

Attachment A2(d)(iv)

**Urban Design Study – 3 Site Analysis – Part
4 – Botany Road Precinct**

3.6 Transport and Access

3.6.1 Pedestrian Access and Movement

East-west movement from Redfern/ Waterloo to Newtown and Sydney University is constrained by the heavy rail corridor to the west. North South pedestrian movement is facilitated by long city blocks, but constrained by extended signalised crossing timing at the intersection.

Pedestrian access to Transport

Walking routes to/ from the ATP to Redfern station are legible and within 5-10 minute walk. Walking routes to/ from the ATP to future Metro station is constrained by multiple signalised pedestrian crossings and high traffic volumes.

Pedestrian Access to Transport

The addition of Waterloo Metro to the transport network in the study area combined with medium and high density land uses anticipated in the future indicate significant potential for increased pedestrian mode share in combination with transit infrastructure. Improved east-west connections from Waterloo Metro to ATP are of increasing importance with increased pedestrian flows anticipated along Henderson Street and Raglan Street.

Pedestrian Count

Pedestrian counts were been undertaken across the study area and AM peak hour intersection flows and are shown in the Figure 114 adjacent. Significant pedestrian activity areas are:

- Redfern Station precinct and adjacent Lawson Street and Redfern Street.
- Corner of Phillip Street and Henderson Street.

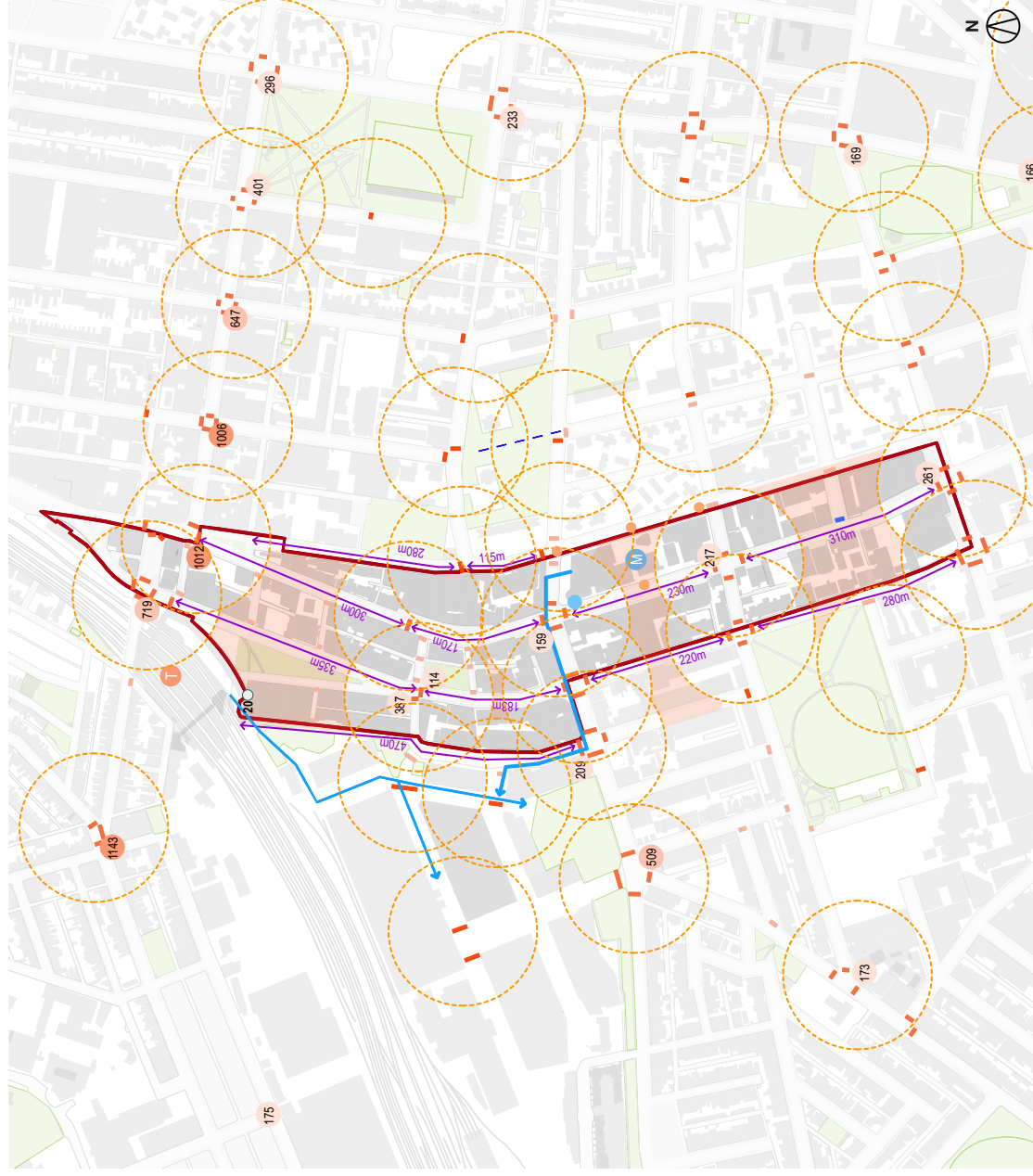
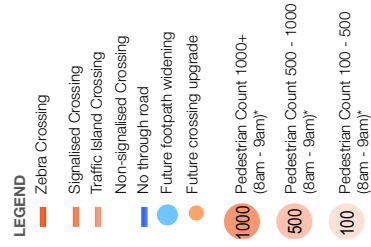
- Corner Lawson Street and Abercrombie Street.

There are limited and sparsely located crossing opportunities, including Lawson Street and Gibbons Street at Redfern Station.⁴⁰

Future Pedestrian Counts

Waterloo Metro Station future pedestrian count is anticipated to be 2,350 trips exiting the station at AM peak hour. 117 pedestrians would proceed westwards across Botany Road.⁴¹

Dynamic Pedestrian modelling was undertaken on the proposed Waterloo Metro Station footpaths widths. Analysis shows the majority of footpath and bus waiting area would operate at Fruin Level of Service A or B, indicating that the proposed footpath and bus waiting area is sufficiently wide to allow comfortable queuing conditions for bus passengers whilst allowing 'through' pedestrians.⁴² The critical pedestrian Count for Waterloo Housing pedestrians would be the northern leg of Botany Road/Wellington Street with a combined estimated AM peak hour demand of 221 pedestrians, and existing crossing opportunities are considered to be sufficient.



40: Jacobs Traffic and Transport Report, 2018, p.16
 41: Jacobs Traffic and Transport Report, part 1, 2018, p.59.
 42: Jacobs Waterloo Precinct Transport Study Report, part 1, 2018, p.56.
 Figure 114: Pedestrian Access and Movement Map
 Source: T23, Jacobs Traffic and Transport Report, 2018, p.16.

3.6.2 Pedestrian Amenity

Footpath Widths

The NSW Government 'Walking Space Guide' categorises footpaths on activity type and local footpath rating:

- Type 1 - 2.0-3.3m local footpath - low activity
- Type 2 - 2.2-3.6m local footpath - medium activity
- Type 3 - 3.2-4.5m main street footpath - medium activity or local footpath - high activity.
- Type 4 - 3.9-5.4m main street footpath - high activity
- Type 5 - 4.5-6.0m main street footpath - very high activity.

Most footpaths in the study area are between 2-5m providing mixed amenity and activity for pedestrians.

As 'main streets', Regent Street and Botany Road footpaths may be considered too narrow for envisaged activity level, with the exception of some localised widenings to Type 4 resulting from past road widening (SP2 setbacks) and historical changes in road widths. Pedestrianised public spaces at Lawson Street / Redfern Street, Jack Floyd Reserve and the Regent Street shops at the IGA benefit from between 5-7m wide footpaths as good footpath amenity.

Narrower or no footpaths exist within most rear lanes resulting in little pedestrian amenity for these east-west connections.

Off Street parking currently occupies majority of setbacks/ wide street path locations, due to commercial businesses appropriation of SP2 special infrastructure land for visitor parking.

Waterloo Metro station footpaths have undergone LOS testing and have been designed for increased pedestrian amenity, particularly at bus interchange areas.

Footpath widths at intersections are generally between 2-3m wide, placing pedestrians in close proximity to heavy traffic particularly at Botany Road, Regent Street and Gibbons Street. This condition is exacerbated by lack of planted kerbside traffic buffers at major intersections. At Botany Road south, various obstructions are present within the footpath area, creating challenging walking space for pedestrians travelling north-south.

Landscaping and Street Planting Amenity

Gibbons Street, McEvoy Street at corner of Botany Road, Wyndham Street and Buckland Street have established low level street planting.

Residential streets surrounding the study area have high street planting amenity, particularly within Alexandria Park Conservation area, within the Waterloo Housing estate streets and along George Street.

Botany Road/ Regent Street has low street planting amenity with little or no street planting.

- LEGEND**
- 0-1m wide footpath
 - 1-2m wide footpath
 - 2-5m wide footpath
 - 5-10m wide footpath
 - 10+m wide footpath
 - Proposed footpath
 - Off street Parking

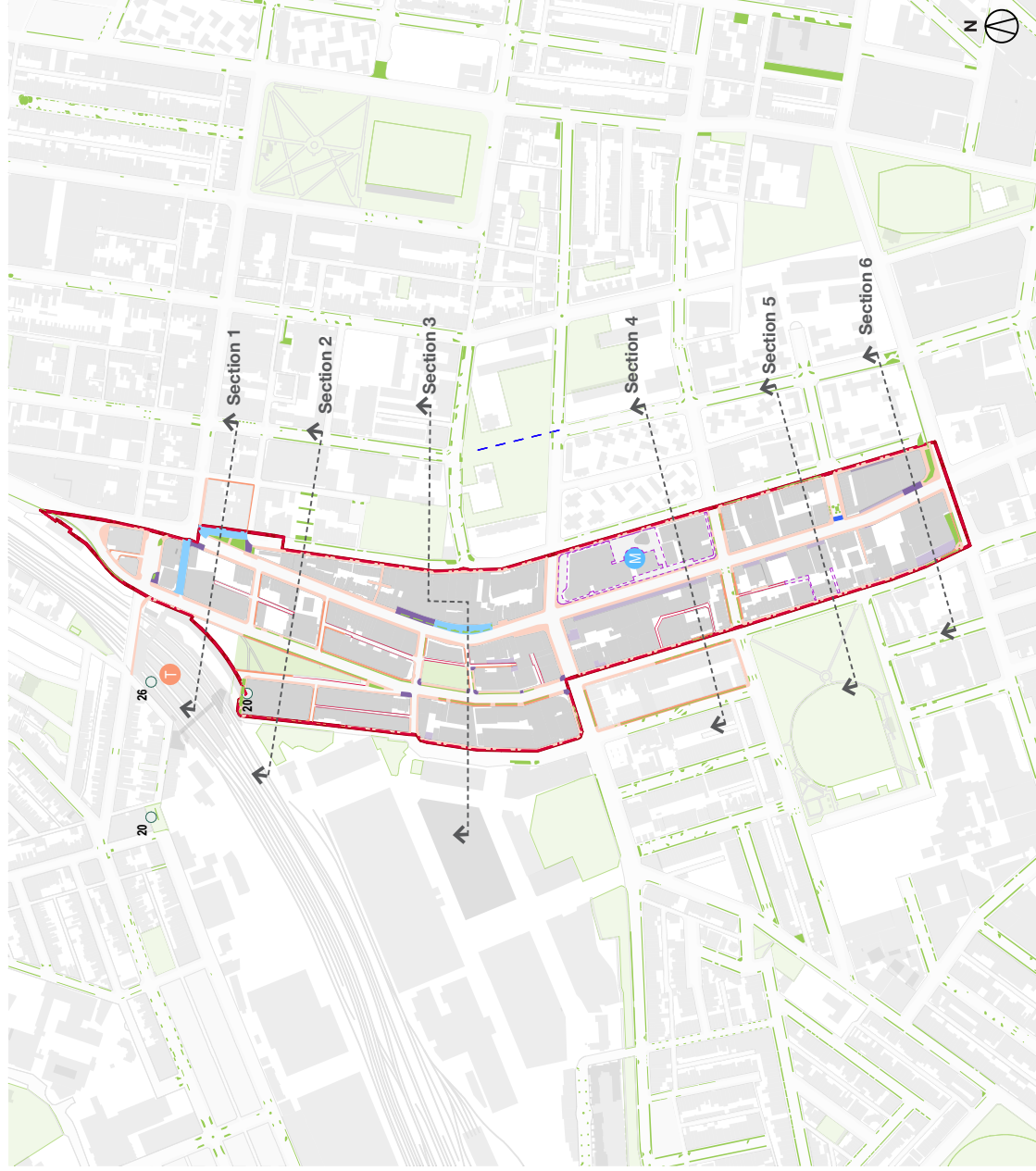


Figure 116: Pedestrian Amenity Map
Source: T23

3.6.3 Roads and Vehicle

Road Network

Figure 118 adjacent shows major roads are mainly north south in the BRC, with east west corridors less prevalent and less direct.

Botany Road is a key north-south link to Cleveland Street and the Sydney CBD in the north, as well as to Sydney Airport in the South.

The corridor will be upgraded to provide increased capacity as part of RMS' Alexandria to Moore Park project.

The movement and place classification applicable to the area is 'status 4c' being:

A movement corridor for general traffic, heavy vehicles and buses linking the Sydney CBD, southern suburbs, Sydney Airport and Port Botany. Dominant land uses along the segment include residential, commercial and entertainment. Key destinations in the area include Redfern Station, Redfern / Waterloo local centre, Alexandria Park, Australian Technology Park and Green Square mixed-use centre^{Figure 22a}.

