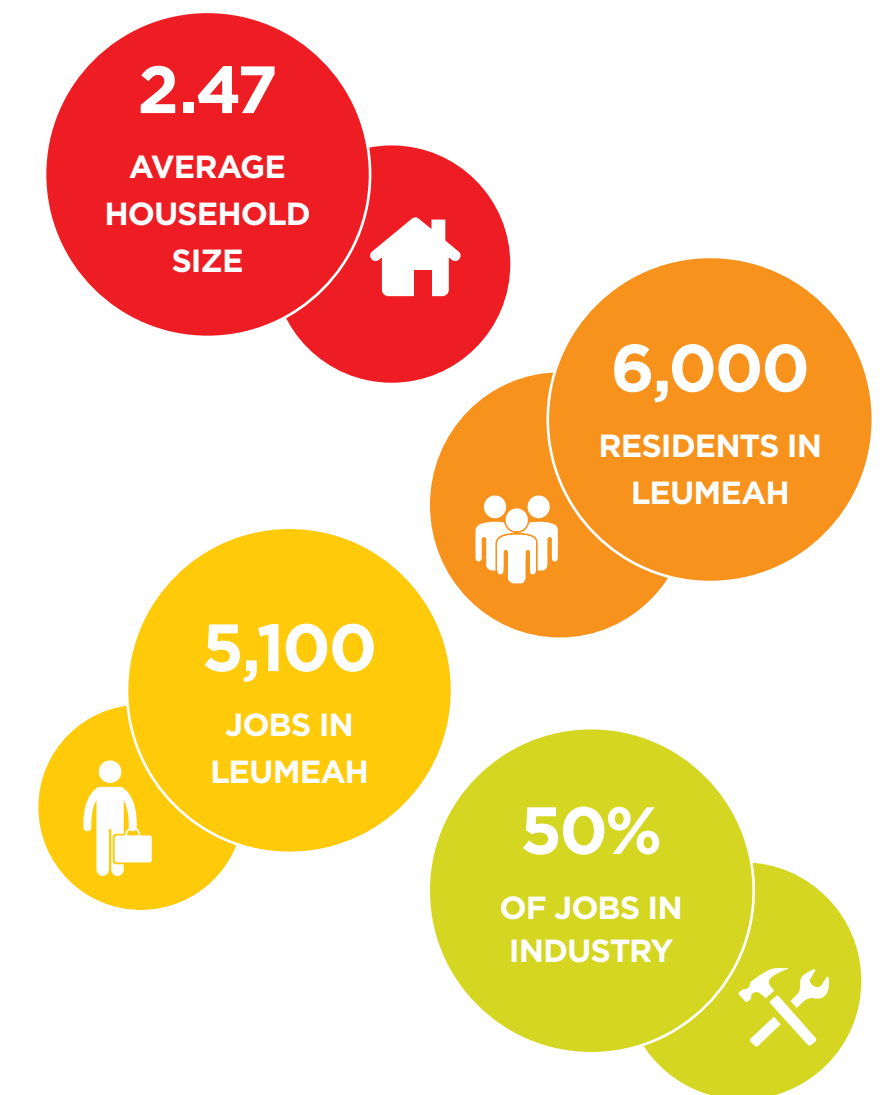


Figure 5: Key demographic facts for the Leumeah precinct

Constraints Analysis

This section is an assessment of the constraints within the precinct. The physical characteristics of the precinct have been mapped and analysed to identify constrained and unconstrained sites for renewal. These characteristics include: transport and movement; open space; topography; flooding; vegetation; bushfire risk; heritage; recent residential development; land ownership; and social infrastructure.

The combination of these elements reveal the overall level of development constraint within the precinct. However, not all constraints that are identified are necessarily barriers to change, often they are opportunities for renewal in the future.



Figure 6: Images demonstrating the existing character and built form of the Leumeah precinct

Site Context

Transport and Movement

Pembroke Road, Campbelltown Road and Blaxland Road serve as the primary north-south access ways in the precinct, while the Hume Motorway and Campbelltown Road provide the main regional routes for through traffic in the area. The east-west access points for the precinct are Rose Payton Drive Road and Campbelltown Road in the middle of the precinct.

East-west vehicle movements are limited by the lack of road connections across the precinct due to the barrier formed by the rail line and the large landholdings to the north in the Minto and Leumeah industrial areas.

The eastern half of the precinct from Rudd Road contains a poorly connected local road network, featuring a number of culs-de-sac that create barriers to vehicular and pedestrian movement, particularly in an east-west direction. Traffic signalisation is limited to the major north-south running roads, Pembroke Road and Campbelltown Road.

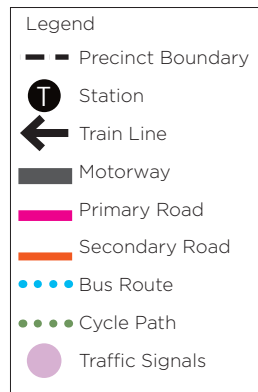


Figure 7: Transport and movement within the Leumeah precinct

Walking Catchment

Figure 8 below demonstrates the 5, 10 and 20 minute walking catchments from Leumeah station. Pedestrian and cycling accessibility is restricted by the barrier created by the rail corridor. There are also a number of local streets with limited street lighting and pedestrian footpaths that further restrict active modes of transport.

The new footbridge that crosses the rail corridor at the Campbelltown Sports stadium connects pedestrians to the western side of the precinct to the at-grade car park and Leumeah station.

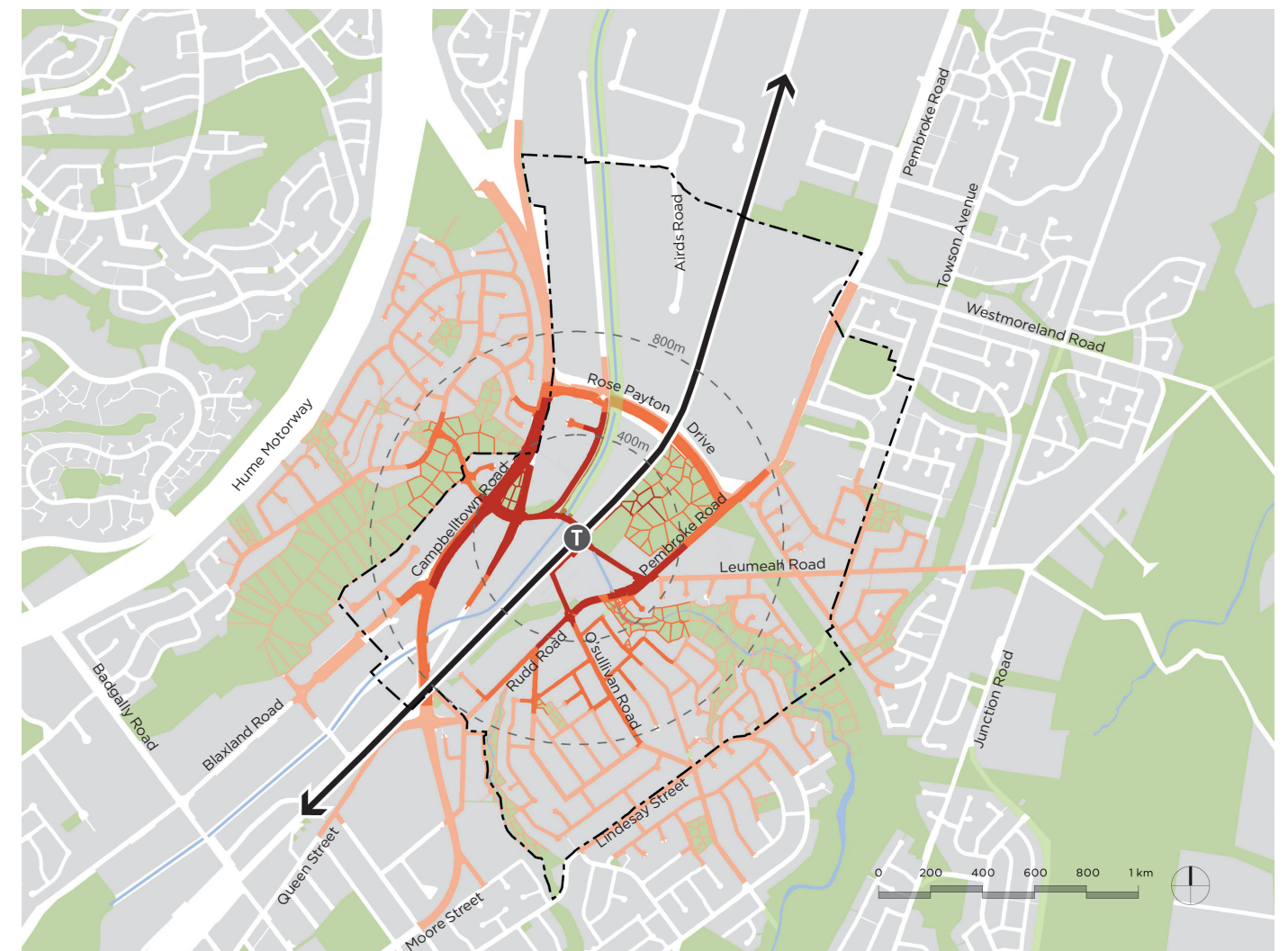
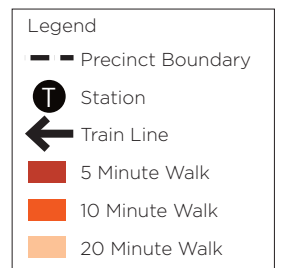


Figure 8: 5, 10 and 20 minute walking catchment within the Leumeah precinct

Open space network

The precinct has a good supply of passive and recreational open space, as identified in Figure 9(b). There are a number of local community parks, as well as significant green corridors.

The Campbelltown Sports Stadium and the Wests Leagues Club and Tennis Club are located in the precinct. The sports precinct comprises one of NSW's premier football stadiums, which can accommodate 20,000 spectators, and an international standard athletics facility, including athletics track and field facilities, which can accommodate 8,000 spectators.

There are a number of ecologically significant nature reserves running through the precinct with creeks and riparian corridors, including Smiths Creek Reserve, which is a large regionally significant open space that have both recreational and landscape value.