Street Hierarchy

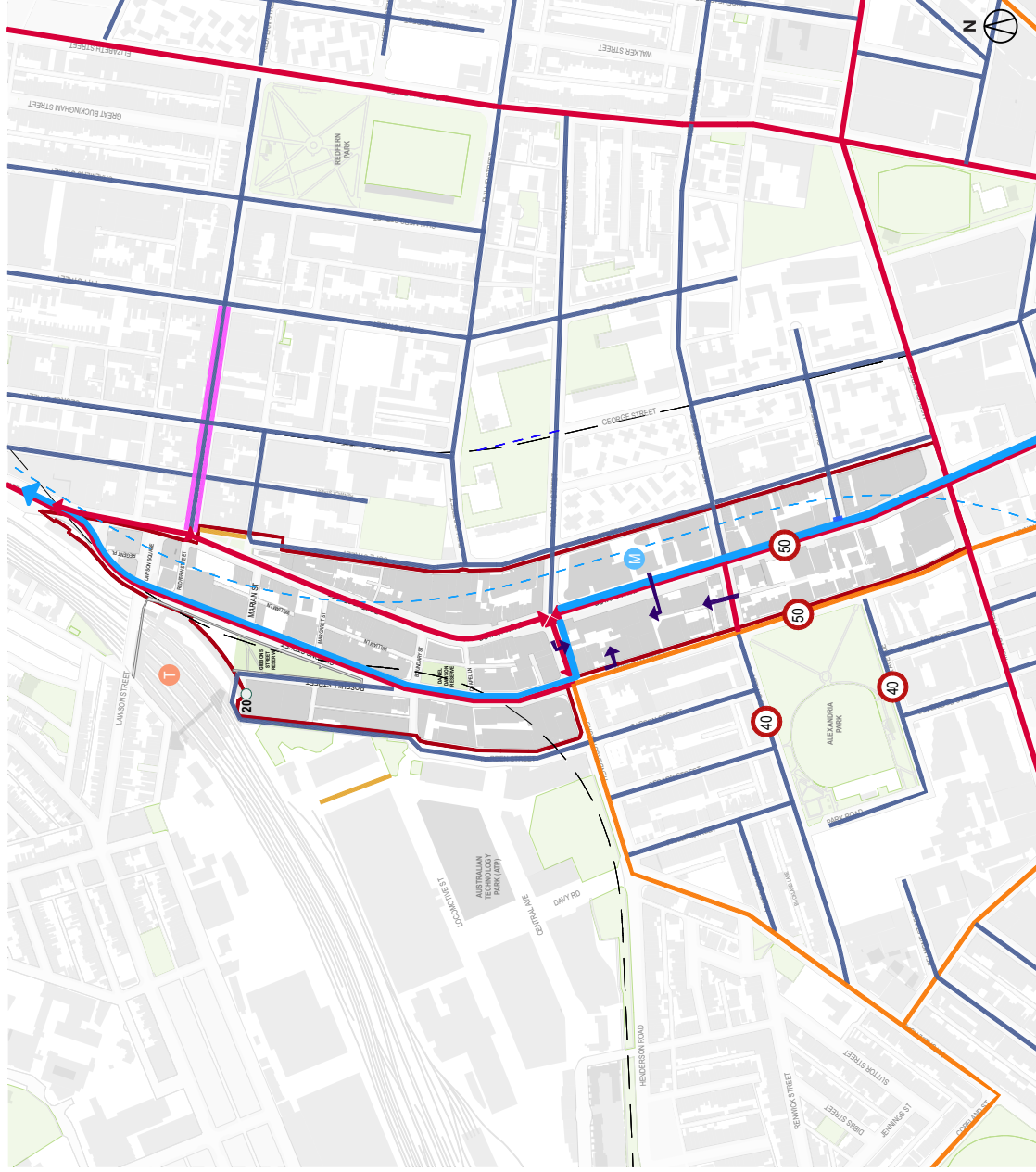
Botany Road, Regent Street, Gibbons Street and Henderson Street are classified as main arterial roads connecting Botany to the CBD and further north. Wyndham Street and Henderson Street (east of Gibbons) are classified as secondary roads. A network of secondary and local roads connects east to west.

The adjacent Street Hierarchy map provides detailed road network and volume analysis for the precinct.

45: RMS (2019) Mascot to Eveleigh Road Network plan (p 3), from Carter Cooper.

Figure 117: Roads Classification Map

Source: T23



Existing Traffic Volumes

The existing traffic volume on Botany Road is projected to remain consistent in the future, without changes to road conditions. However, the area will see a significant growth in population and employment with some major developments like ATP and Waterloo Estate. Future traffic volumes have been provided by Cattel Cooper within the Traffic and Transport Options Report.

Road Speeds

Generally, roads within the Botany Road Corridor study area are 50km/h. Most local streets in the area have 50km/h speed limits and are two lanes wide, with some streets 40km/h zones including George Street and Redfern Street. Major arterial roads include Botany Road, Wyndham Street, and Henderson Road.⁴⁹

Bus speeds are generally 20km/h of less in peak periods in both directions, making unreliable services.⁵¹

The road network currently experiences congestion during both morning and evening weekday peak periods with vehicles travelling at low speeds compared to the speed limit. Previous reports put forward that future car mode share for Waterloo Precinct should be minimised as much as possible and the vast majority of new trips from the Precinct will be undertaken by public transport and active transport.⁵² The Waterloo Metro Quarter Transport study recommends reduction in speed on Cope Street to 40km/h to cater for safety in the area and the residential streets immediately surrounding Waterloo Station should have a 40 kilometres/hour speed limit.⁵³

Road use as a Dangerous Goods Corridor

Botany Road, Regent Street and Gibbons road are currently classified as Dangerous goods corridors. These streets connecting Port Botany, Sydney Airport and the Southern Enterprise Area with local customers, the Sydney CBD and areas to the north via the Sydney Harbour Bridge. It is anticipated that the future M4 motorway potentially will not ease the freight traffic along Botany Road and Wyndham Street as it prohibits dangerous goods in the tunnel.⁴⁶

Planned Road Improvements

Westconnex Stage 2 will increase the importance of McEvoy Street, with direct access to St Peter's interchange. Current vehicle Counts on McEvoy Street indicate it's important role as a freight corridor in the east-west direction.

As part of the Westconnex Stage 2, an Alexandria to Moore Park Connectivity Upgrade concept design has been prepared by the NSW State Government that would involve road widening and road upgrades along McEvoy Street, between Westconnex St Peter's interchange and the M1 / Eastern Distributor.

The City of Sydney strongly objects to the upgrade which is seen to induce additional traffic, potentially cause more motorists to use the congested east-west corridor across eastern Sydney as it will provide a bypass of the City Centre. The effects of the upgrade on the Botany Road corridor upstream in the north-south direction are currently unknown. The City of Sydney has highlighted concerns around safety, impact on residential neighbourhoods and severed connections to Green Square in the south of the City. The City of Sydney has made recommendations as follows that apply to the Botany Road Corridor study area:

- Remove the dedicated left-turn bay from McEvoy Street into Botany Road. Land should be reallocated to footpaths and parklands.
- The additional eastbound lane into the right-turn bay from McEvoy Street at Wyndham Street should be removed and reallocated to footpaths.

Existing Roads, Movement and Place

The following performance ratings have been identified for Place-making performance⁴⁵:

- On-street parking and loading is well utilised during off-peak times
- The quality of bus stop facilities is poor with most bus stops lacking shelters and basic passenger facilities
- Relatively good cycle parking opportunities with 83 cycle parking spaces in the segment
- Traffic speeds and ambient noise levels impact the pedestrian environment; there are limited midblock crossing opportunities.

Existing One way Pairs

The existing one-way pair arrangement at Botany Road and Wyndham Street has negative impacts on the corridor – increased turning movement, operational impacts at intersections, significant traffic volume along Wyndham Street, splitting traffic across Gibbon Street and Regent Street to significant pedestrian delays or customers using the station⁴⁹.

High level options to remove the one way pairs and reconfigure two-way pairs have been previously developed by Jacobs in their 2018 Report. Cattel Cooper with the City of Sydney have developed these options in more detail, to inform the Urban Design study.

Safety and Crash Prevention

The highest casualty crash rate along the corridor, and the number of Fatal and Serious Injury (FSI) crashes is greater than the Sydney Metropolitan Area average. Segment 1 had the highest incidence of crashes involving vulnerable road users, 36% of crashes in the segment involving a bus, motorcyclist, cyclist or pedestrian. Road safety concerns are also noted with cars parking at 90 degrees on footpath areas.⁴⁸

46: Redfern to Eveleigh Corridor, Land Use and Infrastructure Implementation Plan - Traffic and Transport Context, JACOBS, 2018.
47: City of Sydney Submission on the Alexandria to Moore park Connectivity Upgrade Preliminary Concept Design June 2017, p2.
48: RMS (2018) Macdonald to Eveleigh Road Network Plan (p.13).

49: extrapolated from the Redfern to Eveleigh Corridor, Land Use and Infrastructure Implementation Plan - Traffic and Transport Context, JACOBS, 2018.
50: Waterloo Metro Quarter Transport Study, Part 1, 2018, p38.
51: Waterloo Metro Quarter Transport and Traffic Background Review, Cattel Cooper, June 2020, p18.
52: Waterloo Metro Quarter Transport Study, Part 2, 2018, p65.
53: Waterloo Metro Quarter Transport Study, Part 2, 2018, p60.

Roads Widths and Amenity

Approximate kerb to kerb measurements show that there are generally three kinds of street width types in the study area.

The southern areas are predominantly 11-12m wide streets with 3-4 lanes the dominant character of east-west roads. The east-west roads vary in road classification when compared to the previous map, and therefore offer varying amenity.

Streets with narrower widths tend to reflect early secondary pathways when compared to historical mapping.

Around Gibbons Reserve, between Regent Street and Gibbons Street, roads are at their narrowest, where east-west vehicle laneways are present.

Botany Road, Gibbons Street, Regent Street characterised as arterial roads have sufficient width to allow for two way traffic, spanning over two lanes.

Raglan Street whilst as wide as Botany/ Gibbons/ Regent Street, is classified as local street and it's wide, slower speed nature therefore has more perceivable amenity than the busier, arterial, high use main roads.

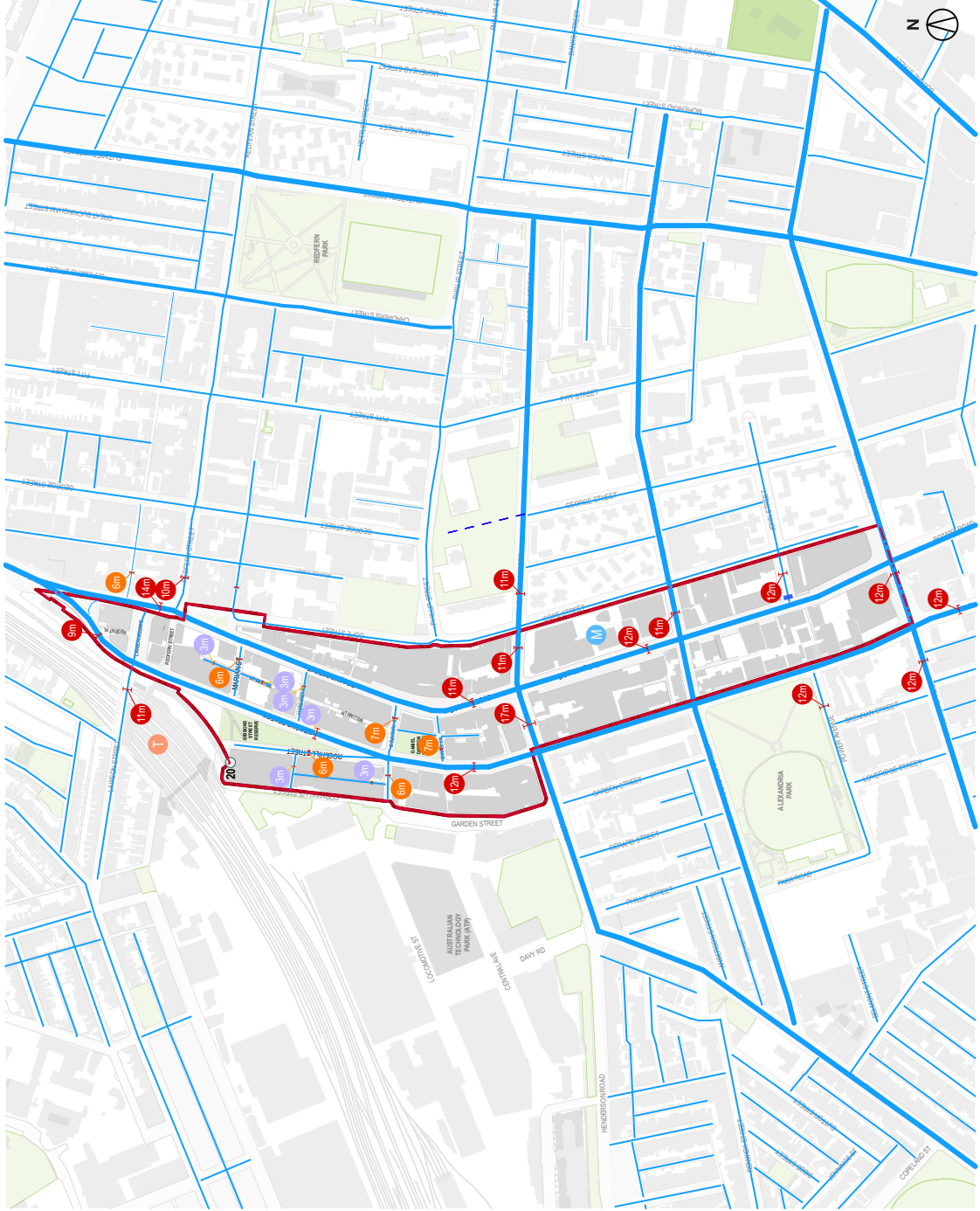
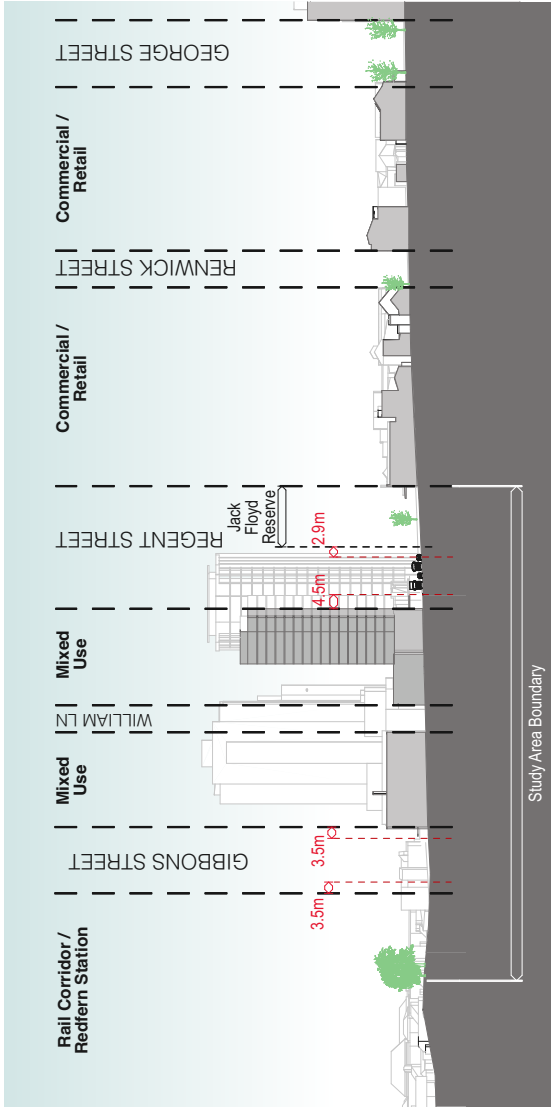


Figure 118: Road Widths and Amenity Map
Source: T23

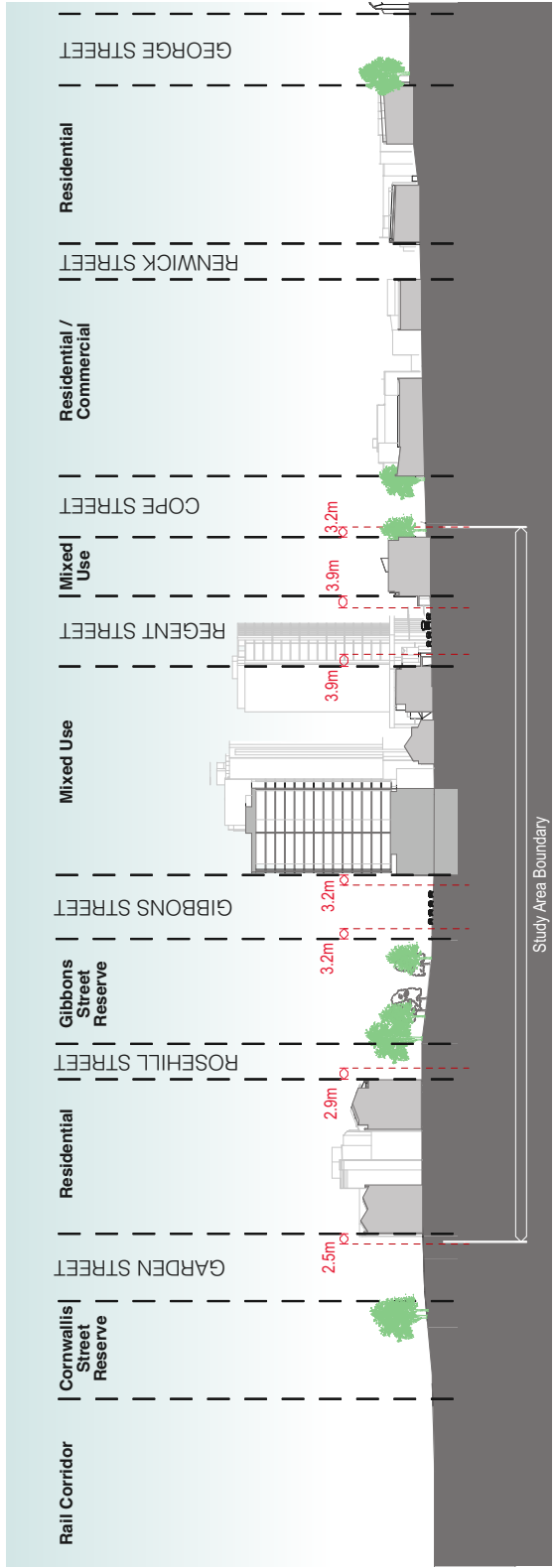
Section 1

Figure 119: Redfern Station / Gibbons Street / Regent Street Site Section
Source: TZG



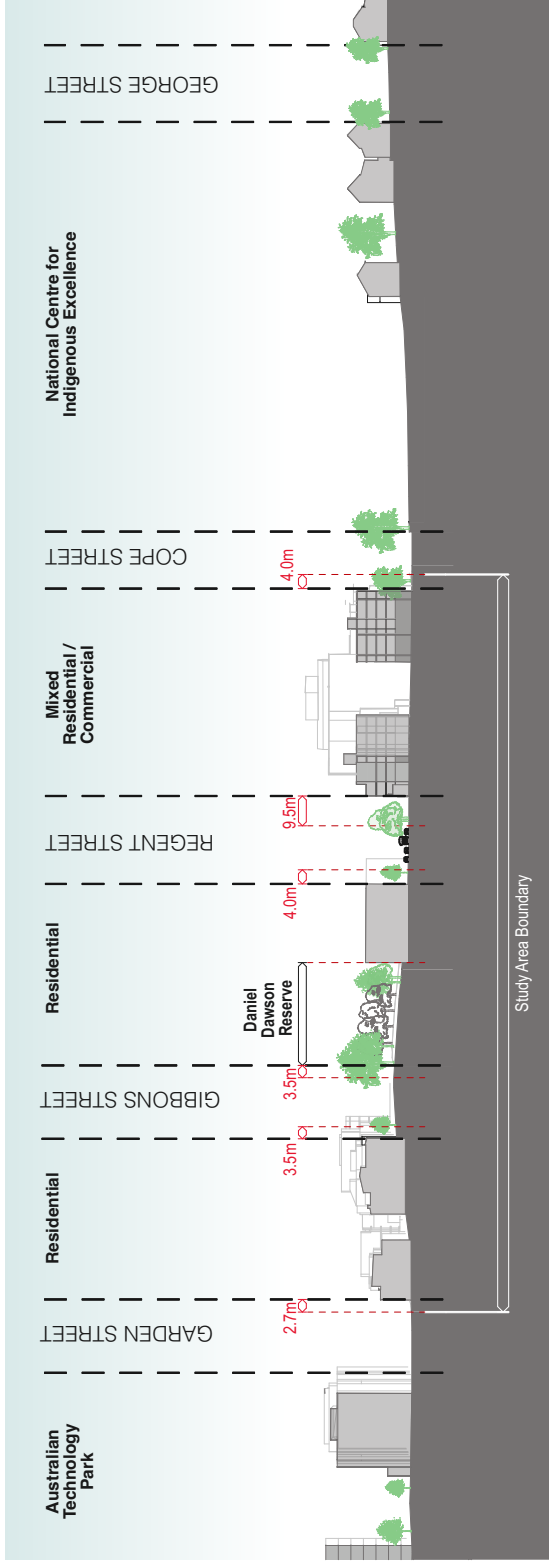
Section 2

Figure 120: Rail Corridor / Garden Street / Gibbons Reserve / Regent Street / George Street Site section
Source: TZG



Section 3

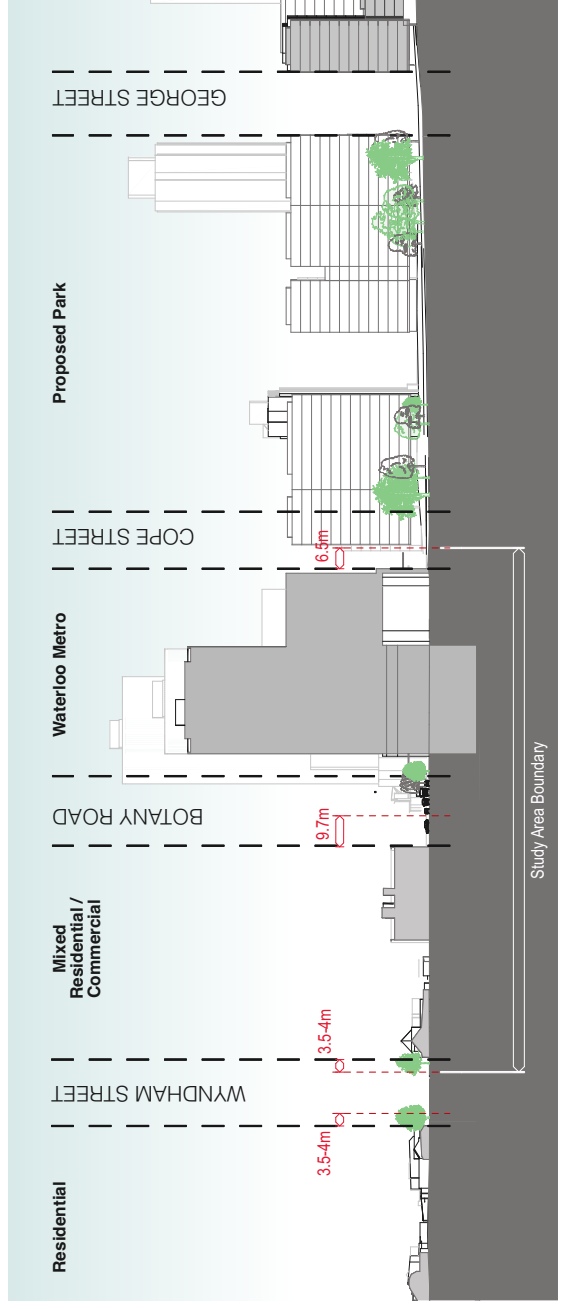
Figure 121: Australian Technology Park / Gibbons Street / Regent Street / NCIE / George Street Site Section
Source: T2G



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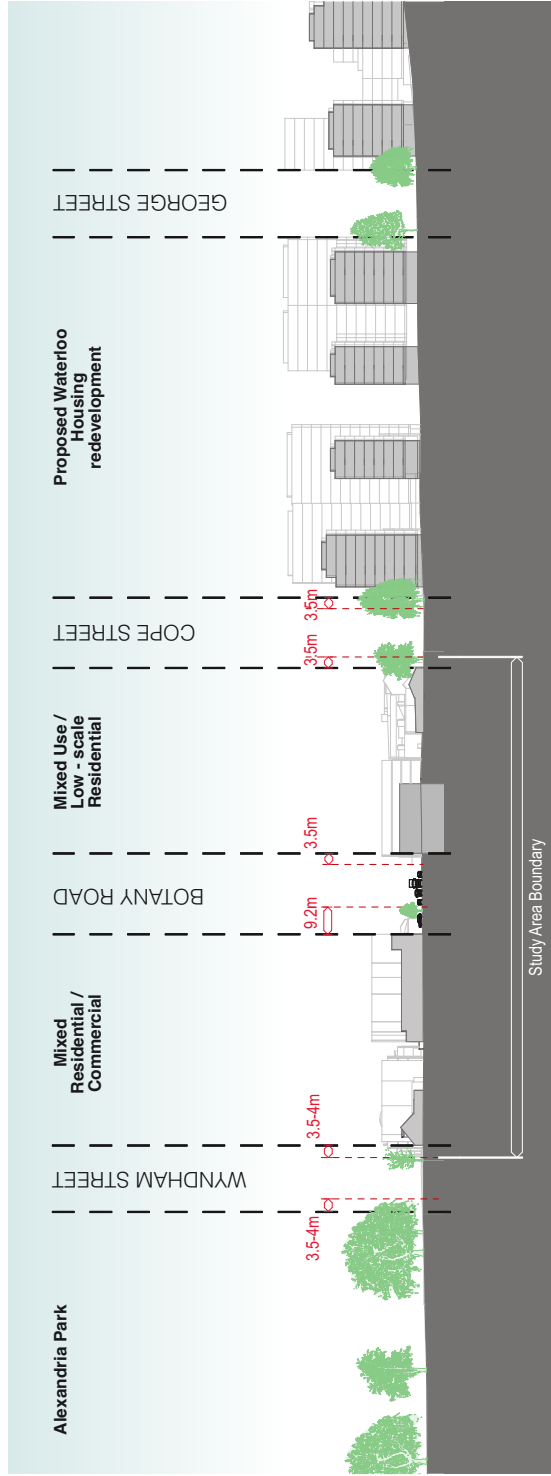
Section 4

Figure 122: Wyndham Street / Botany Road / Waterloo Metro Station / Cope Street / Proposed Waterloo Housing Park / George Street Site Section
Source: T2G



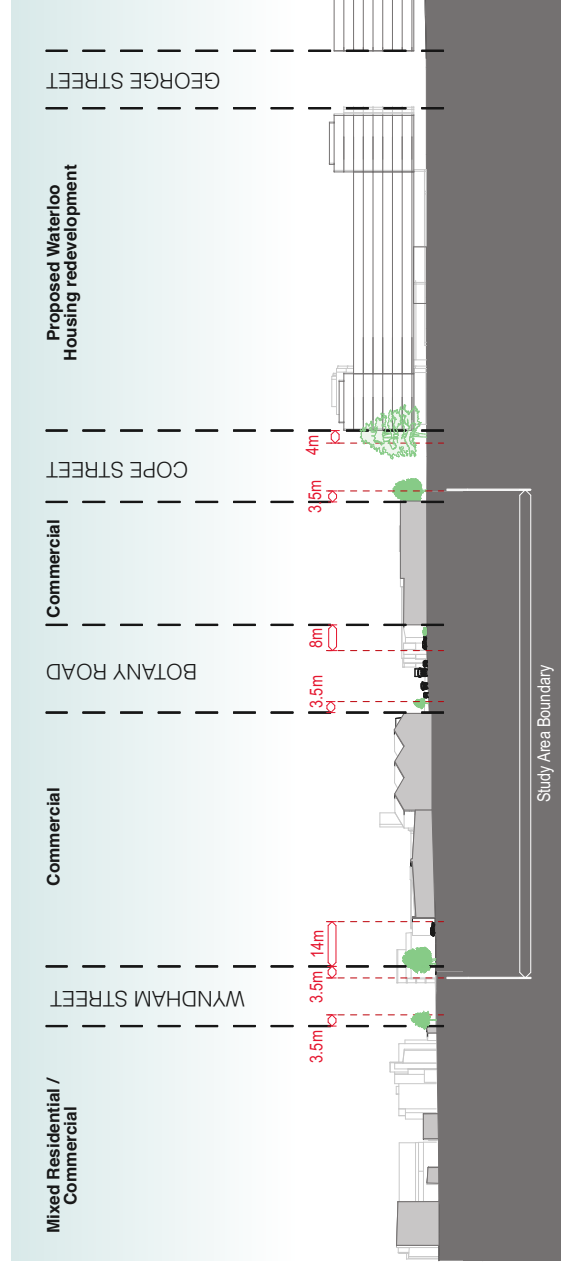
Section 5

Figure 123: Alexandria Park / Wyndham Street / Botany Road / Cope Street / Proposed Waterloo Housing redevelopment Site Section
Source: TZG



Section 6

Figure 124: Wyndham Street / Botany Road / Cope Street / Proposed Waterloo Housing redevelopment Site Section
Source: TZG



3.6.4 Cyclist Access and Movement

There are very limited cycle paths within the study area and none are shared off road or designated off road paths.