Figure 9(a): Existing open space network in the Leumeah precinct, the Bow Bowing Canal

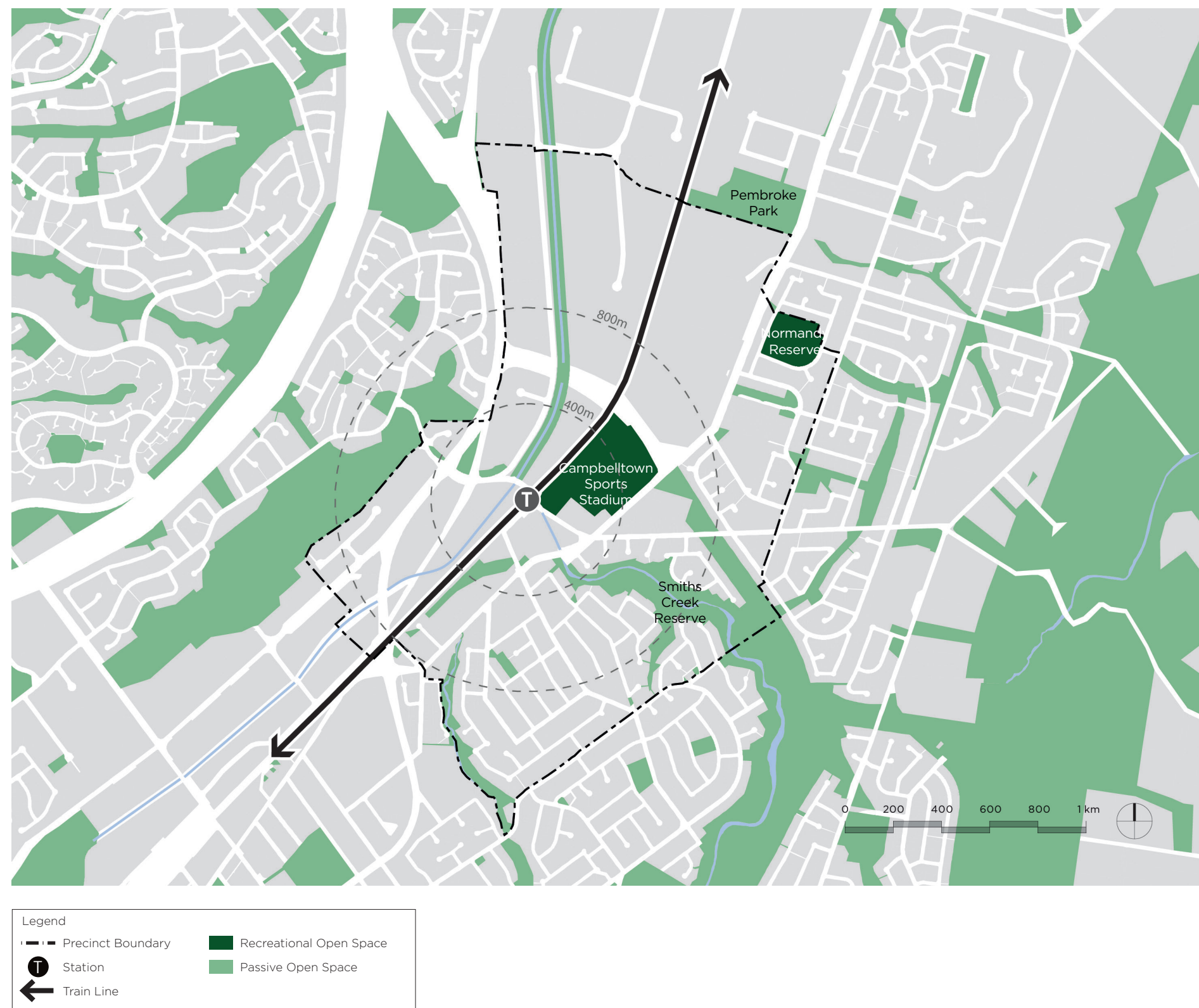


Figure 9(b): Open space network in the Leumeah precinct

Site Context

Topography

The topography within the precinct is undulating with a north-south ridgeline that runs along the far western edge of the precinct, providing views down to the precinct. The rail corridor is the lowest point in the corridor, with much of the surrounding areas on either side of the rail line also relatively flat and low.

The eastern half of the precinct has gentle undulating rises that then slope down towards the Smiths Creek Reserve and up to a ridgeline that borders the eastern boundary of the precinct.

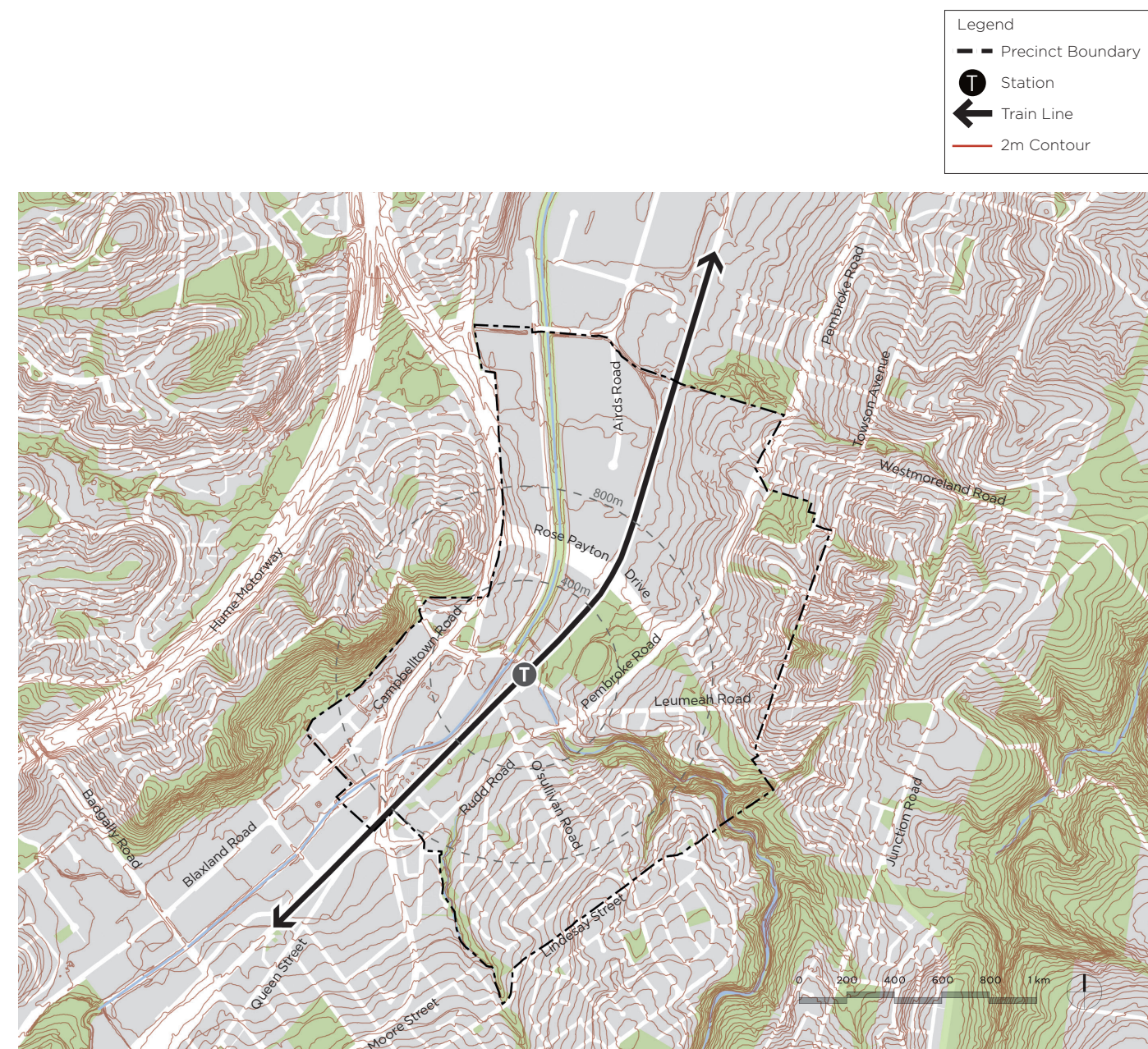


Figure 10: Topography within the Leumeah precinct

Flooding and Drainage

Figure 11 shows the location of waterways and associated riparian corridors in the precinct.

Campbelltown City Council is currently preparing a Floodplain Management Plan to identify areas subject to flooding. Once finalised, this Plan will be used to manage flood risk and inform future planning for the precinct.

Any development of land within the precinct will need to consider whether the land is flood prone and address any relevant flooding controls.



Figure 11: Riparian Corridors and waterways within the Leumeah precinct

Vegetation and Ecology

The precinct contains very little vegetation that is classified as Endangered Ecological Communities under the *Threatened Species Conservation Act 1995*. There are small concentrations of Cumberland Plain Woodland and River Flat Eucalypt Forest to the east of the station.

Riparian corridors are also identified in Figure 12 below, the River Flat Eucalypt Forest is located in areas of natural vegetation along the riparian corridor on the southern boundary.

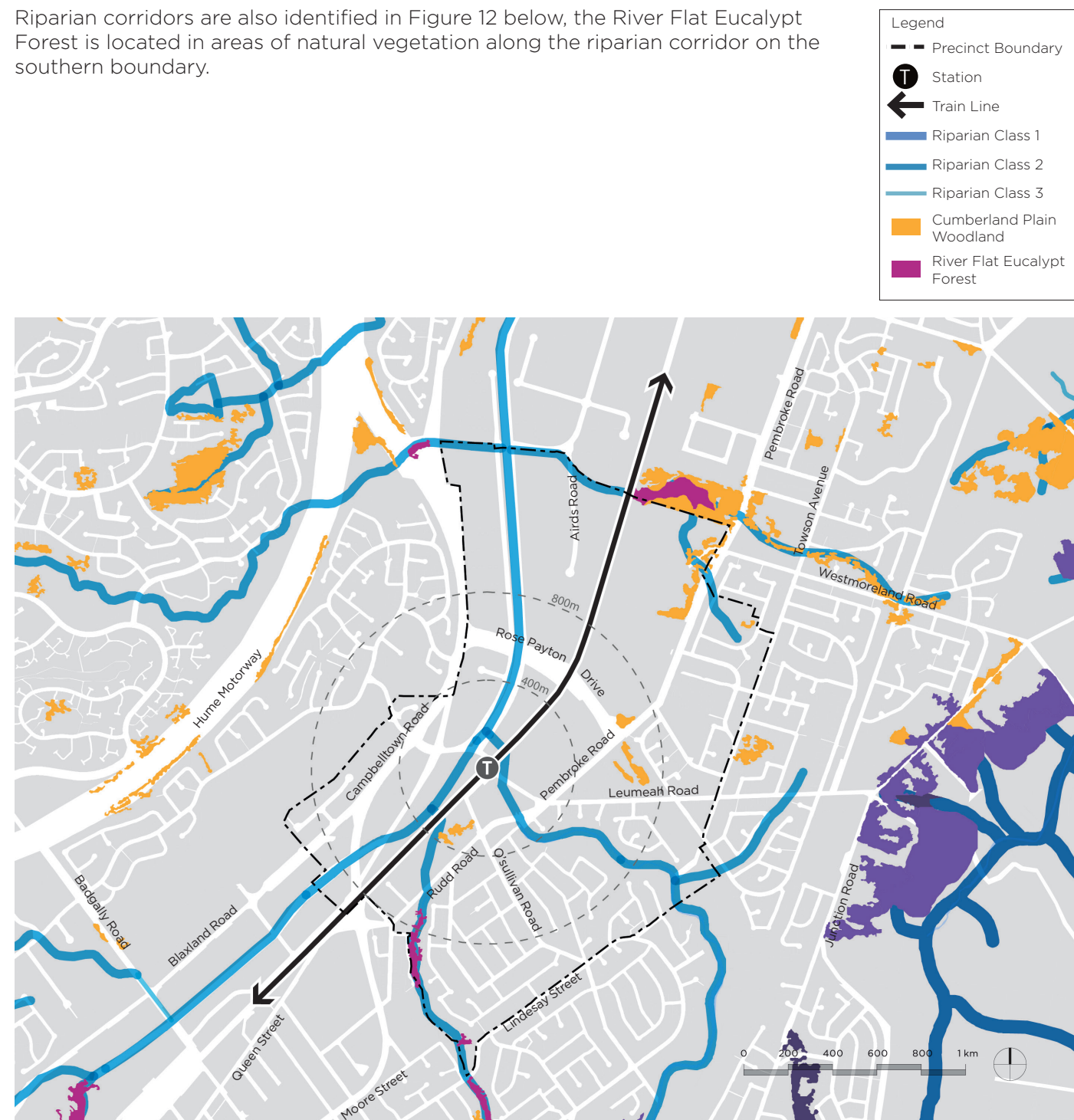


Figure 12: Vegetation and ecology within the Leumeah precinct

Bushfire Risk

Due to the small amount of existing vegetation in the precinct there is a relatively small amount of land that is subject to bushfire risk. The land in the east of the precinct, the Smiths Creek Reserve, is a riparian corridor that is at risk of bushfire, however very few other areas in the precinct are bushfire prone.