There are signposted on road low traffic cycle networks linking east-west at Wellington Street and adjacent to Redfern Street. Buckland Street contains a separate off-road cycle path that is well used and provides connection east-west between Alexandria Park and Waterloo.

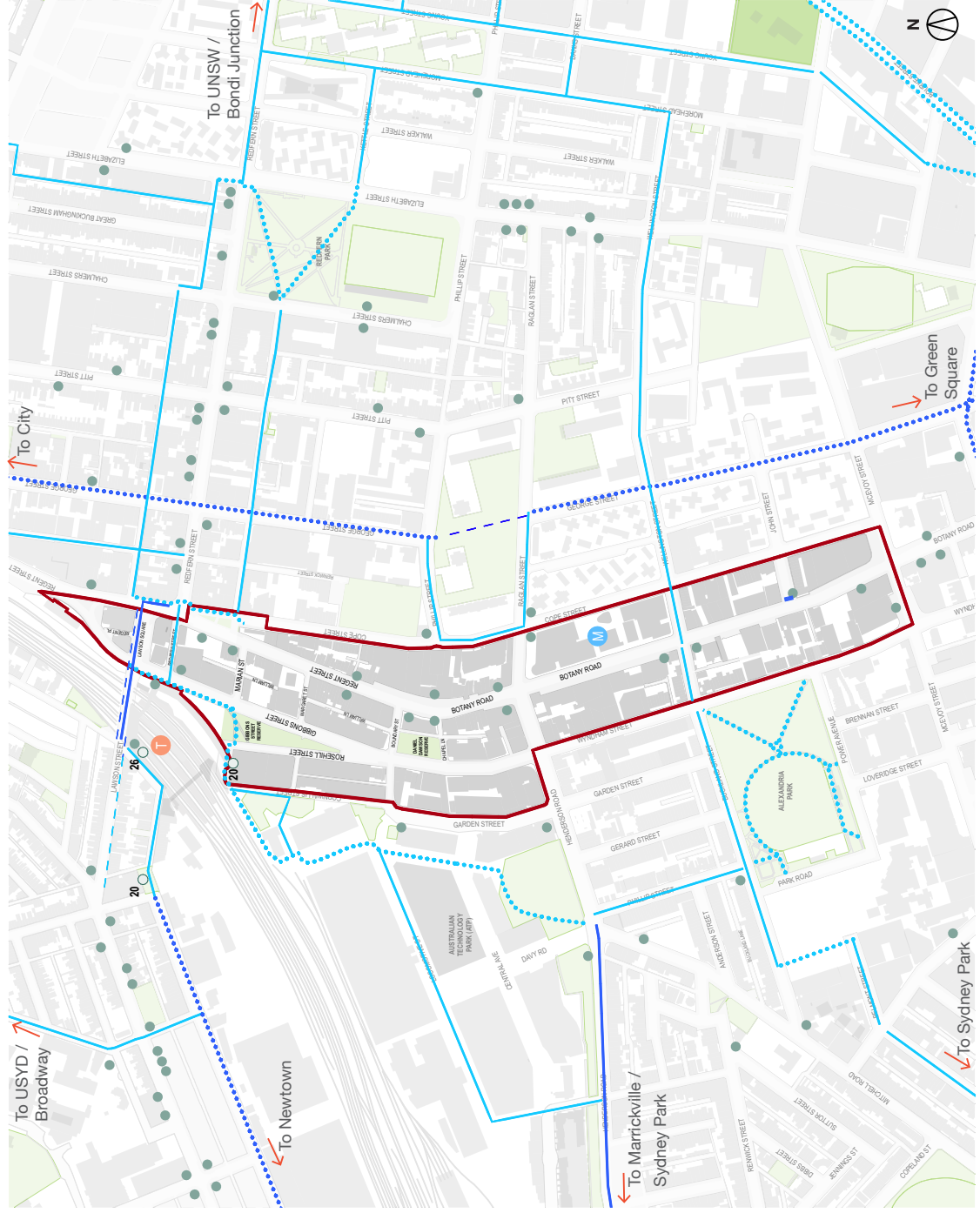
George Street has a well used off-road cycle way that is currently disconnected by the Waterloo Housing Estate towers. There are plans with the LAHC Waterloo Housing redevelopment to connect the cycleway through. Botany Road, Regent Street and Gibbons Street busy nature could impede safe cycle crossing.

There are many cycle parking locations within the BRC, mostly at city block corners or within the Regent Street shopping area or in commercial/retail areas. Cycle parking amenity of Redfern Street is quite high. Generally street cycle parking within residential areas is not allocated, with the exception of Regent Street shop-top housing.

The City of Sydney Council has identified 10 regional priority cycle routes, including the following relevant to the BRC:

- City North to Green Square
- Sydney Park to Central Park
- Newtown to Bondi Junction
- Broadway Link
- USyd to UNSW
- Sydney Harbour to Botany Bay

The City of Sydney LSPS aims to increase cycling infrastructure to encourage a continued shift to cycling as transportation. Frequent access to a local cycling is prioritised for the City of Sydney LGA.



- LEGEND**
- On Road Low Traffic
 - On Road Direct Route with High Traffic**
 - ... Shared Off Road Path*
 - ... Separated Off Road Path
 - Proposed On Road Path
 - Proposed Separated Off Road Path
 - Proposed Path***
 - Cycle Parking
 - 210 Proposed Cycle Parking
- *from LSPS
**from CoS Cycling Map
*** Under development with the Waterloo Housing scheme

Figure 125: Cyclist Access and Amenity Map
Source: T23

Existing Cyclist and Pedestrian Usage
Figure 127 and Figure 128 from the Strava App tracking system reveals usage patterns of key streets within the Botany Road Corridor.

Pedestrian Usage

Lawson Street, and Redfern Street near Redfern station are highly trafficked and currently used for connection between Redfern Street high street and transport hub of Redfern station (east west) and Central station (northward).

Alexandria Park, Mitchell Road and Buckland Street are also readily trafficked, particularly areas within the park.

Botany Road, Regent Street and Gibbons are not readily used by pedestrians.

East west connections are not used across the corridor readily.

There appears to be some pedestrian walking routes through ATP between residential areas and Redfern Station.

Cyclist Usage

As with pedestrians, high cyclist usage of Lawson Street and Redfern street is apparent.

Buckland Street and George Street appear to be readily used by cyclists as the main east-west route and north-south routes adjacent or across the study area.

Cyclist usage of Gibbons Street, Regent Street and Botany Road occurs, but is low in comparison to other favoured, safer and established cyclist routes.

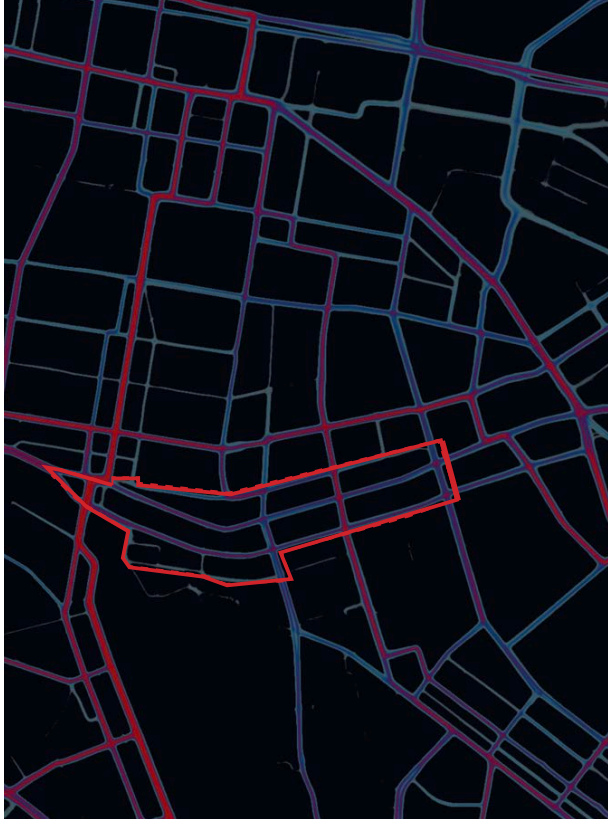


Figure 126: Cycling Heat Map
Source: Strava

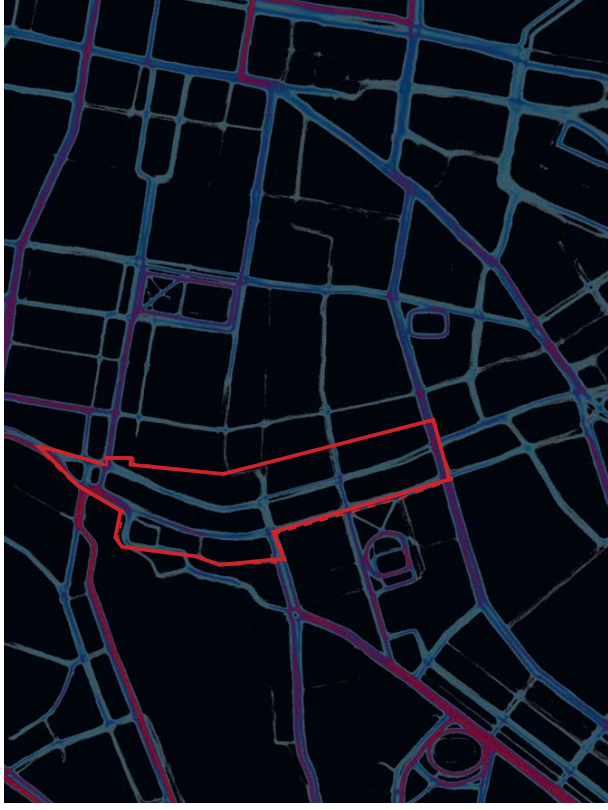


Figure 127: Pedestrian Heat Map
Source: Strava

LEGEND

--- Study area outline

Low usage

High usage

3.6.5 Public Transport

Bus

Figure 129 adjacent shows major bus routes running east-west across the site, with some buses using Botany Road to travel east-west.

Most services can be categorised into two categories – long range regional coming from S/E Sydney travelling to central Sydney and local services that travel north-south.

Currently one-way pairs on Regent and Botany Street require buses to drop off / pick up on different streets depending on direction travelled, meaning commuters need to cross the study area east-west to change direction. Buses are also required to 'loop' at Lawson Square.

A bus interchange is planned to be provided at the Waterloo Metro Station development.

Rail

Redfern Station is located in the North of the study area, with 2 entrances on Marian St and Gibbon St. The station is a key part of the Sydney Heavy Rail Network.

Redfern Station has 60,000 entries and exits through the Station daily. There is significant rail transfer function, currently constrained by a single concourse change over.

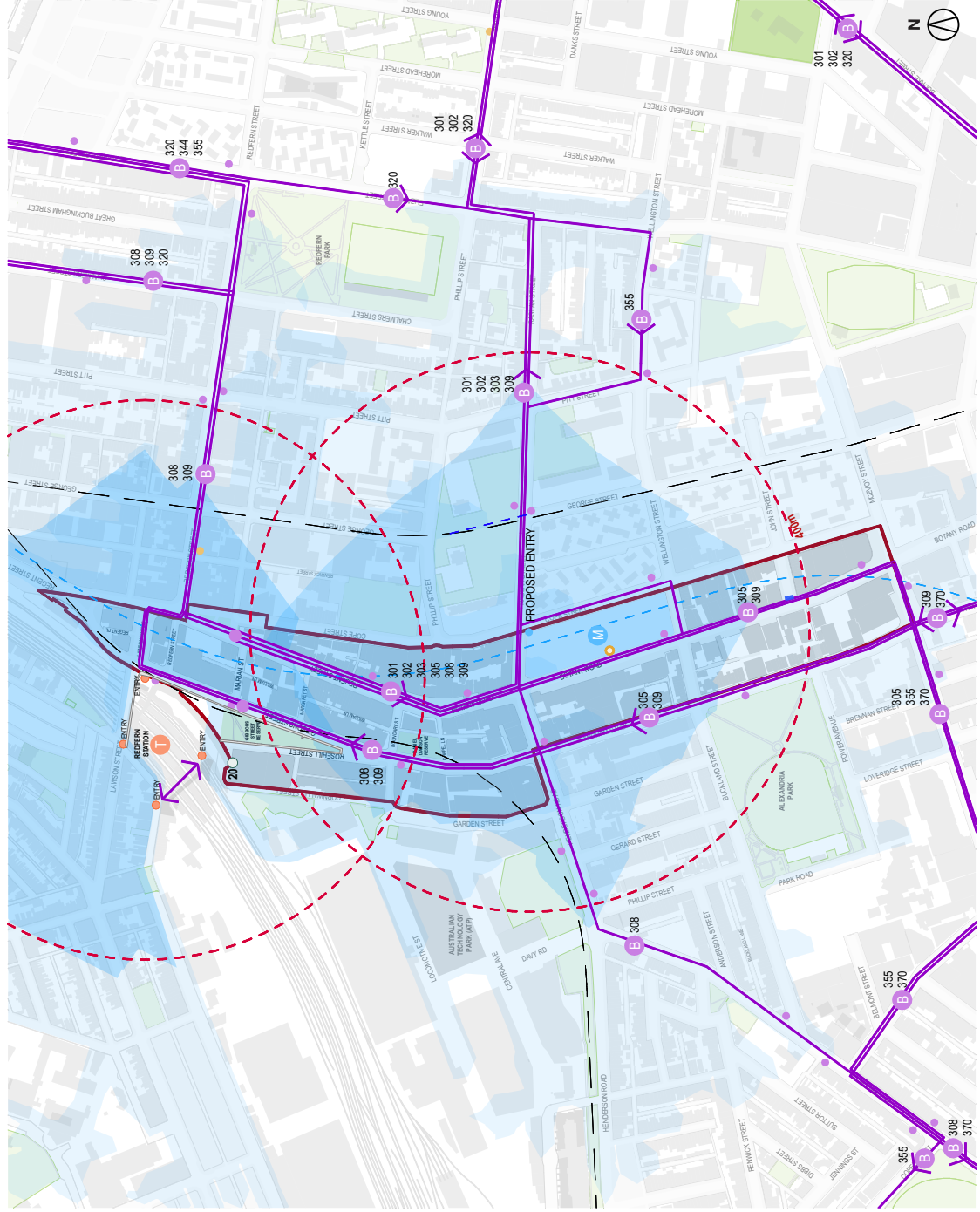
Average spare car capacity graphs and analysis shows city bound train loadings morning peak on the T1, T2, T3, T4 lines at 135% exceeding factor^{S4}.

There are planned amendments to Redfern Station with Southern Concourse, entries and general upgrades.

Bus Routes

- 301 Eastgardens<->Redfern / Mascot
- 302 Eastgardens<->Redfern
- 303 Sans Souci<->Redfern / Mascot
- 305 Mascot<->Redfern
- 308 Centrak<->Marrickville Metro (loop)
- 309 City<->Banksmeadow
- 320 City<->Zetland
- 355 Bondi Junction<->Marrickville
- 370 Coogee<->Leichhardt / Marrickville

S4: Redfern to Epping Corridor Land Use and Infrastructure Implementation Plan - Traffic and Transport Context, JACOBS, 2018
Figure 128: Existing Public Transport map
Source: T23



Existing Commuter Travel Behaviour

A report prepared by Jacobs in 2018⁵⁵ documents the current public transport travel behaviour, including mode share and key work trip destinations has been analysed using data from the 2016 Census. The data it is noted that this data represents trips to work only. Key statistic applicable to the Botany Road Corridor study area are:

- The highest number of people commuting for work to Redfern Chippendale is Sydney CBD Haymarket, rocks jobs, then Surry Hills and Pyrmont.
- Highest number of trips were:
 - by public transport (41%),
 - followed by vehicle (20%) and,
 - active transport (26%).

Future Waterloo Metro Station

The future Waterloo Metro Station is located along Botany Rd south of Raglan St and north of Wellington St.

The new Metro Railway will extend from Rouse Hill to Bankstown via the CBD. The Chatswood to Bankstown line is expected to open in 2024 and will bring around 40,000 people per hour and capacity for trains every two minutes⁵⁶.

Forecasts for the 2036 AM peak indicate around 37,000 customers entering, and 2,350 customers existing Waterloo Station, when completed.

Six guiding principles are identified in the Waterloo Metro Quarter report⁵⁷:

- Support the development of transport networks that provide 24 hour / 7 days a week access - Ensure that residents

and workers are provided with multiple high quality transport options to reach a variety of destination/s for live, work and play activities in a 24 hour/7 day a week economy and to support connections to the metro system.

- Encourage access by public transport, walking and cycling to reduce car dependence - Provide high quality public and active transport linkages and sustainable approaches to parking provision that encourages residents to live car independent lifestyles if they choose to do so.
- Support walkable urban environments
- Ensure an integrated land use and transport outcome that supports walkable streets and high quality urban outcomes within the precinct, including active street frontages, fine-grained development pattern and a connected, permeable street network.
- Strengthen east-west connections - Take advantage of the north-south connectivity provided by the metro by strengthening east-west connections, particularly for active transport and buses.
- Minimise impacts on regional connections - Ensure that any impacts to regional connections for public transport and freight, such as Botany Road, are minimised where possible.
- Support a hierarchy of access based on time of day - Develop and implement a hierarchy of access that prioritises access for people and goods based on time of day using the movement and place approach.

Future Commuter Travel Behaviour

A report prepared for the Sydney Metro Waterloo Station State Significant Precinct Transport Study sets out transport context for the Waterloo Metro Quarter future users.

A summary of the future mode share targets is below⁵⁸:

- Proximity to Sydney Metro Waterloo Station, which will provide access to high quality mass transit services on Sydney Metro City & Southwest
- Densely located land uses, activities and attractors as well as proximity to Sydney CBD and Green Square, enabling shorter trip lengths more conducive to walking and cycling
- Low existing traffic generation rates in recent high density developments in Waterloo and Redfern, and high (81 per cent) AM peak non-car mode share observed at the Redfern traffic generation survey site
- Enhancements to the bus network to strengthen east-west routes, enabled by Sydney Metro City & Southwest, and improved cycling connections with key surrounding destinations.
- Consideration of Category A rates outlined in City of Sydney's DCP requirements to represent best practice in the provision of transport facilities appropriate for the Metro Quarter.

The study sets out the future assumptions in terms of Waterloo metro station. The City and South West metro service will be operational from 2024.

By 2036 forecasts indicate 3,700 people will enter the station in the morning peak hour and 2,350 will exit. In total over 5,000 people will walk to or from the metro station in the morning peak hour.

The highest number of trip entries to Waterloo Metro Station are anticipated to be:

- Walking - 76%
- Cycling - 1%
- Bus - 19%
- Kiss and ride / drop off - 4%

55: Redfern to Eveleigh Corridor, Land Use and Infrastructure Study, Jacobs 2018, p2018.
56: Sydney Metro Waterloo Station State Significant Precinct Transport Study, Jacobs 2018, p6.
57: Sydney Metro Waterloo Station State Significant Precinct Transport Study, Jacobs 2018, p47.
58: Derived from a summary provided by Catell Cooper of the Jacobs 2018 Waterloo Metro Quarter State Significant Precinct Transport Study p33-34.

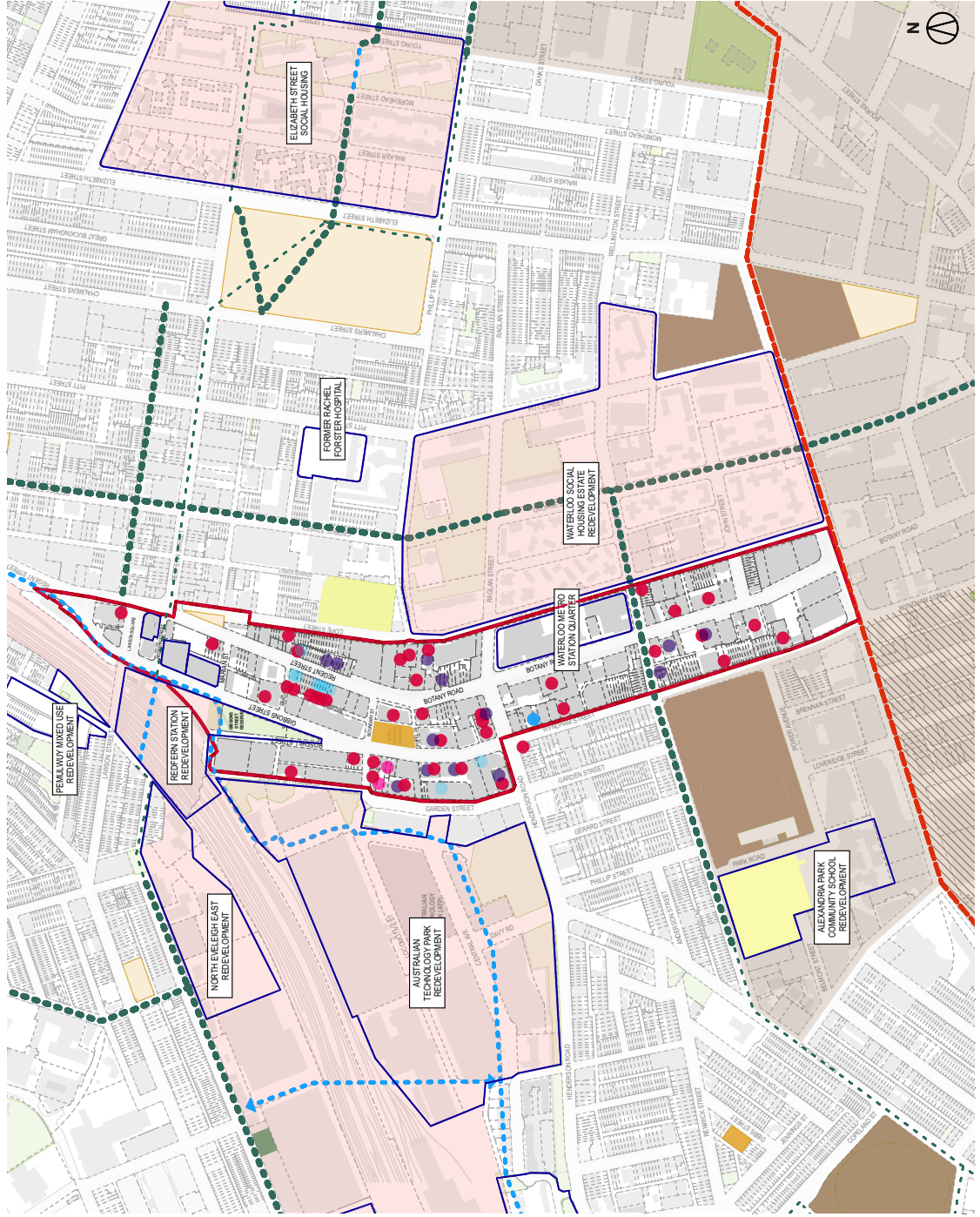
3.7 Land Use and Development

3.7.1 Development Summary

The study site has seen a number of low density residential dwellings develop recently, concentrated along Botany Road, Wyndham Street and Cope Street. A trend observed with of change in use DA applications associated with residential DAs. Few commercial DAs have occurred recently within the study area. Significant Developments and Infrastructure in or adjacent to the study area are:

- Redfern Station Redevelopment
- Waterloo Metro Station & OSD
- Australian Technology Park redevelopment
- Waterloo Social Housing Estate redevelopment
- North Eveleigh redevelopment
- South Eveleigh redevelopment
- Alexandria Park Community School
- Pemulwuy Mixed Use development
- 80-88 Regent Street development
- 11 Gibbon Street development
- 13-23 Gibbon Street development
- Former Rachel Forster Hospital development
- TNT Apartments
- Alexandria to Moore Park Connectivity Upgrade

329



3.7.2 Existing Land Use Controls

FSR

FSR controls across the Botany Road corridor vary and are generally a higher FSR ratio toward Redfern Station at toward future Waterloo Station.

Significant FSR (AA1 6:1 FSR) is allowed at Waterloo Metro Station.

A portion of land near Redfern Station is not currently subject to FSR controls.

Between Wellington Street and McEvoy Street, FSR controls are low between 1:1 and 1.75:1.

The land bounded by Botany Rd, McEvoy St and Wyndham St is subject to an additional 0.5:1 (Area 6) for Community infrastructure floor space at Green Square (Sydney LEP cl. 6.14). A development may use the bonus FSR if it includes Green Square community infrastructure.

Green Square community infrastructure means development at Green Square for the purposes of recreation areas, recreation facilities (indoor), recreation facilities (outdoor), public roads, drainage or flood mitigation works.

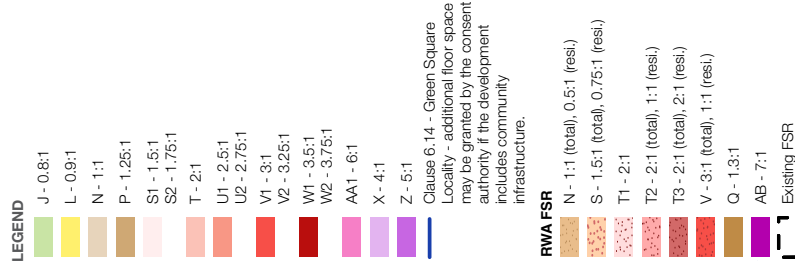


Figure 130: FSR Map
Source: City of Sydney LEP 2012, TZG Overlay.

Zoning

Most land in the corridor is zoned B4 mixed use residential. Objectives of the B4 mixed use zone are to integrate commercial, retail and residential development.

Previous reports account a strong residential property market to the high proportion of residential property that has been developed within the B4 mixed use zone to date, with only a small proportion of non-residential floor space being present in the form of ground floor retail or commercial space.

A portion of land is zoned MD Major Developments.

R1 General Residential zoning exists in the predominantly low scale residential terraces along Wyndham Street.

SP2 zoning occurs over most road areas, including SP2 special infrastructure set back zones to provide for infrastructure and related uses.