Any redevelopment of land within these bushfire prone areas will need to provide the required asset protection zones in accordance with relevant bushfire protection guidelines.

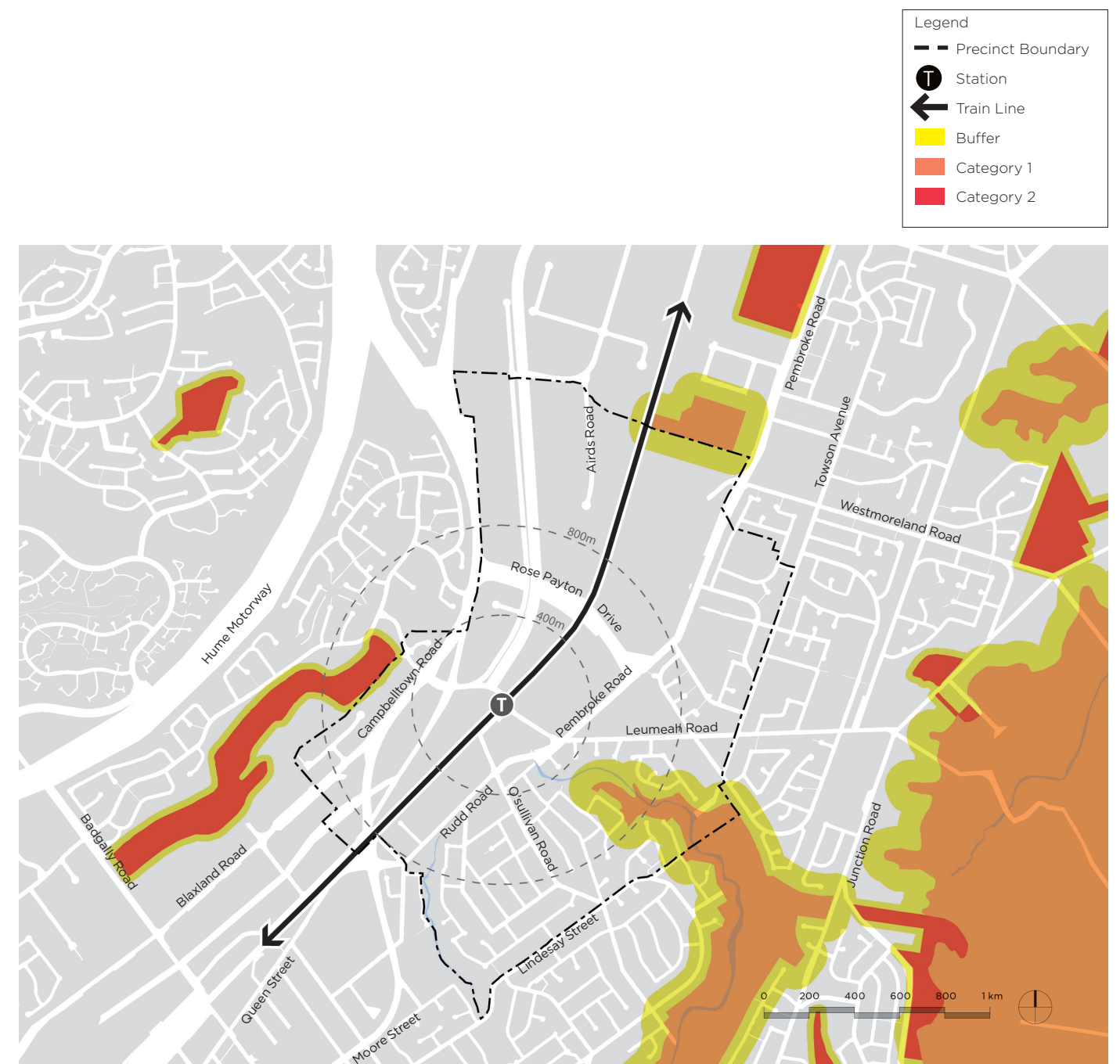


Figure 13: Areas of bushfire risk within the Leumeah precinct

Site Context

Heritage

The precinct contains two local heritage items. Leumeah Creek, on the southern boundary of the precinct contains one of two heritage listed dams, Warby's Dam 1, of local significance. Warby's Dam 2 is located outside the precinct on the south-eastern boundary.

'Hollylea', the former Plough Inn, located on the western side of the precinct, is a local and state heritage listed item of heritage, architectural and social significance.

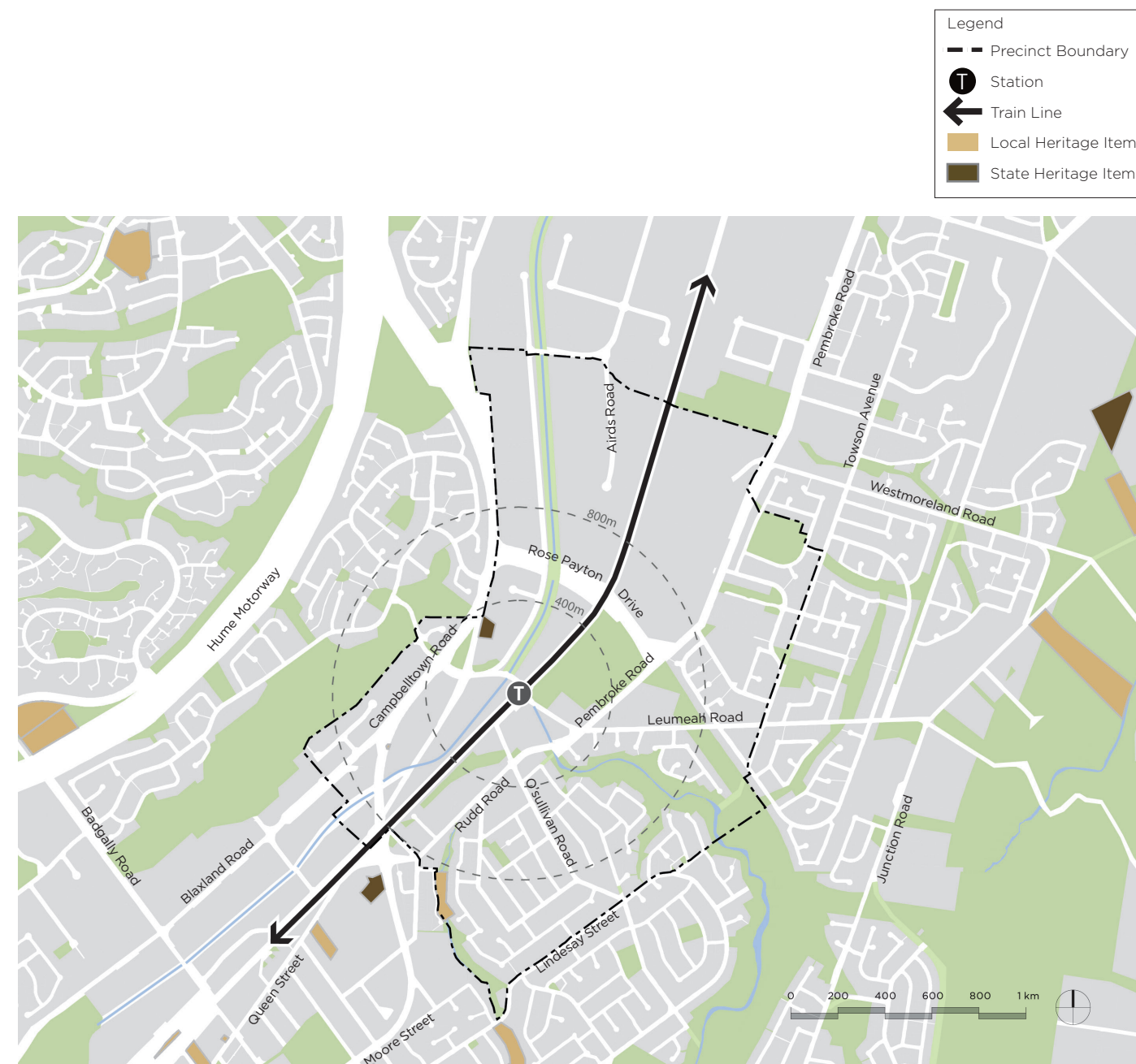


Figure 14: Heritage items within the Leumeah precinct

Recent Residential Development

Recent development is considered a short to medium term constraint to development as the average life cycle of a building is generally 30 to 40 years.

Analysis of recent residential development over the last 15 years indicated that incremental low rise development has occurred throughout the precinct. Figure 15 below illustrates where this development has occurred.

A relatively low proportion of dwellings, particularly in the east of the precinct, have been redeveloped with the exception of a small pocket of houses in the north-eastern corner of the precinct. This provides opportunities for a large number of sites in the precinct to be redeveloped over the next 20 years due to the condition and age of the existing building stock.



Figure 15: Recent residential development within the Leumeah precinct

Land Ownership

The following figure illustrates the different land ownership patterns in the precinct. Large tracts of land are owned by Campbelltown City Council, including the Campbelltown Sports Stadium, and surrounding car parking areas west of the station, the large Kanbyugal and Payton Reserves, and the Smiths Creek Reserve.

There is some strata titled residential development throughout the precinct, predominantly in the east near the station. There is also some industrial strata located to the west of the station.

Overhead transmission wires and corresponding easements traverse the length of the precinct near Rose Payton Drive. This significant utility service and easement corridor represent a constraint to certain types of land within its vicinity.