LEGEND

CoS LEP Zoning

	SP2 Infrastructure
	B4 Mixed Use Zoning
	R1 General Residential
	RE1 Public Recreation
	B2 Local Centre
	B1 Neighbourhood Centre
	B6 Enterprise Corridor
	B7 Business Park
	MD SEPP Major Development 2005
	SS South Sydney LEP 1998

RWA Zoning - SEPP MD 2005

	A Residential Zone
	Medium Density Residential
	B Business Zone
	Local Centre
	C Business Zone
	Business Park
	D Business Zone
	Commercial Core
	E Business Zone
	Commercial Core
	F Special Purpose Zone
	Community
	G Special Purpose Zone
	Infrastructure
	H Recreation Zone
	Public Recreation
	I Recreation Zone
	Private Recreation

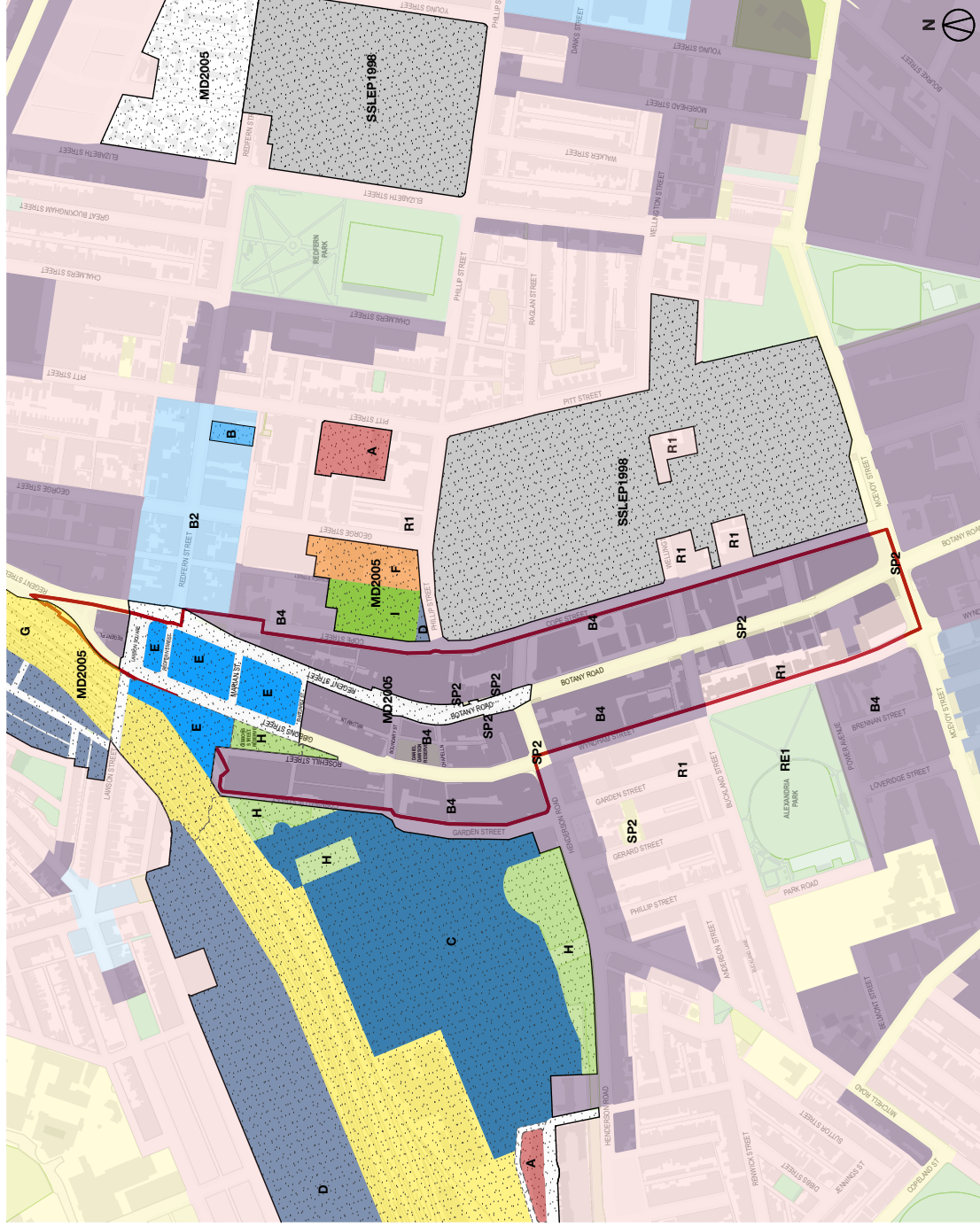


Figure 131: Land Zoning Map
Source: City of Sydney LEP 2012, TZG Overlay.

3.7.3 Existing Land Use

The existing land use is varied, diverse and mixed, with no dominant use across the study area. The precinct accommodates a wide range of uses including retail (convenience stores, pubs and takeaway food), warehouses, shopfronts, services, lower quality office space and a range of housing including terrace housing and low- to mid-rise apartment blocks.

Apartments with retail ground floor are concentrated in the north of the Corridor nearer to Redfern Station and Regent Street. Residential Apartments primarily flank Gibbons Street with small scale residential along Wyndham Street. The southern end of the Corridor is mostly commercial space, with some recent developments scattering mixed use apartments over larger lots.

Regent Street has a dominant mixed use or retail character land use.

When land use is compared to development applications, a pattern of conversion from commercial/ retail use to residential can be seen, as evident in Figure 134 adjacent.

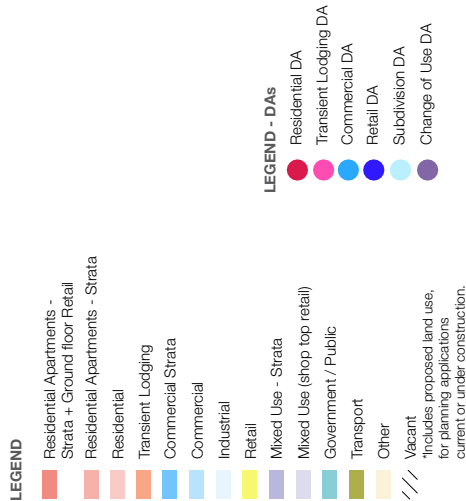


Figure 132: Land Use by Lot
Source: TZG.

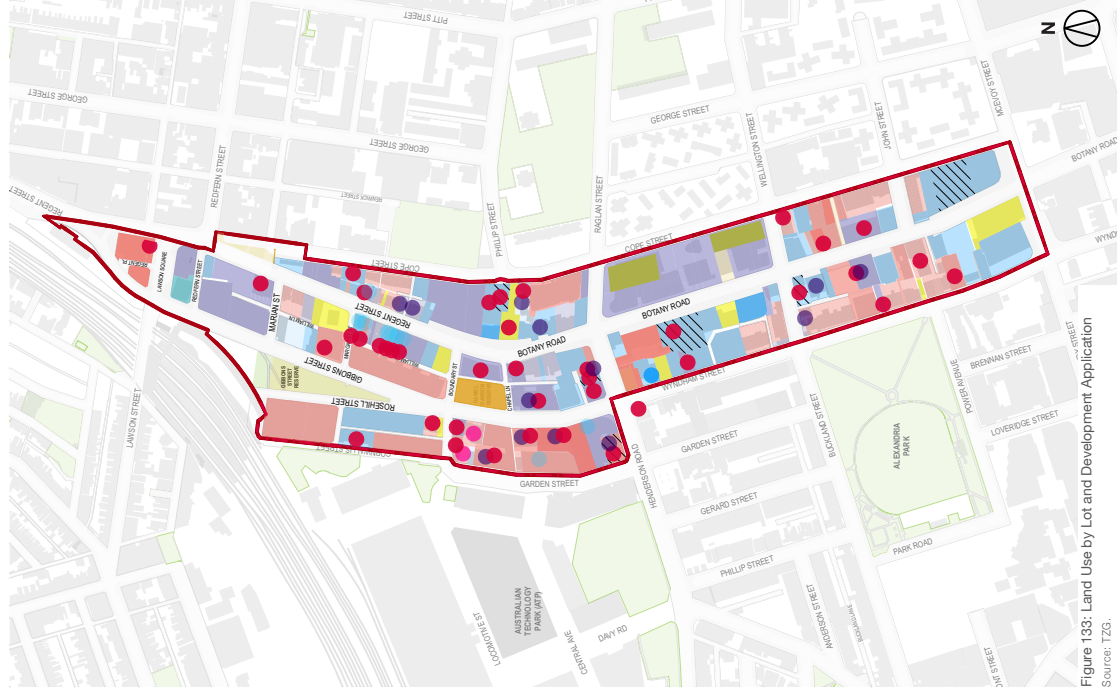


Figure 133: Land Use by Lot and Development Application
Source: TZG.

Land Use Ground Floor

Figure 135 adjacent reveals patterns about ground floor usage:

- Regent Street is primarily mixed use or commercial/ retail with interspersed residential entries or terrace frontages.
- Botany Road between Henderson St and Wellington/ Buckland Streets is Commercial or mixed use. This character continues southward, with interspersed residential frontages, resulting primarily from recent developments. Waterloo Metro station ground floor prioritises Mixed use at Botany Road, and Transport interchange frontages at Cope Street.
- Mixed Use frontages generally have retail or commercial at ground floor level.

Land Use Above Ground Level

Figure 136 reveals dominant above ground use to be either residential or commercial floor space. Some lots do not have above ground floor space, being single story and have therefore been counted as their ground floor use for the purposes of this diagram.

LEGEND

- Residential Apartments - Strata + Ground floor Retail
- Residential
- Transient Lodging
- Commercial Strata
- Commercial
- Industrial
- Retail
- Mixed Use - Strata
- Mixed Use (shop top retail)
- Government / Public
- Transport
- Other
- Vacant
- Includes proposed land use, for planning applications current or under construction.

LEGEND - DAs

- Residential DA
- Transient Lodging DA
- Commercial DA
- Retail DA
- Subdivision DA
- Change of Use DA

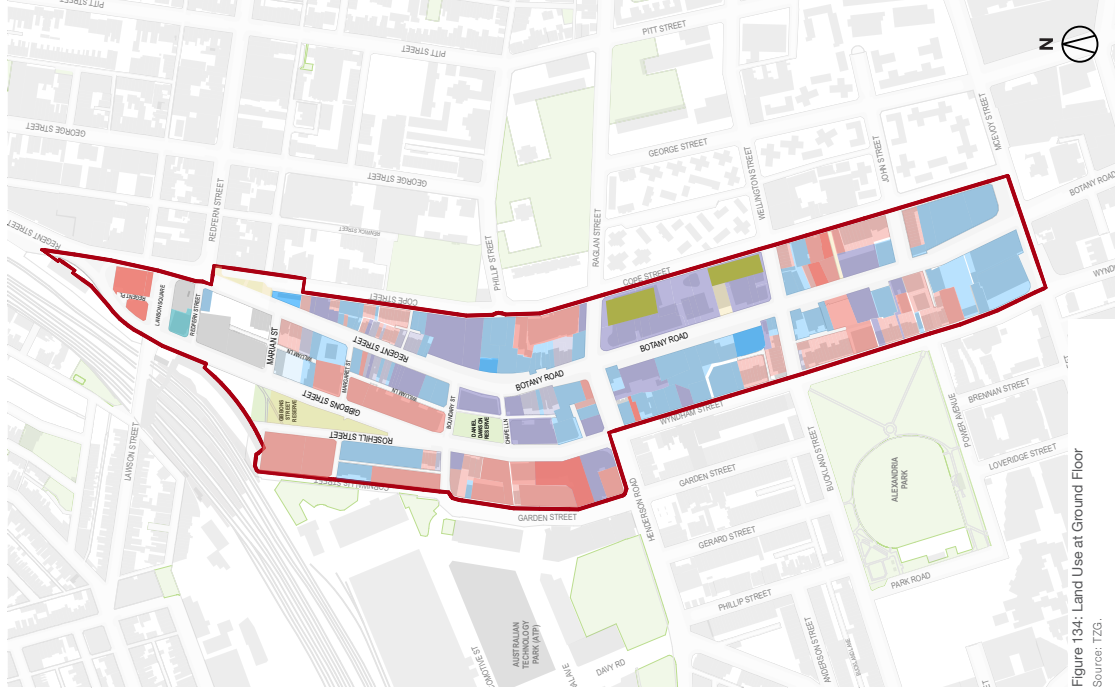


Figure 134: Land Use at Ground Floor
Source: TZG.

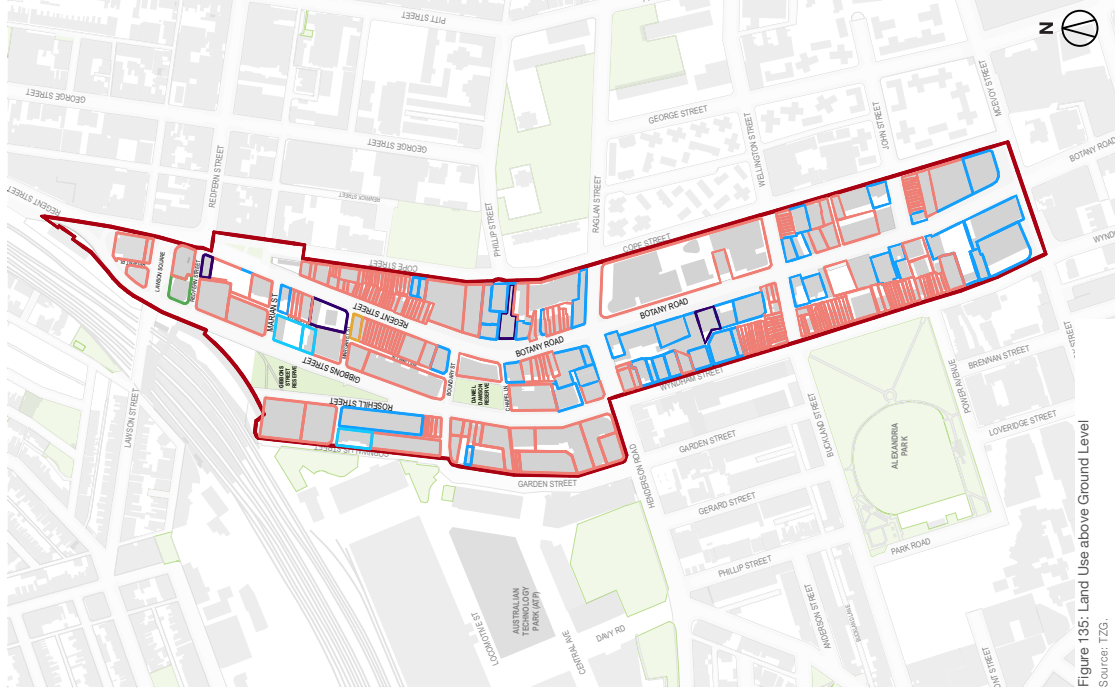


Figure 135: Land Use above Ground Level
Source: TZG.