Figure 16(a): Campbelltown Stadium in Leumeah precinct

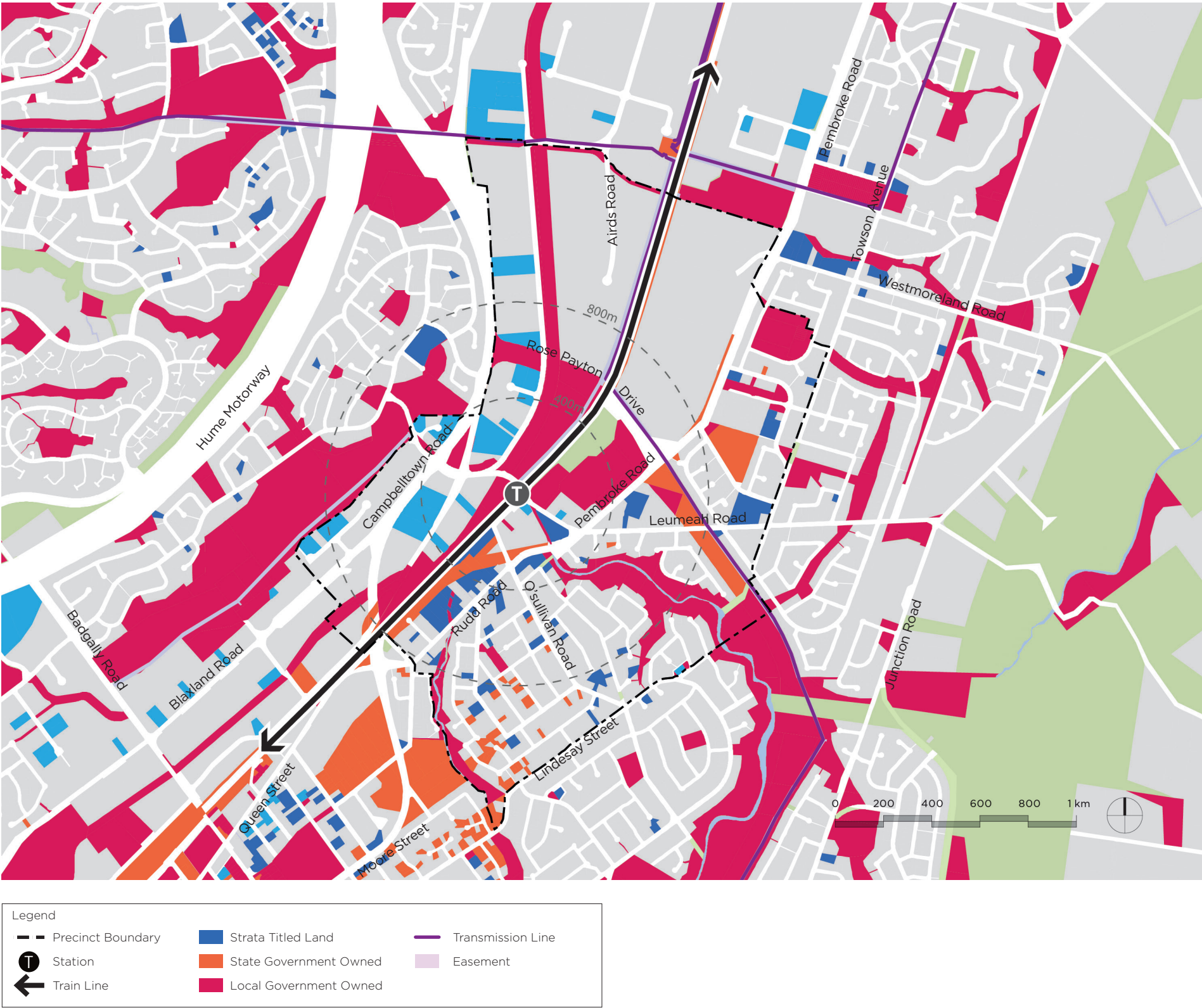


Figure 16(b): Land ownership within the Leumeah precinct

Site Context

Social Infrastructure

The precinct is well served by community facilities and infrastructure, as indicated in Figure 17. There are five local open spaces, regionally significant stadium and sports precinct, one school, as well as many religious centres, childcare and early learning facilities, and community services.

The community facilities are generally located in the eastern half of the precinct within an 800m to 1km radius of the station. The large majority of Leumeah’s residents live in this eastern half of the precinct.

Local Government Social Infrastructure

- 1. Normandy Reserve
- 2. Campbelltown Stadium
- 3. Coolong Reserve and Scout Hall
- 4. Hollylea Reserve and skate park
- 5. Leumeah Park

State Government Social Infrastructure

- 6. Leumeah Public School

Private and Non-government Infrastructure

- 7. Airds Medical Centre
- 8. Campbelltown Indoor Soccer Arena
- 9. Leumeah Congregational Church
- 10. Leumeah Medical Centre
- 11. Leumeah Tenpin bowling
- 12. Little Einsteins Child Care Leumeah
- 13. Little Einsteins Child Care Leumeah 2
- 14. Mission Australia Early Childhood Intervention Service
- 15. New Apostolic Church
- 16. Salvation Army Shop and counselling services
- 17. West Tigers Leagues Club

Nearby facilities servicing the precinct

- 18. Beverly Park Special School
- 19. Lomandra School
- 20. Campbelltown Performing Arts High School
- 21. Campbelltown North Public School
- 22. Ernest Walsh Reserve
- 23. Jackson Park
- 24. Kanbyugal Reserve
- 25. Leumeah High School
- 26. Little Green Frogs Preschool
- 27. Smiths Creek Reserve
- 28. Workventures Connect Centre Claymore

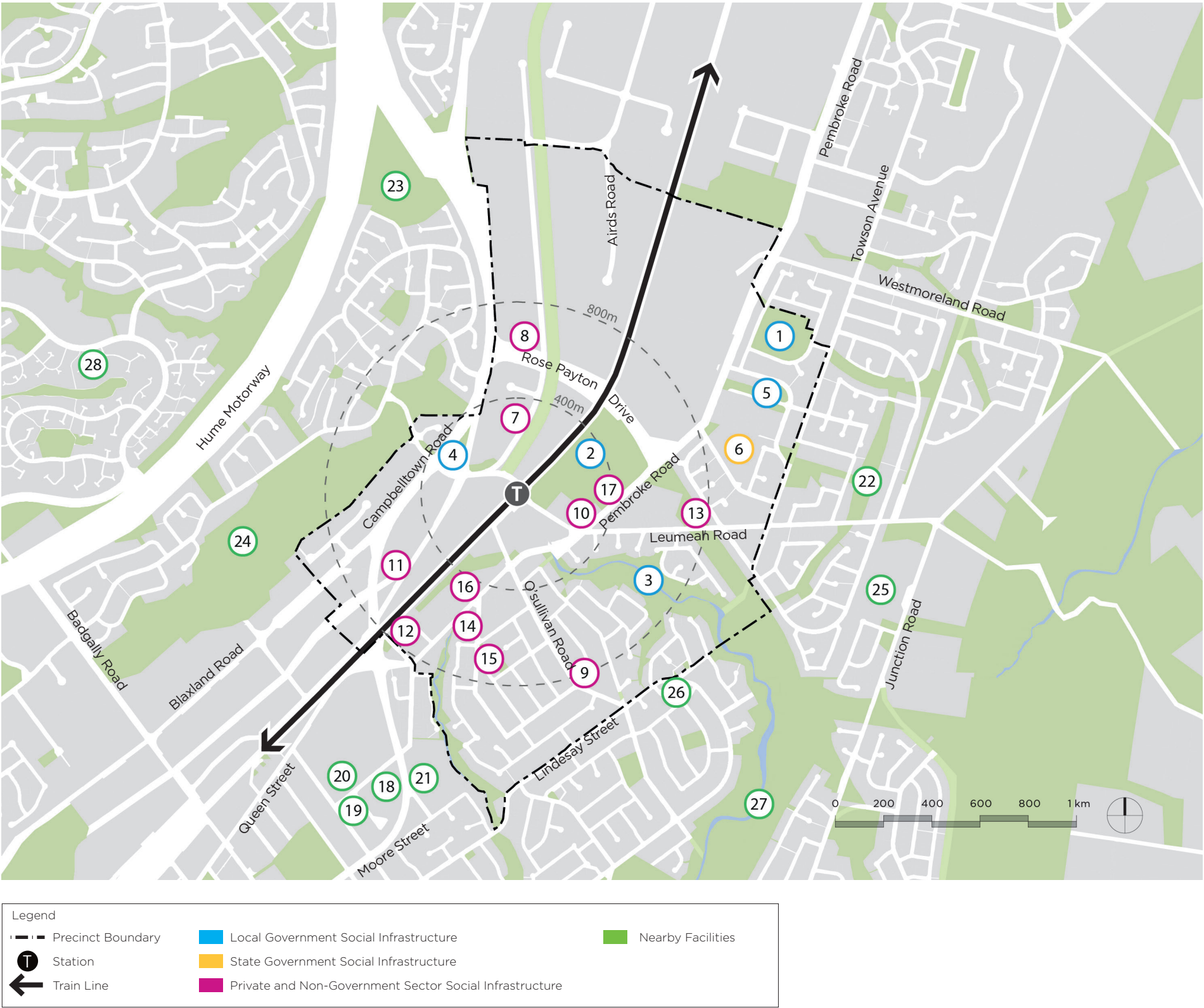


Figure 17: Social Infrastructure within the Leumeah precinct

Combined Constraints

The combined constraints mapping indicates that there are some portions of the precinct that contain some form of development constraint.

A considerable amount of industrial land in the western half of the precinct is constrained due to strata title. However only a small amount of land is constrained on the eastern side of the precinct, largely confined to riparian corridors and nature reserves.

Unconstrained Land

Unconstrained land provides the most potential for renewal over the next 20 years, subject to further investigations.

The eastern half of the precinct is relatively unconstrained and has potential to contribute to the future renewal and capacity of the precinct.

Land close to the station on the western side of the precinct is also unconstrained and provides opportunities for renewal.

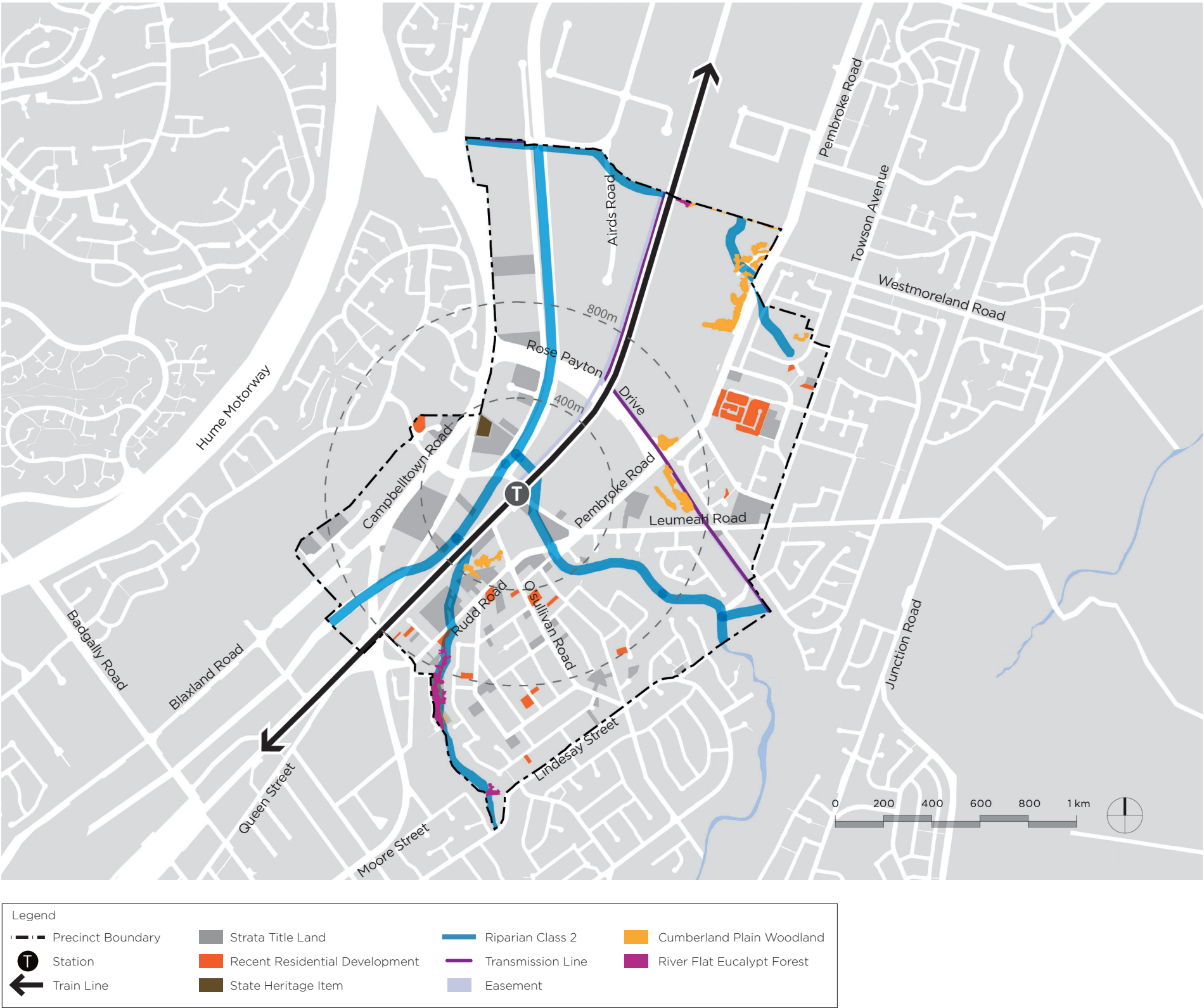


Figure 18: Combined constraints within the Leumeah precinct

Leumeah Vision



Figure 19: Existing character for the Leumeah precinct, O'Sullivan Road



Figure 20: Existing character for the Leumeah precinct, O'Sullivan Road

Housing



- Provide a variety of housing types within walking distance of the station to cater for all members of the community.
- Provide a range of building heights, with increased heights closest to the station to maximise pedestrian activity and increase trade for local businesses.

Jobs



- Leumeah's emergence as a regional recreation and entertainment precinct will be a catalyst for growth in services, retail and cultural employment jobs.
- Construction and industrial related jobs will continue to be a major employment base for the precinct.
- Potential for the precinct's employment lands to accommodate a broader range of employment generating uses and intensification of activities over time.

Movement Network



- Promote cycling and walking by providing new shared pathways, separated cycleways, footpaths, pedestrian refuges, street tree planting, bicycle storage facilities and lighting.
- Develop a continuous, safe regional commuter and recreational cycle route from Glenfield to Macarthur adjacent to the rail corridor.
- Introduce new local cycle routes to improve connections with Leumeah station and the surrounding area.

Open Space and Public Domain



- Enhance the local centre around Leumeah station with pedestrian friendly streets, outdoor dining, street tree planting, inviting public gathering spaces and attractive street furniture.
- Establish a quality open space and public domain network that provides better linkages to and upgrades of existing open spaces.
- Promote ecological corridors linking the precinct with Smiths Creek Reserve to the Georges River
- Investigate opportunities to review underutilised open space to contribute towards recreational outcomes

Built Form



- Campbelltown Sports Stadium and surrounding lands to be redeveloped as a regional sports, recreation and entertainment facility, providing a gateway to the Campbelltown Macarthur regional city centre.
- Ground floor retail and mixed residential uses within an enhanced local centre to generate activity and ensure a highly visible station.

**“A regionally significant sporting,
recreation and entertainment precinct
for south west Sydney”**



Figure 21: Desired future character for the Leumeah precinct, O'Sullivan Road

Land Use and Infrastructure Plan

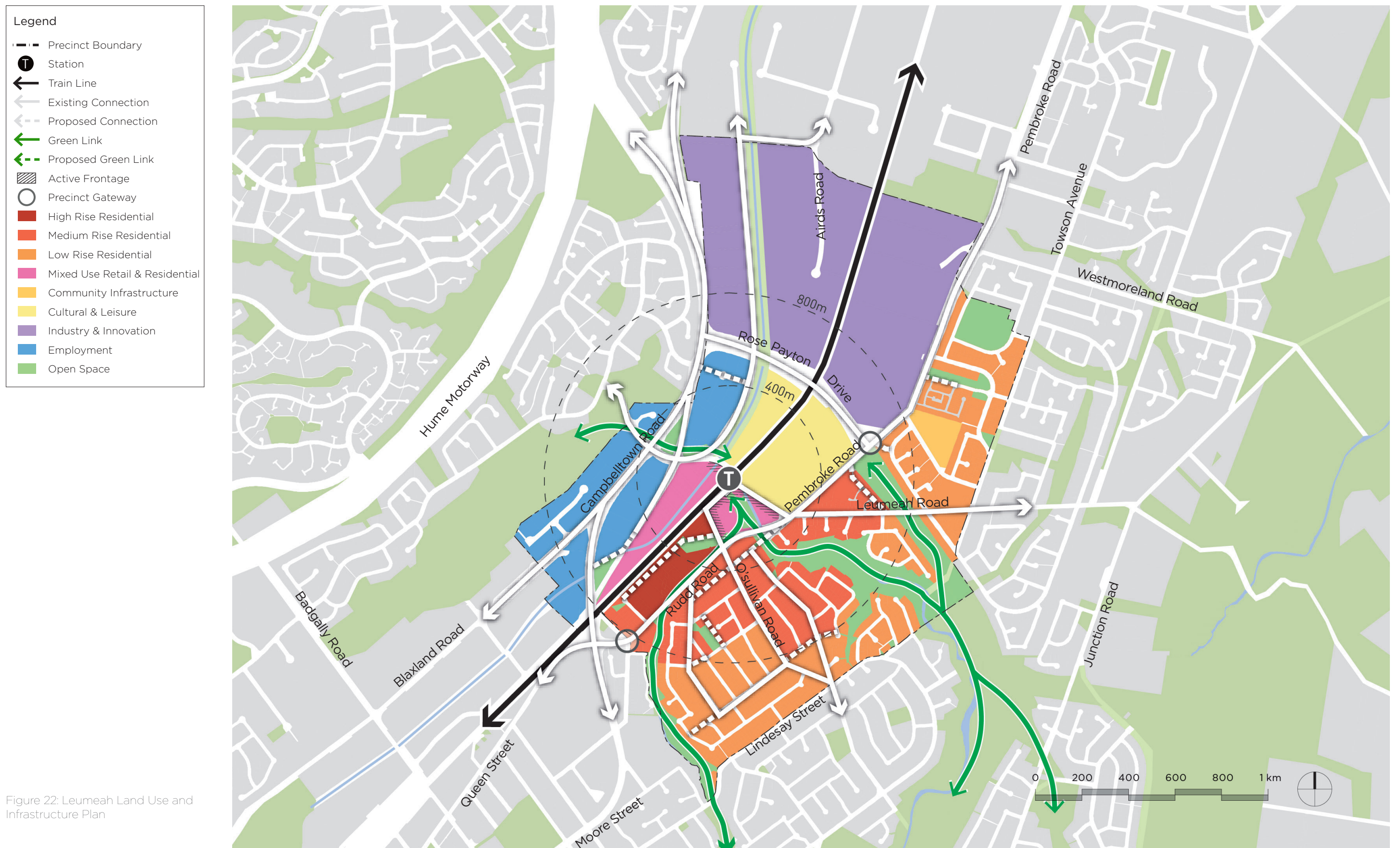
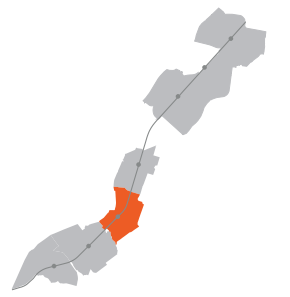


Figure 22: Leumeah Land Use and Infrastructure Plan



Future Precinct Character

The following diagrams and images demonstrate the desired future character for each area in Leumeah precinct.

Low Rise Residential

This area will largely retain its existing character and dwelling mix. Single-detached dwellings will remain the dominant housing type, however over time there is potential for renewal of building stock to provide a mixture of duplexes, townhouses and terraces.

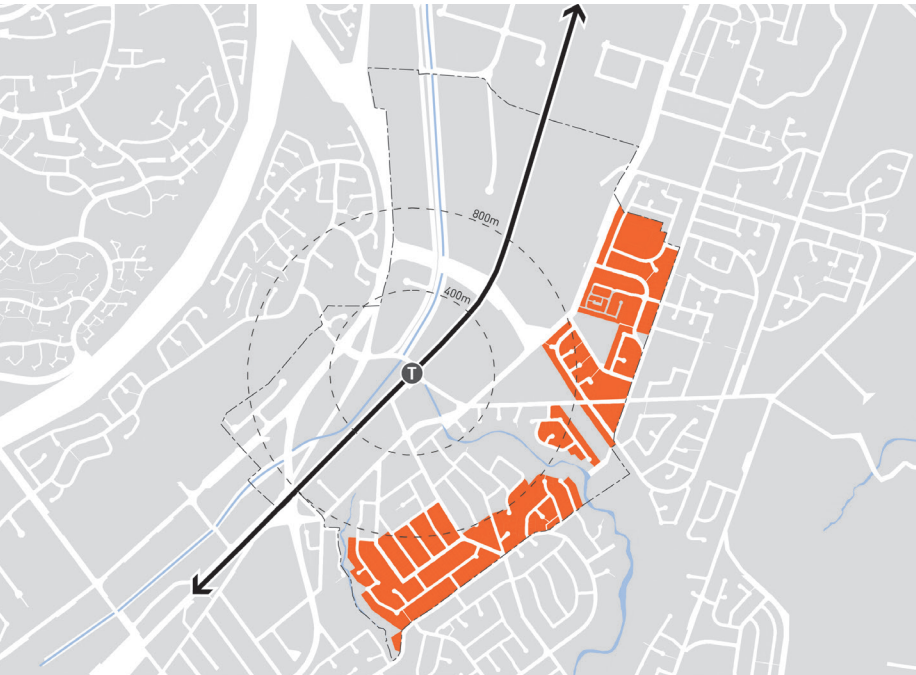


Figure 23: Proposed location of low rise residential, and desired character and built form

Medium Rise Residential

This area will provide for the housing needs of a growing community with increased residential building heights in areas with good access to the station. This area could accommodate town houses and medium rise apartments where the site is an appropriate size to deliver a high level of amenity. This could comprise 3-4 storey apartment buildings, with potential for communal open space and landscaped setbacks to enhance the existing streetscape.

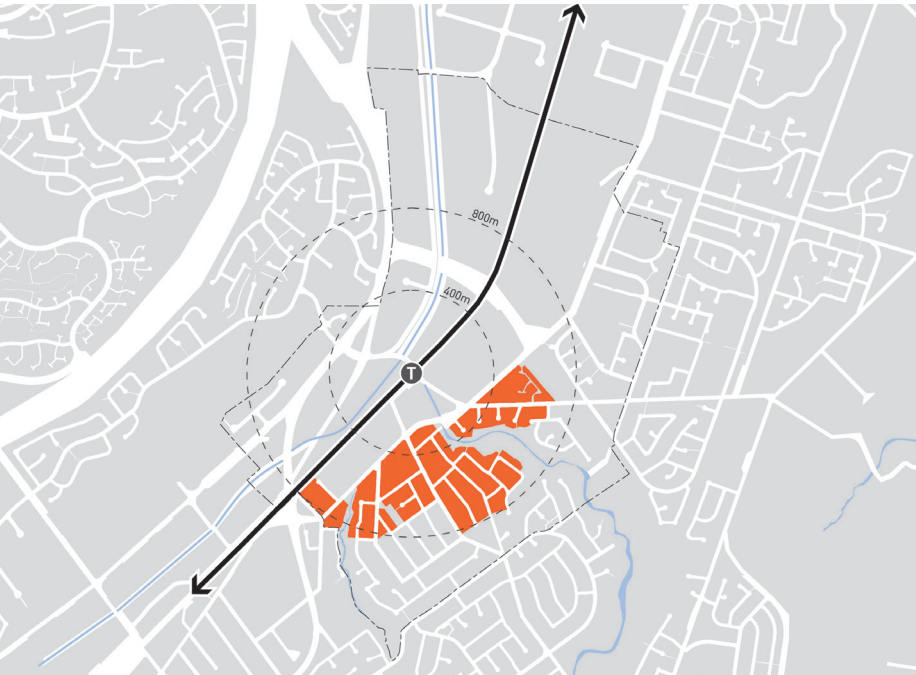


Figure 24: Proposed location of medium rise residential, and desired character and built form

High Rise Residential

This area could accommodate apartment housing to deliver a high level of amenity for the existing and future residents. This could comprise 7-8 storey apartment buildings, with potential for communal open spaces, shared facilities and new green connections to improve connectivity between Rudd Road and Leumeah station. The new dwellings should be carefully designed to integrate with the existing streetscape.