Land Ownership - Strata titled

Strata titled and multiple ownership properties can constrain development potential. The 14 adjacent documents strata ownership patterns revealed in previous reports ⁵⁹.

- Strata residential units are the most common type of property within the BRC making up 64% of total properties.
- Majority strata-owned sites are not common, however multiple ownership appears relatively common.
- Singled owned sites appear to be majority smaller lots, shop front/ retail locations and a smaller proportion of larger, industrial lots.
- Most of the strata residential units are concentrated on Gibbons Street, the northern ends of Regent and Cope Street, at the corner of Wyndham and Buckland Street and along Wellington and John Street in Waterloo.

- A number of multi-property holdings are comprised of residential strata units representing more than 75 per cent of a single block and around 80% of the sites in the corridor under single ownership.

By overlaying 2017 FES data for vacant space on existing land ownership patterns, it can be seen that most are within single ownership potentially opportunitising short term employment growth if floorspace was to be occupied.

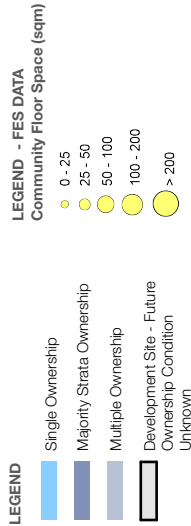
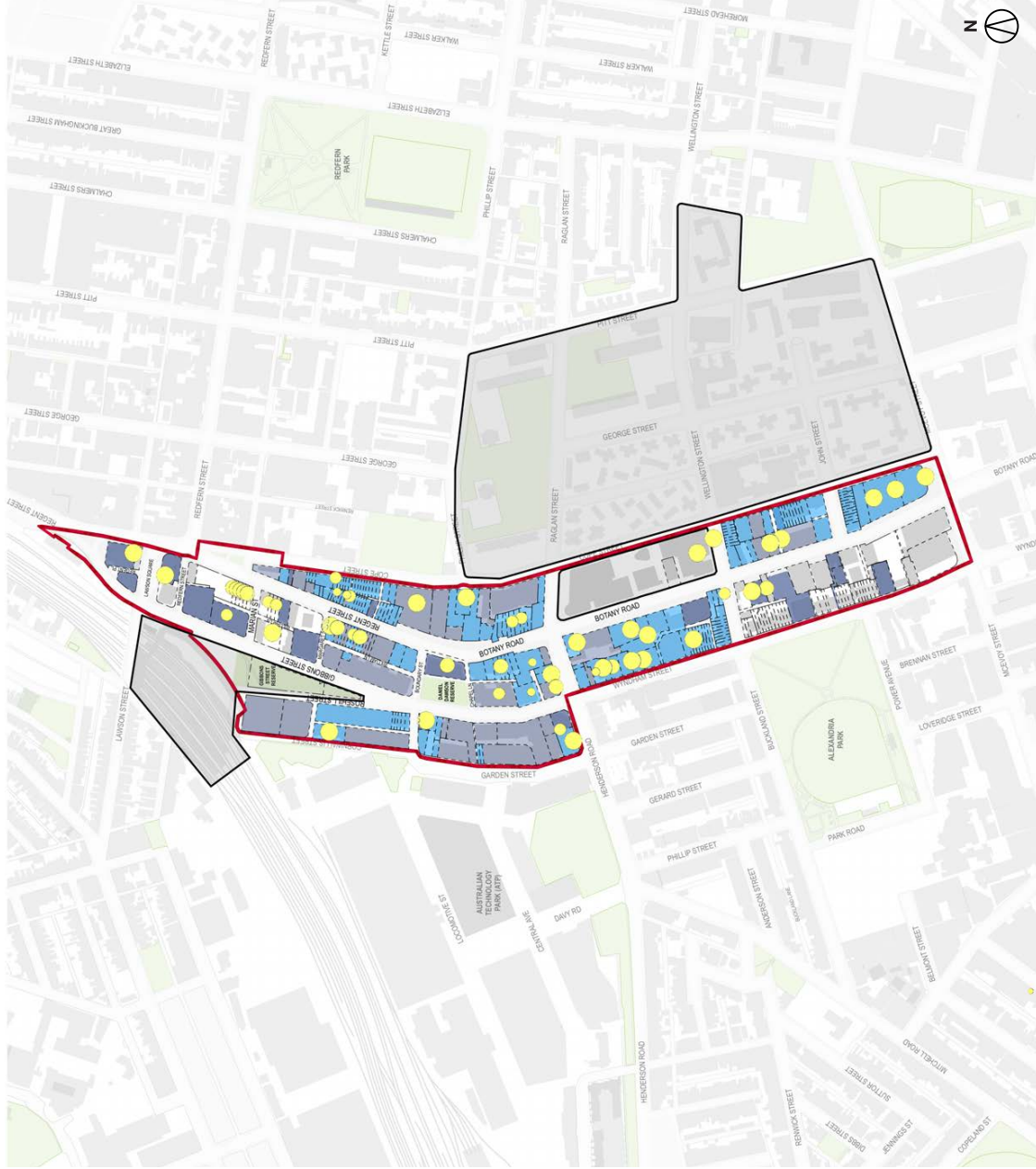


Figure 136: Land Ownership - Strata Titled

Source: Economic Feasibility Analysis and Affordable Housing report, SGS Economics, 2018 p14. Redrawn as a diagram by T2Q to the study area.

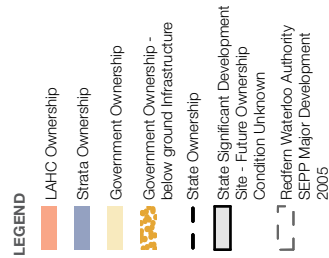


3.7.4 Land Ownership

Land ownership can determine the level of opportunity for development on that site. Figure 138 adjacent reveals some patterns about ownership:

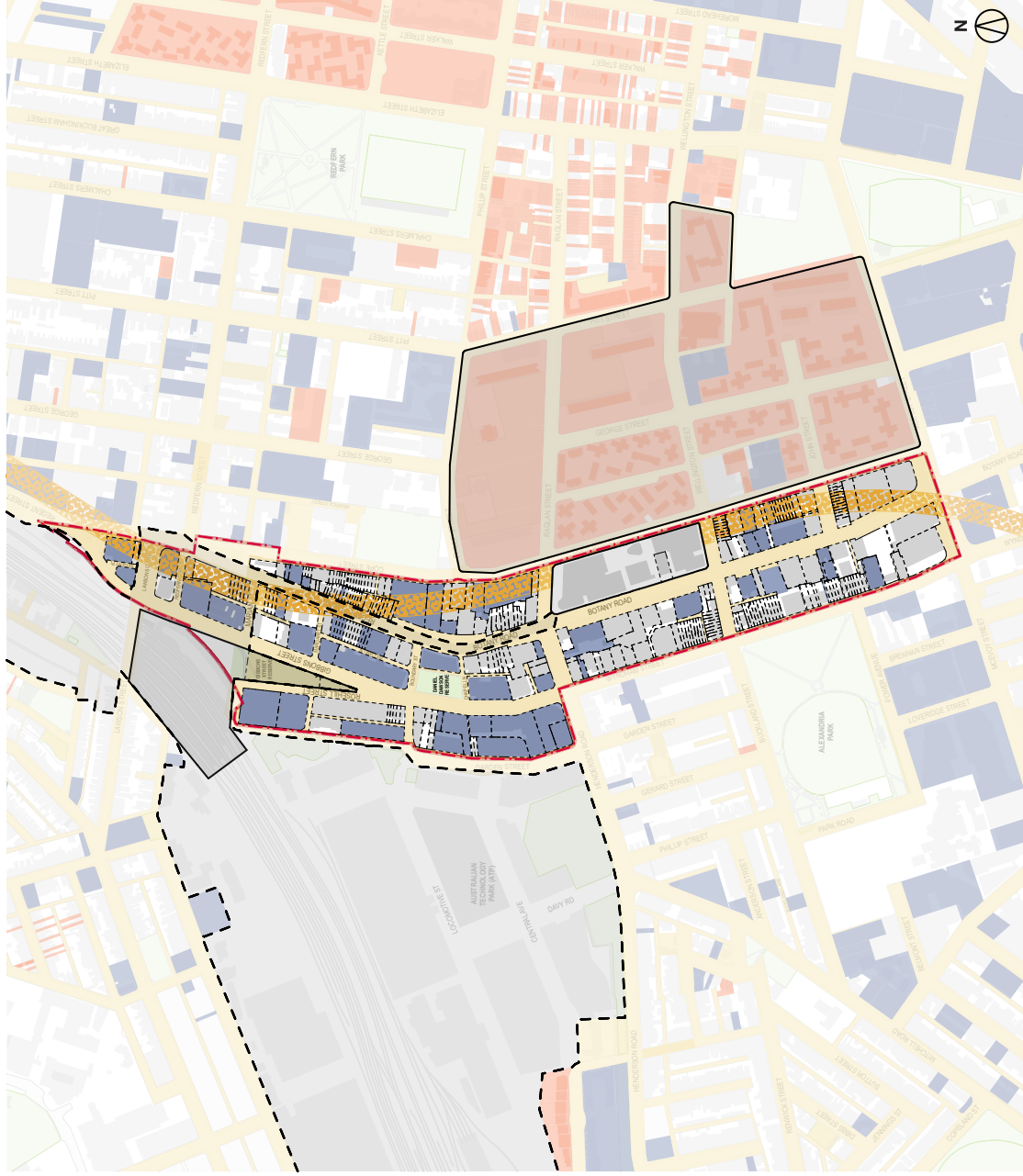
- Strata residential units are the most common type of property within the Botany Road Corridor, making up 64 per cent of the total count of properties.
- Torrens-title residential properties account for 13 per cent, strata business/industrial units account for 5 per cent and business/industrial properties account for four per cent⁶⁰.
- Some properties may be constrained from development due to underground rail and infrastructure including Gibbons Reserve and properties along Cope Street.
- Majority LAHC owned sites flank the east side of the site making up most ownership within the Waterloo Social Housing and the Elizabeth St Social Housing.
- Government Ownership is majority road corridors, parklands, or above ground rail infrastructure.

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60: Economic Feasibility Analysis and Affordable Housing report, SGS

Figure 137: Land Ownership - Private vs Government owned
Source: City of Sydney, redrawn by TZG to the study area.



3.7.5 Retail and Entertainment

Character

According to the City of Sydney FES Retail/ Restaurant/ Eating Space is around 4% of the Redfern/ Waterloo study area compiling 73 sqm. Significant Retail areas are situated on Redfern Street, interspersed along Botany Road and Regent Street.⁶¹

Currently most of the Botany Road Corridor is classified as Restricted Retail development under the City of Sydney LEP 2012. The objectives of this classification are⁶²:

- to promote the economic strength of Green Square Town Centre and planned local centres by limiting large-scale retail development to those centres, and
 - to support the provision of community facilities and infrastructure in Green Square.
- Development consent must not be granted to development on land to which this clause applies for the purposes of shops or markets with a gross floor area greater than 1,000 square metres.

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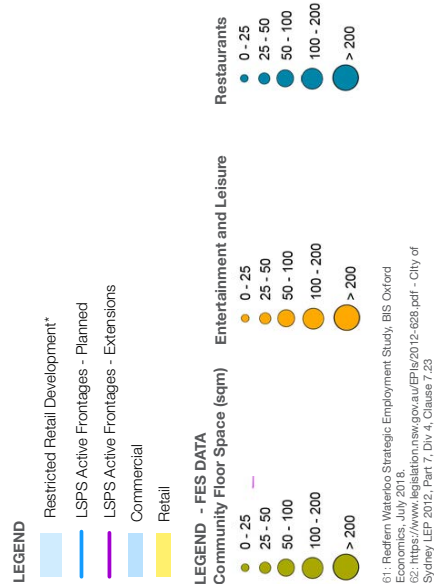
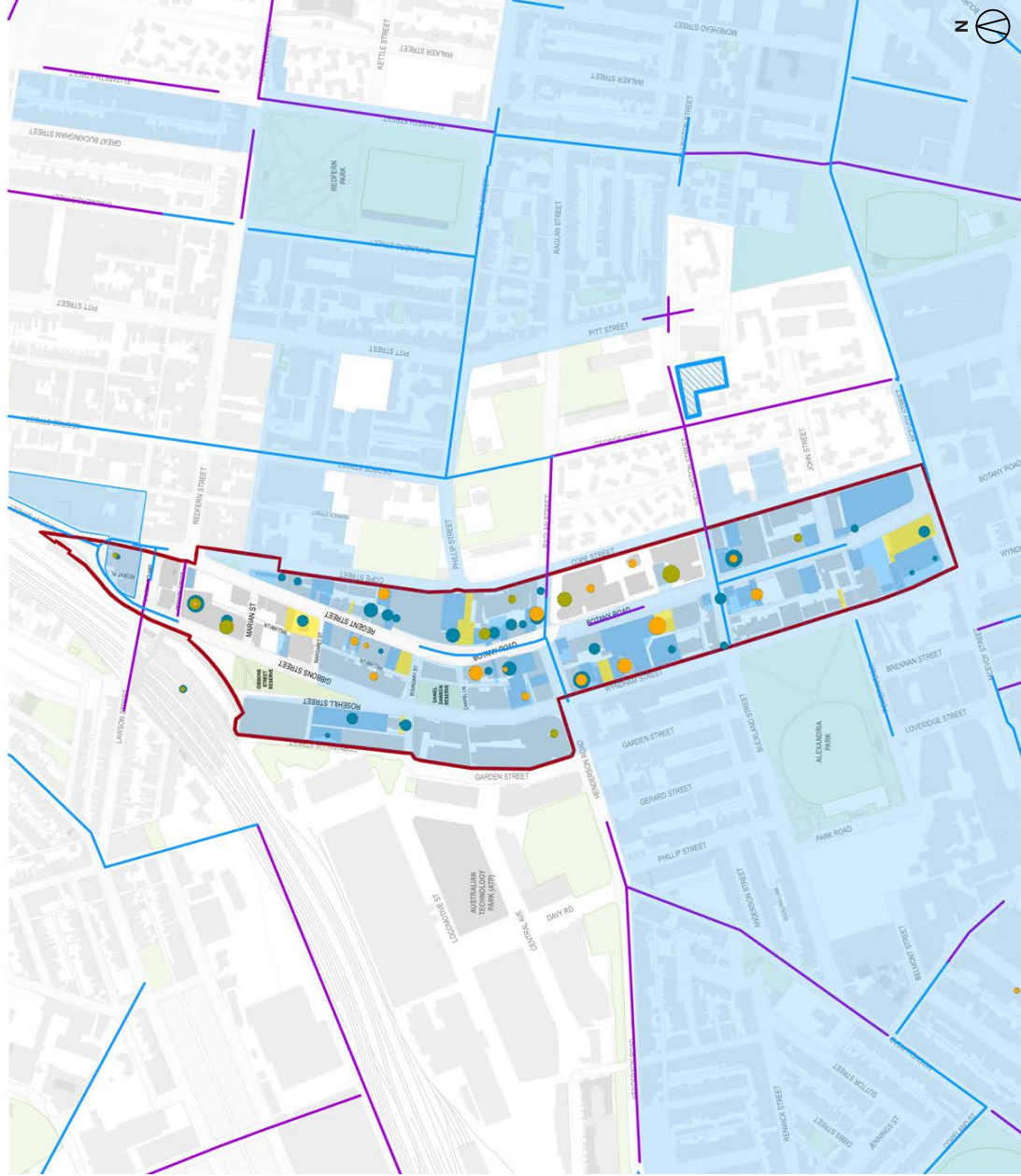


Figure 138: Existing Retail, Entertainment and Restaurant Map
Source: City of Sydney, TZ3 overlay.