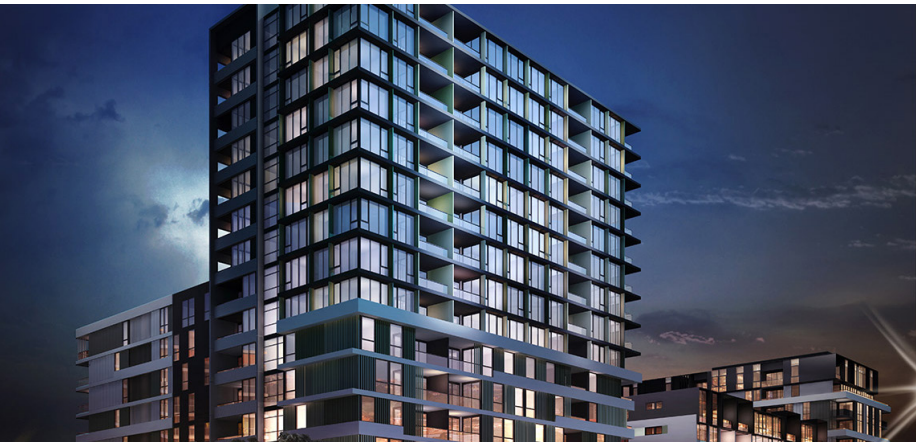
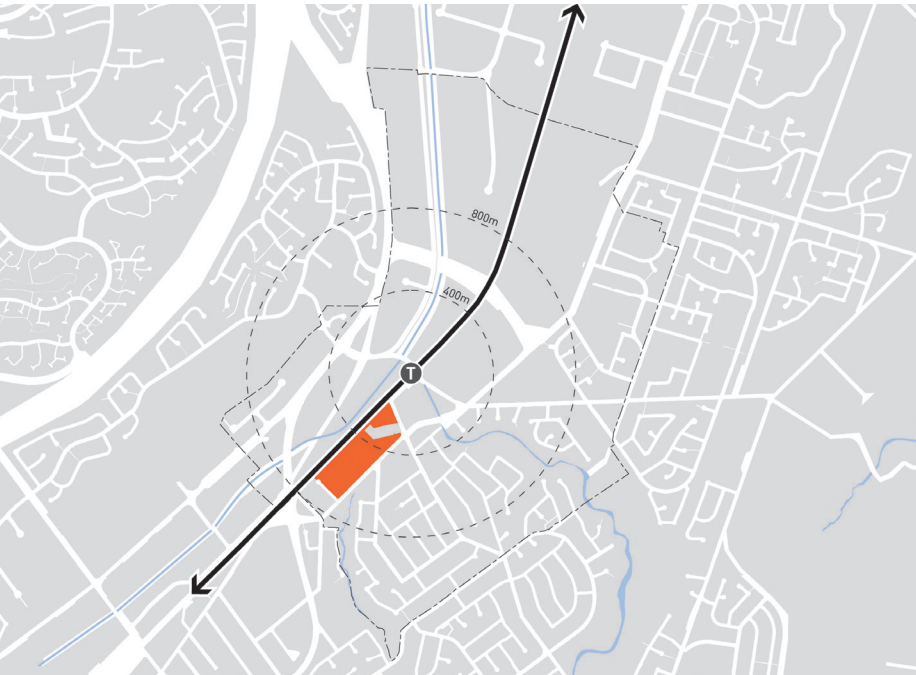


Figure 25: Proposed location of high rise residential, and desired character and built form

Land Use and Infrastructure Plan

Mixed Use Retail & Residential

This area could accommodate a mix of retail and residential uses that would complement the character of the local area. Buildings would have ground floor retail that would provide local services for residents and commuters, with apartments above ranging from 7-8 storeys in height.

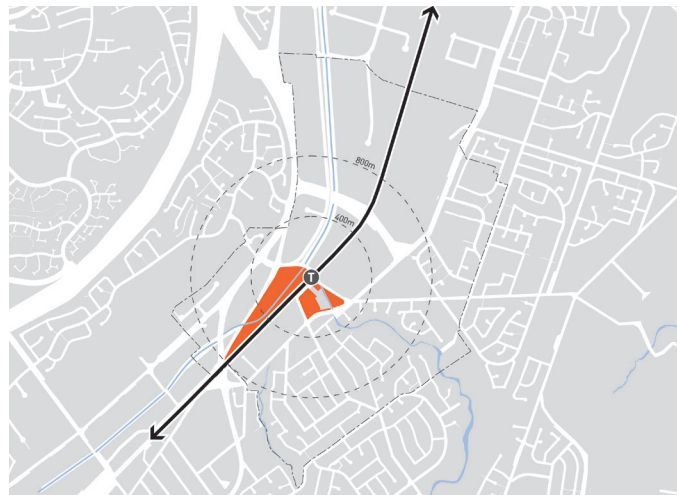


Figure 26: Proposed location of mixed use retail & residential, and desired character and built form

Industry & Innovation

This area could accommodate large floorplate industrial offices and workshops on sites that are carefully designed to integrate with the existing streetscape.

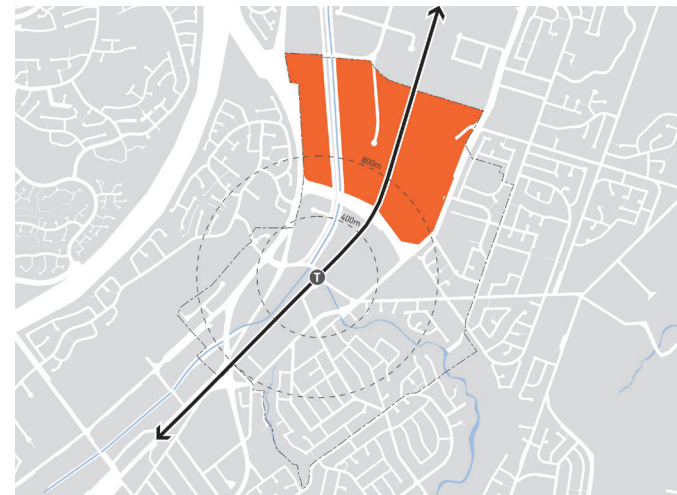


Figure 27: Proposed location of industry & innovation, and desired character and built form

Employment

This area could accommodate commercial offices on sites that are carefully designed to integrate with surrounding employment uses. This area will accommodate intensification of employment with offices and consolidated employment activities, and with premium office accommodation over time.

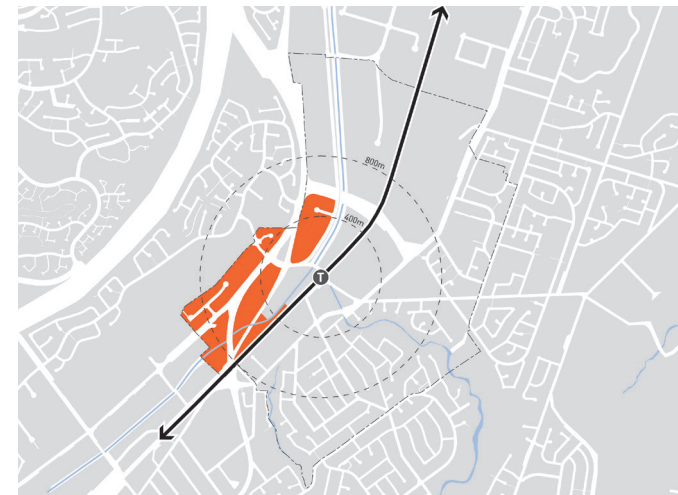


Figure 28: Proposed location of employment, and desired character and built form

Cultural & Leisure

This area could accommodate a mix of retail, recreation, business, entertainment and sporting uses that would build on the precinct's role as the regional sports precinct in the South West. Enhanced sport facilities will be the centre of the precinct's character.

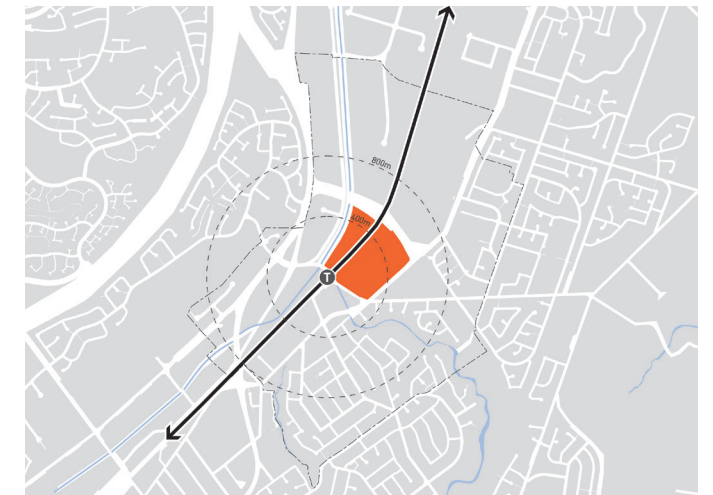


Figure 29: Proposed location of cultural & leisure, and desired character and built form

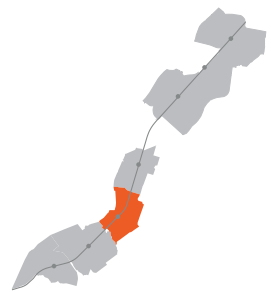


Figure 30: Desired future character for the Leumeah precinct

Land Use and Infrastructure Plan

Transport and Movement

The proposed transport network aims to:

- ▶ Improve walking and cycling connections from Leumeah Station to the town centre and entertainment uses;
- ▶ Increase direct bus routes and improve suburban bus route travel times to centres; and
- ▶ Improve road and street legibility and permeability throughout the precinct.

Key network improvements are identified on Figure 31 and include:

Public Transport

- ▶ Investigate opportunities to improve direct connections and reduce travel times for the suburban bus network suburban bus network to create a more connected system that provides direct routes to, from and through the corridor

Walking and Cycling

- ▶ New regional cycle route parallel to the railway line to provide better connections to the station and surrounding area
- ▶ Series of local cycle network improvements, including;
 - Along Plough Inn Road and Harbord Road connecting the residential precinct to the north east
 - Along Rudd Road, diverging to various local routes to the east
- ▶ Streetscape works, such as footpath improvements and pedestrian crossings, to improve station connections and pedestrian environments.

Parking

- ▶ Undertake a parking study for the precinct to identify parking demand, develop appropriate parking management strategies and identify opportunities for improved mode share to increase walking, cycling and public transport use.

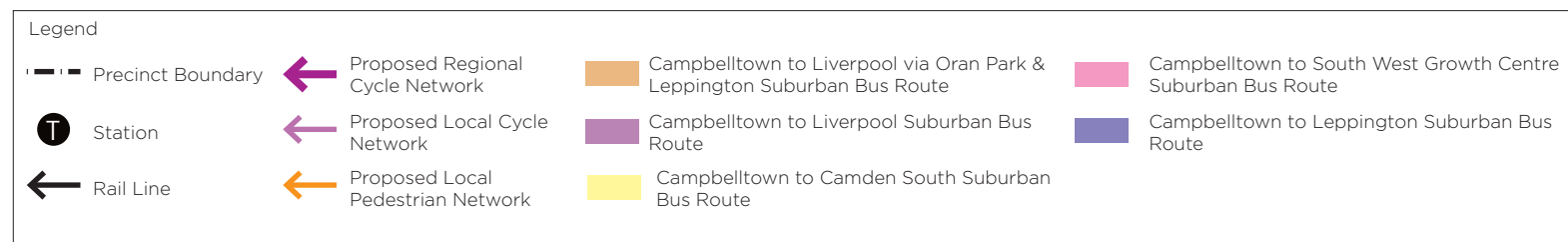
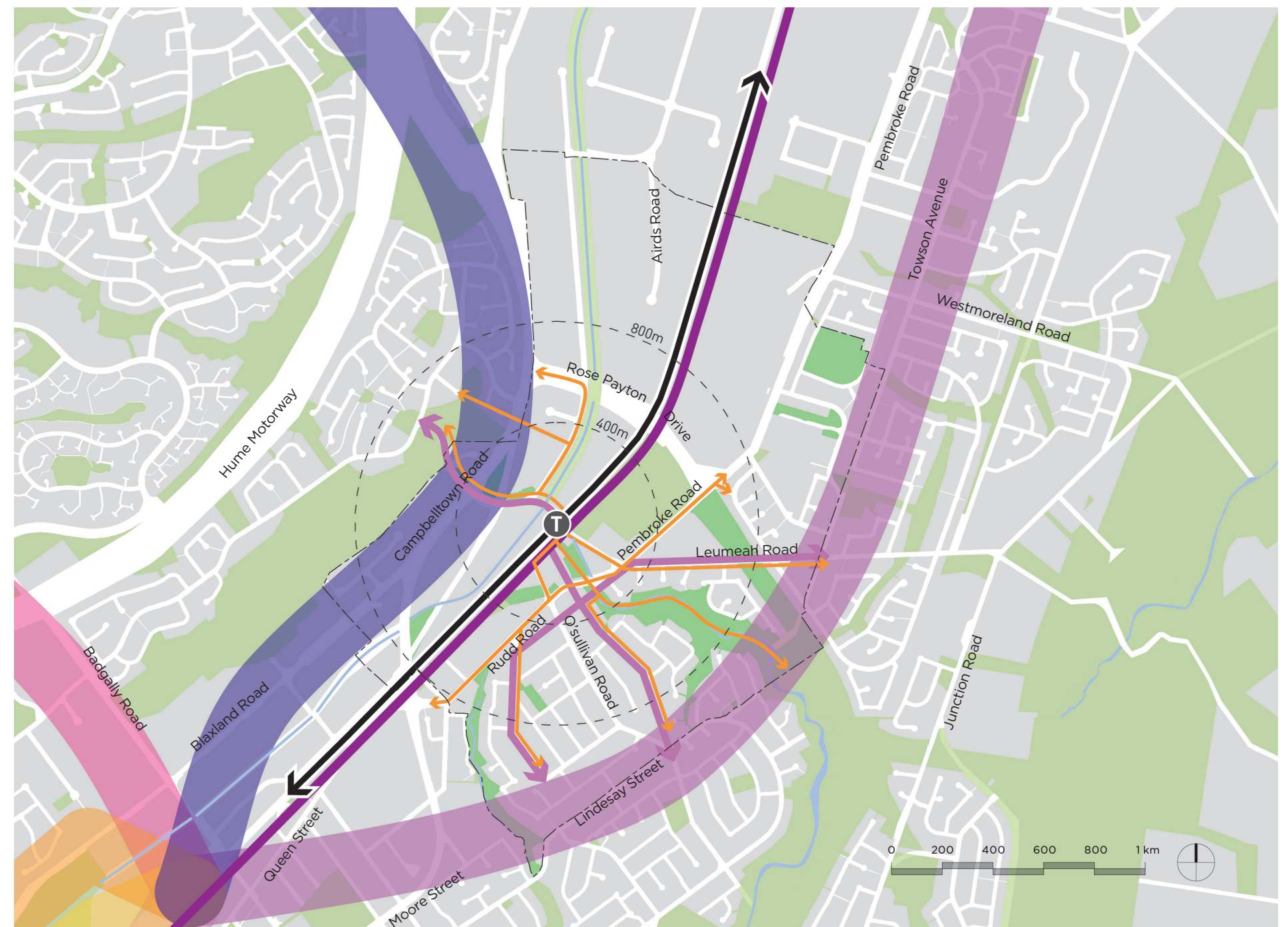


Figure 31: Proposed transport infrastructure improvements in Leumeah

Environment and Open Space

Leumeah has a significant sporting role and includes a number of high amenity vegetated riparian corridors, including Smiths Creek reserve, which serve an important role within the corridor.

The development of the precinct as a regional sporting precinct serving South West Sydney, would involve upgrading and expanding existing facilities and development of new facilities.

Key recommendations for the precinct are to:

- ▶ Enhance the importance of Campbelltown Sports Stadium as a regional facility;
- ▶ Encourage connectivity to ecological corridors within the precinct and promote biodiversity through mass indigenous planting;
- ▶ Encourage green streets linking green spaces and ecological corridors within the precinct;
- ▶ Improve local playground facilities;
- ▶ Provide regional and local cycle and walking connections within the precinct.

Community Facilities

Leumeah Precinct contains no Council community facilities. Modest population growth and Leumeah's proximity to a number of facilities in Campbelltown mean that no additional community facilities will be required in the precinct.

Education

Advice from the NSW Department of Education indicates that any additional demand for schools is likely to be met through the expansion of surrounding schools and no new schools are likely to be required by 2036.

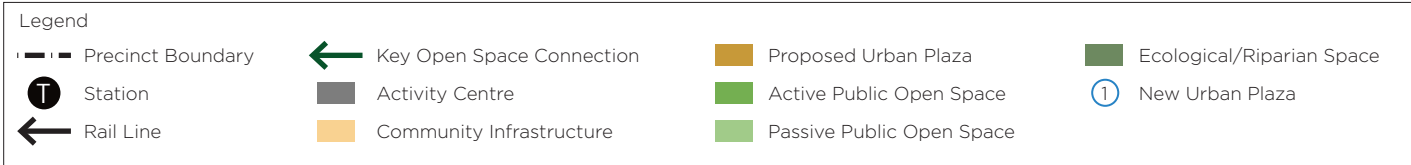
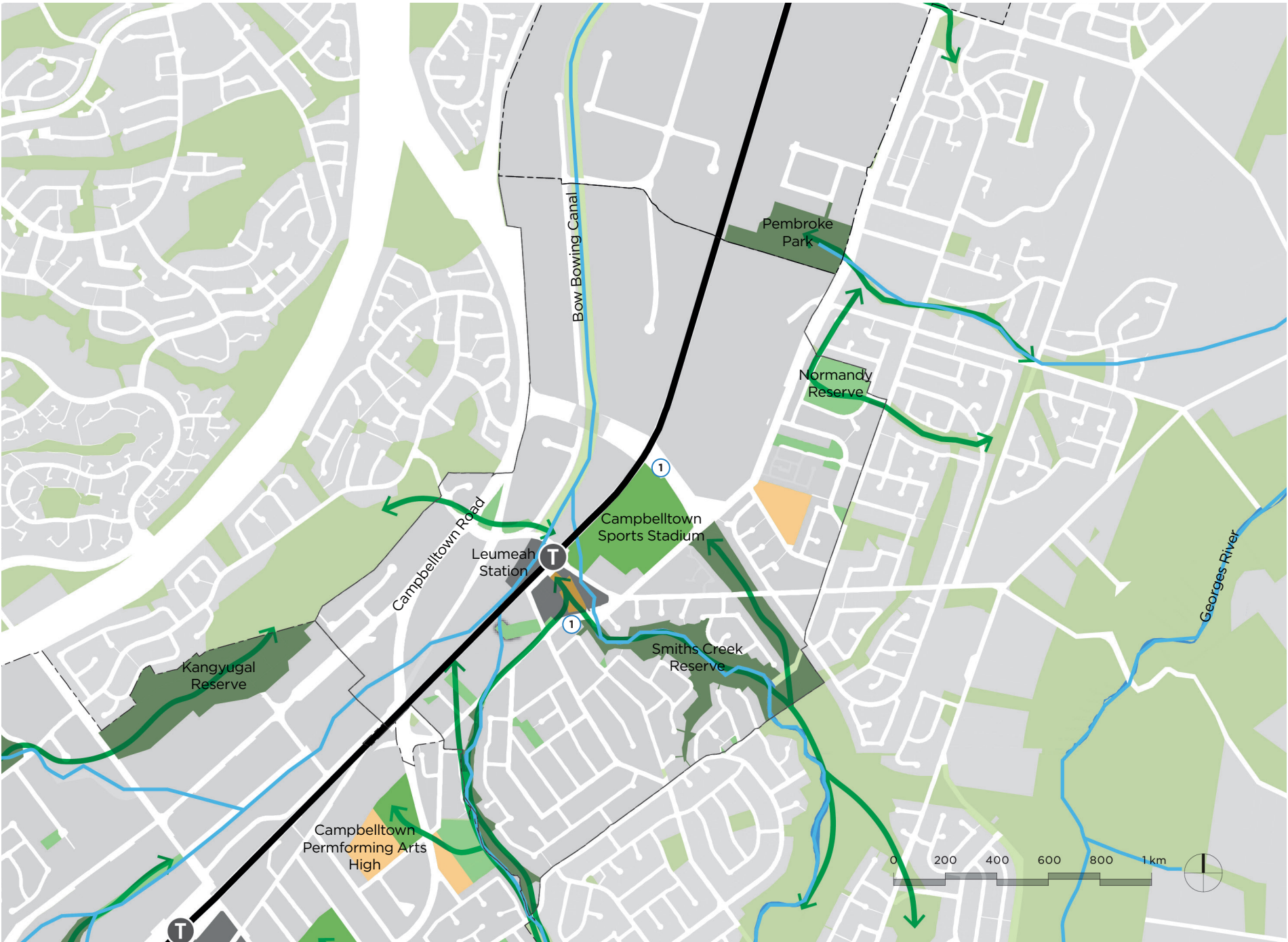


Figure 32: Proposed open space, environment and community facility improvements in Leumeah

Projected Growth

Projected Growth

Leumeah precinct's projected growth is a calculation of the amount of residential and employment development that is expected to take place by 2036. The outcome of these projected growth calculations is provided below.

Residential

The Department applied the Urban Feasibility Model (UFM) to determine the precinct's development potential under existing market conditions. The analysis indicated limited potential for dwellings to be feasibly developed in the current market. Additional market demand analysis indicated that in the short to medium term, feasibility may increase as land values and property prices increase and the availability of detached homes decreases.

It is anticipated that around 1,000 additional dwellings could be delivered in the precinct by 2036. This equates to around 45 dwellings per year, which has been used to assess future infrastructure requirements in the precinct.

Low rise residential housing will continue to be the predominant housing type to be developed throughout the precinct in the short term. However, over time there is likely to be increasing demand for a greater diversity of housing close to the station, which will facilitate more retail investment and employment opportunities. This is consistent with broader market trends. Further from the station, low rise housing will remain the predominant housing type.