The following maps show various floor space types as distributed across the study area, according to the 2017 Floor Space Employment Study survey by the City of Sydney. Some uses are greater than 200m2 shown in the legend below, but have been simplified for graphic purposes.

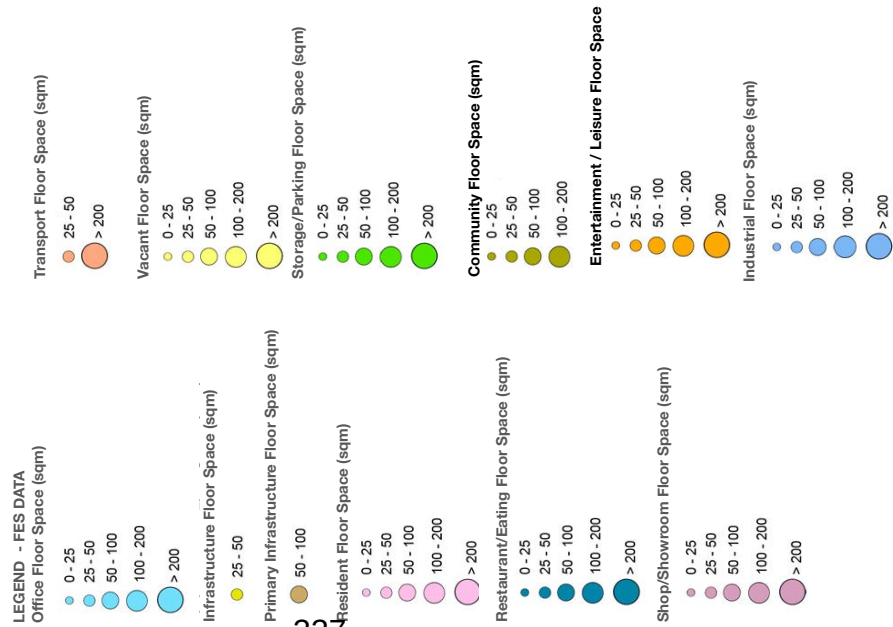
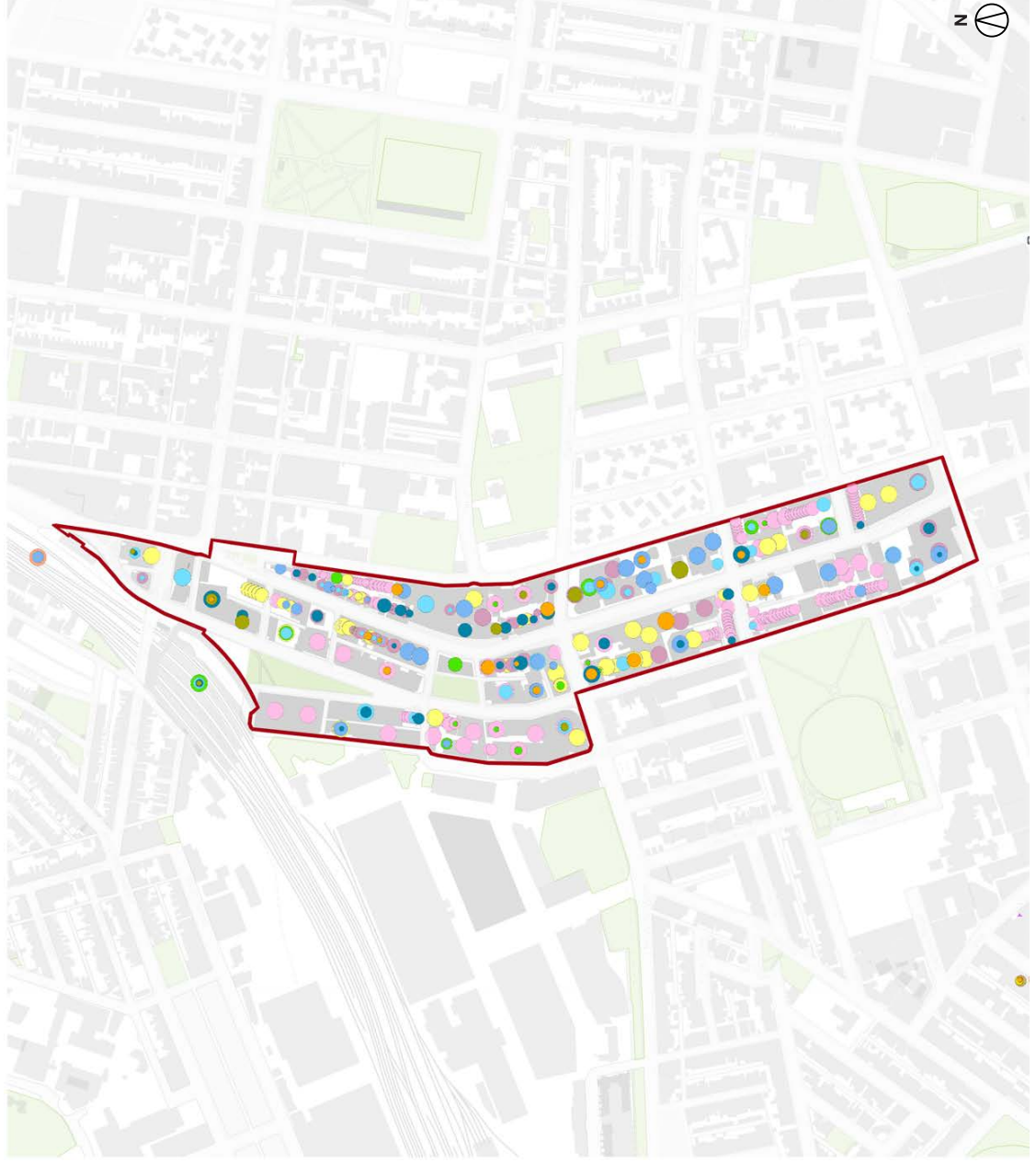
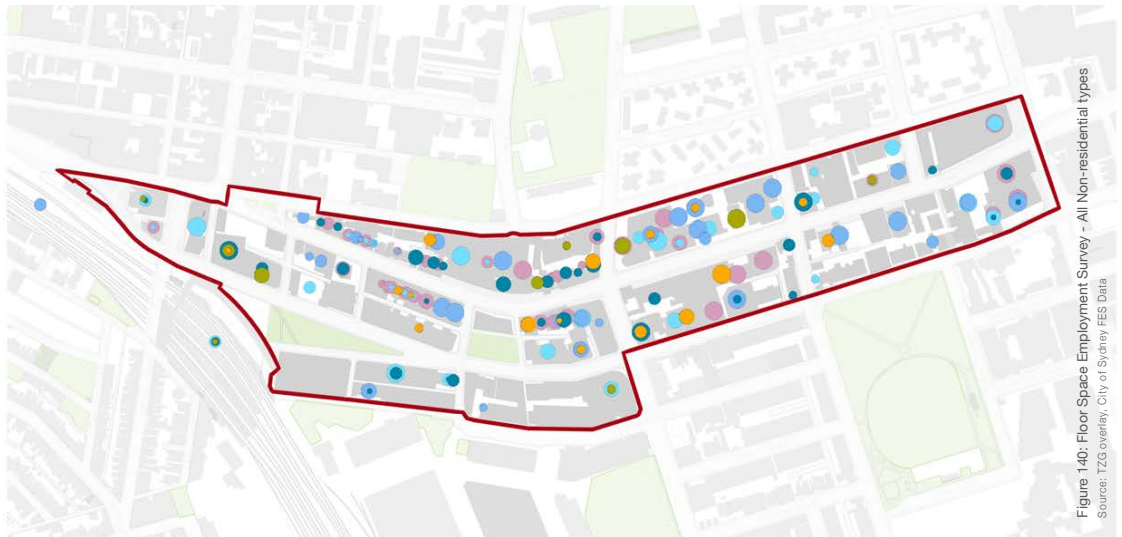
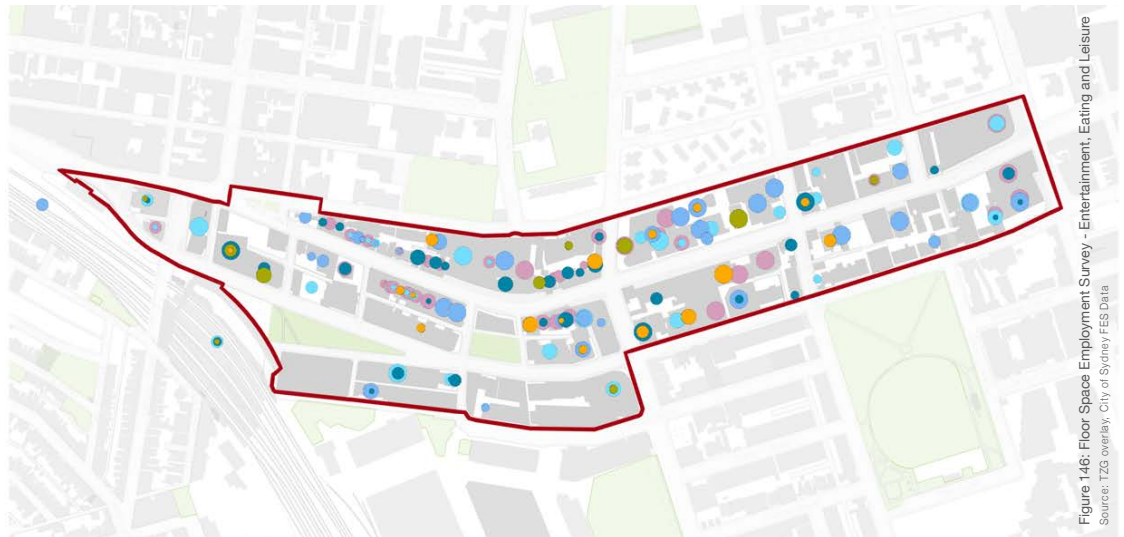


Figure 139: Floor Space Employment Survey - All types
Source: TZG overlay, City of Sydney FES Data









3.7.6 Existing Capacity Demand and Growth

Residential Growth and Demand

In 2017, floorspace in the BRC study area was a little under 2 million sqm, with the largest use as residential at 75%, second largest as vacant space (89,000sqm) and then 'other' at 64,000 sqm. The highest use non residential floor space is office space at 145,000 sqm (7.3% share). Australian Technology park accounts for roughly one third the size of the Study Area comprising around 30% non household floorspace and 36% of employment⁶³.

Employment Space Demand

In 2017, the City of Sydney Floorspace Employment survey revealed that non-residential uses are 21% of floor space within the BRC. In 2018 the City of Sydney commissioned a Strategic Employment study of the Redfern/ Waterloo area. The report looked at past and forecast growth in Metropolitan Sydney and the Botany Road Corridor Study Area and provided recommended policy inclusions, forecast scenarios further population and employment growth in the decades ahead⁶⁵.

The study acknowledges that the study area is constrained in terms of employment growth by planning controls and built form that favour residential over commercial uses, but also the BRC study area's employment growth rate is forecast to outpace the metropolitan area between 2017 and 2036 at 1.9% growth, with 14,400 employee population.

Demand for Office Space

⁶³ Redfern Waterloo Strategic Employment Study, BIS Oxford Economics, July 2018.

Figure 149: Identified Growth Opportunity Sites
Source: City of Sydney, TZ3 overlay.

Vacancy rates have fallen in 2017 to between 5.5% and 3%, potentially due to the withdraw of office spaces to conversions as residential. The ATP makes up most of office space within the area. Real estate agents in the study area have commented that significant increase in occupancy costs act as a barrier to business looking to move or expand within the study area.

Demand for Industrial Space

Industrial space makes up 3% or around 70,000 sqm, most of which is along young street and Botany Road. Reduction in industrial space has meant a decline in industrial businesses in the area.

Future Short Term Growth

In a base case scenario of employment floor space prepared by the Redfern to Eveleigh Strategic Employment study, 400,000 sqm of employment uses will be needed by 2036. Alternate scenarios took into account growth at the ATP precinct require an additional 123,00 and 138,000 sqm to the base case scenario.

A Capacity Study, noted as required to be undertaken by the City of Sydney in the BIS Oxford Report has been undertaken in Figure 150 to understand if there is sufficient permissible floorspace to meet future demand. Further studies into capacity and demand may be undertaken in subsequent stages of the study.

The diagram could be seen as an opportunity diagram for future short-term growth, being compiled of the reverse of constrained site uses.

LEGEND

- 101 - 500 sqm
- 501 - 1,000 sqm
- 1,001 - 2,000 sqm
- Over 2,000 sqm