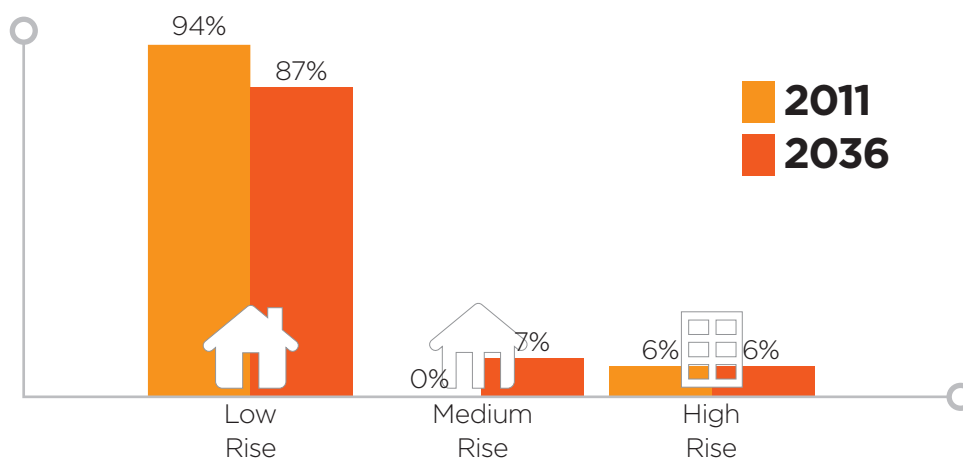


Figure 33: Existing and projected dwelling growth by typology in Leumeah

Dwelling Type	2021	2031	2036
Low Rise	150	500	700
Medium Rise	0	50	250
High Rise	0	30	50
Total Dwellings	150	580	1,000

Figure 34: Cumulative projected dwelling growth in Leumeah

Employment

An employment lands analysis projected demand for an additional 88,000m2 of employment lands within the precinct to 2036. This will deliver around 1,900 additional jobs, predominately in retail (45,000m2) and special uses (31,500m2). The Land Use and Infrastructure Plan provides appropriate employment floorspace to ensure there is capacity to accommodate this employment growth.

The proposed cultural and leisure area will provide for the expected growth in special uses, particularly, recreation, tourism and entertainment uses, and retail floorspace. The proposed mixed use area around the station will support the leisure and cultural uses and provide for additional retail and commercial floorspace.

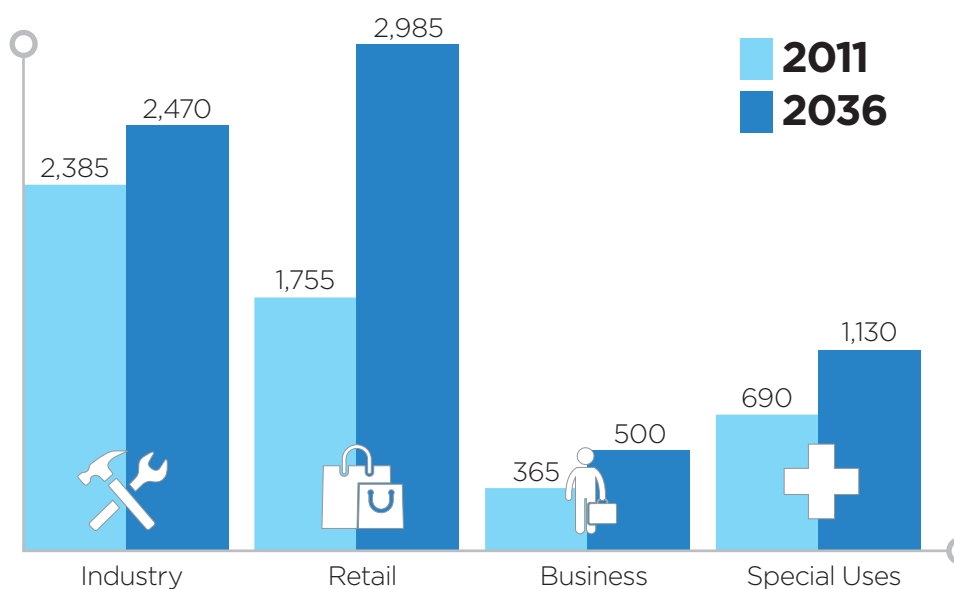


Figure 35: Existing and projected jobs growth by typology in Leumeah

Job Type	2021	2031	2036
Industry	35	70	90
Retail	600	1,000	1,200
Business	80	120	140
Special Uses	180	360	450
Total Jobs	895	1,550	1,880

Figure 36: Cumulative projected jobs growth in Leumeah

Calculating Growth Potential

Leumeah precinct's projected growth is a calculation of the amount of residential and employment development that is expected to take place by 2036. The projected growth calculations take into consideration the following factors:

- **Development on unconstrained sites.** Development is projected to occur on the unconstrained sites identified on page 15 of this report.
- **The Proposed Future Character and Built Form.** The Land Use and Infrastructure Plan on page 18 identifies the desired future character and built form throughout the precinct. These building types have been applied to the precinct's unconstrained sites.
- **Assumptions.** A series of assumptions have been applied to calculate the land areas required for each development type, and the number of dwellings and jobs that could be provided. These assumptions are documented in Figure 5 of the Glenfield to Macarthur Urban Renewal Corridor Strategy.
- **Economic Feasibility.** An analysis of the housing potential and development feasibility of the precinct's unconstrained sites was undertaken using the Department's Urban Feasibility Model (UFM). The UFM is a strategic planning tool used to determine the likelihood of the current market to deliver various types of dwellings.
 - Assessed the desired future character, built form and housing types proposed under the Land Use and Infrastructure Plan, against market conditions and demand; and
 - Identified take-up/realisation rates for each land use within the precinct, which informed the calculation of the projected growth.
- **Market Demand.** A high level demand analysis has been undertaken to determine the demand for different dwelling types on unconstrained sites within the precinct. The analysis:
 - Assessed the desired future character, built form and housing types proposed under the Land Use and Infrastructure Plan, against market conditions and demand; and
 - Identified take-up/realisation rates for each land use within the precinct, which informed the calculation of the projected growth.
- **The 'take-up' or 'realisation' rates** were informed by several factors, including broader population growth, property sub-markets, historic dwelling activity, the development pipeline, the precinct's dwelling capacity and current market feasibility.

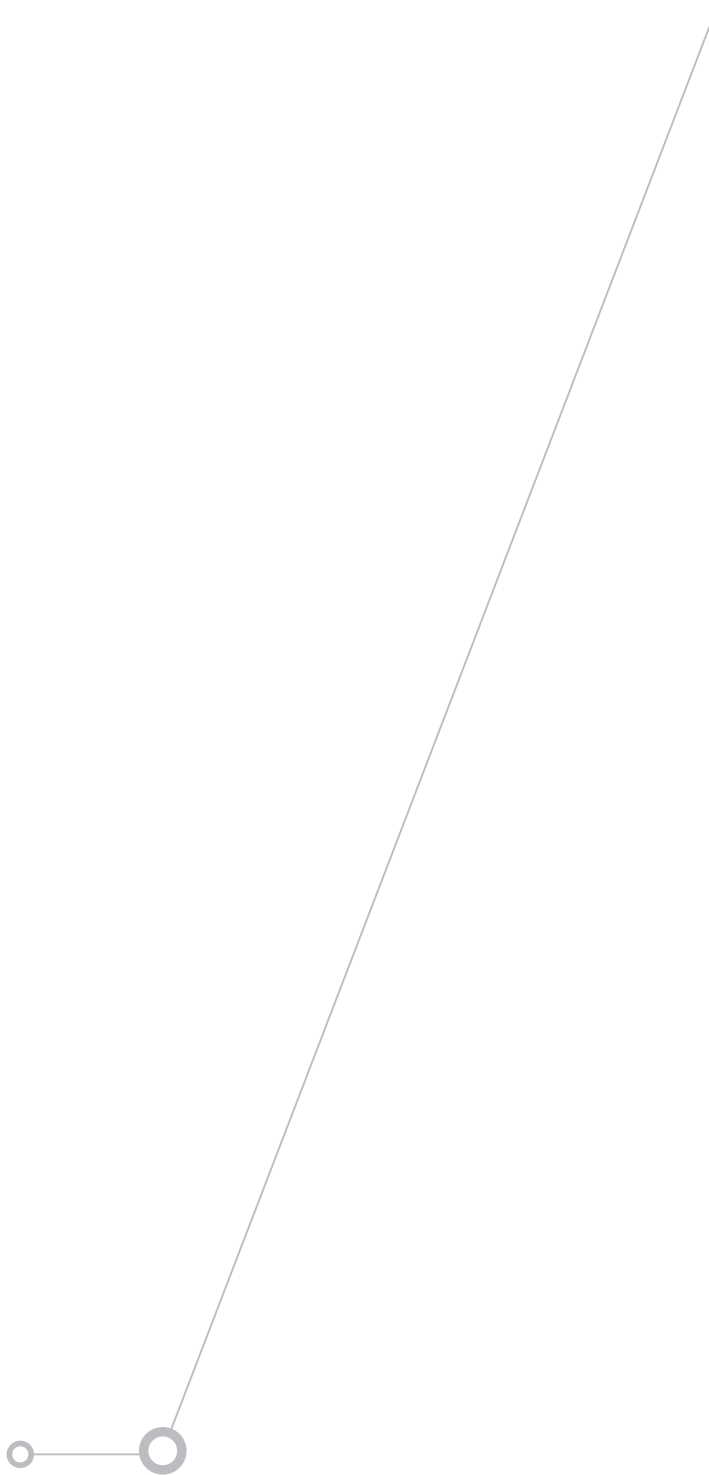
Infrastructure Analysis

Figure 37 provides a summary of the infrastructure items required to support the projected growth in the precinct. This includes public transport, walking and cycling upgrades, roads and community infrastructure. Services utilities such as water, sewage, electricity and gas will also be upgraded as the growth occurs.

The infrastructure items would be funded and delivered by a range of sources as identified in Figure 44, and would be subject to more detailed investigations to inform the delivery time frames, design and costings.

Item	Measure	Planning Responsibility	Timing	Funding Mechanism
Public Transport				
1	Increased rail services to meet the needs of the precinct's growth	TfNSW	Train service levels are reviewed continually by TfNSW. The stopping patterns and level of service will be matched to the growth and function of each precinct	TfNSW delivery responsibility
2	Investigate opportunities to improve direct connections and reduce travel times for the suburban bus network suburban bus network to create a more connected system that provides direct routes to, from and through the corridor	TfNSW	Bus service levels are reviewed continually by TfNSW and RMS. Detailed planning for a new suburban bus route to be investigated based on development in the area.	TfNSW delivery responsibility
Walking & Cycling				
3	New regional cycle routes parallel and perpendicular to the railway line to provide better connections to the station and surrounding area	TfNSW	To be determined as precinct develops	TfNSW funding responsibility
4	Series of local cycle network improvements, including at: <ul style="list-style-type: none">Along Plough Inn Road and Harbord Road connecting the residential precinct to the north eastAlong Rudd Road, diverging to various local routes to the east	Council	To be determined as precinct develops	Delivery as part of Council's Section 94 Plan/VPA
5	Streetscape works such as footpath improvements, pedestrian crossings and refuges, street tree planting, bicycle storage facilities and lighting.	Council	To be determined as precinct develops	Delivery as part of Council's Section 94 Plan/VPA
Education & Community Infrastructure				
6	Additional teaching spaces and infrastructure at existing primary and high schools	Department of Education and Communities	To be determined as precinct develops	Delivered as part of DEC's School Cluster Asset Plan
7	Potential redevelopment of Campbelltown Stadium and surrounds to a regional sport centre	Whole of Govt and Major landowners	To be determined as precinct develops	Subject to further funding and delivery investigations

Figure 37: Infrastructure servicing required in the Leumeah precinct



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