

TRAFFIC AND TRANSPORT NEEDS STUDY (TTNS)

Prepared on behalf of **Inner West Council**

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EXECUTIVE SUMMARY

- *The costs of new public infrastructure need to be reasonably apportioned between existing populations and populations created by new development to ensure that each party only pays for the portion of demand created. This typically includes external and internal demands. External demands for infrastructure may include the existing populations as well as district, and regional users. This proportion is normally paid for by Council through general revenue. This also includes circumstances where the proposed infrastructure makes up for some existing deficiency.*
- *Internal demand is generally created by populations of new development within the Local Government Area (LGA). This can be regarded mainly as new residents and employees who will live or work within the LGA. It is able to be assessed for each suburb, noting that growth is not uniform across the LGA. This funding base is considered to be the developer's portion and is expected to be funded through a development contributions plan or voluntary planning agreement. Development contributions plans cannot be used to remedy current or past problems which are not connected with development that is the subject of the plan.*
- *The amalgamation of the former councils of Marrickville, Ashfield and Leichhardt in 2016 to become Inner West Council requires consolidation of the planning controls including plans for development contributions and levies in accordance with Sections 7.11 and 7.12 of the Environmental Planning and Assessment Act and the Regulations. With an anticipated growth in population in the LGA, a coordinated planning approach is required to address the transport needs of the increased population. These contributions can only be applied to capital costs of providing new, expanded or augmented facilities and cannot be applied for maintenance or operating costs. Section 7.12 of the Act relates to fixed development consent levies and these were introduced in 2005 as a simpler and less administratively costly alternative to Section 7.11 contributions plans. They are charged as a fixed percentage of development costs and are now widely adopted.*
- *The purpose of this report is this to review the existing transport infrastructure within the Inner West Council LGA across all travel modes, identifying current demands, travel patterns and deficiencies within the network. The report reviews relevant strategic policies to identify the location and scale of future transport needs as a result of more residents, workers and visitors generated by property development. It then identifies anticipated transport requirements over a ten year timeframe and apportions costs for Council's contributions plan via Sections 7.11 and 7.12 of the Environmental Planning and Assessment Act 1979.*



- *The relevant strategic documents that are relied upon in this study include State Government strategies, strategies formulated by Inner West Council and relevant strategies from the former Ashfield, Leichhardt and Marrickville Councils.*
- *The future infrastructure needed has been identified by suburb across the LGA focussing on sustainable travel outcomes. The items have been costed based on estimated base costs derived from multiple sources. These cost items have then been apportioned to determine the proportion to be recoverable from developer contributions. This is different for each suburb and is based on projected (percentage) growth in the combined number of residents and employees within each suburb, which is the most reliable simple measure of travel demand. These percentage increases have been adjusted downwards to account for those workers in the LGA who also live within the LGA, who would otherwise be 'double counted' and hence be charged twice for the same travel demand (trip). This is an average correction of about 31% across the LGA.*
- *The findings of the study are that a broad range of infrastructure has been identified across the LGA with a total capital cost of \$50,230,073. Of this, a total of \$12,840,516 is recoverable from developer contributions, representing an average of 26% of the total cost. The balance is to be funded by Council from general revenue sources. Costs and contributions associated with each suburb are able to be determined separately and these may be used to establish contribution levies based on dwelling yields, floor area, etc,*



1. INTRODUCTION

1.1 Background

The amalgamation of the former councils of Marrickville, Ashfield and Leichhardt to become Inner West Council requires consolidation of the planning controls including the Development Contributions Plan in accordance with Sections 7.11 and 7.12 of the *Environmental Planning and Assessment Act* and Regulations. With an anticipated growth in population in the Inner West area, a coordinated planning approach is required to address the transport needs of the increased population.

A Section 7.11 contribution (previously known as section 94) is the mechanism under the Act to recover the costs of local infrastructure delivery. Section 7.11 contributions plans are based on the principles of:

- reasonableness (Contributions and methods for imposing should be reasonable)
- nexus (the connection between proposed development and the demand created)
- apportionment (the share of the total demand that the developer must pay).

Councils are required to prepare a local infrastructure contributions plan setting out the 'nexus', or relationship, between a development and the infrastructure required to service it. Financial contributions by developers are determined by apportioning costs attributable to the additional demand a development creates. These contributions can only be applied to the capital costs of providing new, expanded or augmented infrastructure. They cannot be applied for maintenance or operating costs (with the limited exception of roads impacted by extractive industry operations). Contributions plans require periodic review to ensure infrastructure requirements and cost estimates remain current.

Section 7.12 referring to fixed development consent levies were introduced in 2005 as a simpler and less administratively costly alternative to Section 7.11 contributions plans. They are charged as a fixed percentage of development costs and are generally used:

- where it is difficult to establish a 'nexus' and 'apportionment' of costs
- in regional areas, infill areas, or mixed-use sites where growth is difficult to predict.

Unlike Section 7.11 contributions plans, councils do not have to demonstrate a link between revenue collected and the infrastructure it funds. In the case where both types of local infrastructure contributions apply to a given area, the development is only liable for contributions under one type.

1.2 Purpose and Scope

The purpose of this report is as follows:



- Review the existing transport infrastructure within the Inner West Council LGA across all travel modes, identifying current travel patterns and network deficiencies.
- Review relevant strategic policies to identify the location and scale of future transport needs as a result of more residents, workers and visitors due to property development.
- Identify anticipated transport requirements over a ten year timeframe and the apportioned costs for Council's contributions plan via Sections 7.11 and/or 7.12 of the Environmental Planning and Assessment Act 1979.

The scope of this report includes an assessment across suburbs under the jurisdiction of Inner West Council. It does not include infrastructure or development land under the control of State or Federal Government agencies.

1.3 Report Structure

The report is structured as follows:

- Section 2 reviews current strategic documentation at State Government and Local Council levels.
- Section 3 includes an assessment of key centres within the Inner West LGA, including a review of data relating to existing employment floorspace and housing types. In addition, a summary of the existing transport infrastructure in the Inner West LGA is provided.
- Section 4 reviews the future demand and transport needs of the Inner West LGA relating to anticipated growth as identified in the strategic planning documentation.
- Section 5 summarises the transport surveys and modelling carried out to assess future impacts.
- Section 6 identifies the key outcomes of the assessment and the approach for estimated costings and apportionments.
- Section 7 presents the overall conclusions.



2. STRATEGIC CONTEXT

2.1 State Government

The NSW State Government strategic documentation relevant to transport planning in the Inner West LGA, includes the following.

Greater Sydney Region Plan - A Metropolis of Three Cities

The *Greater Sydney Region Plan* is built on a vision of three major metropolitan centres where residents live within 30-minutes when travelling by public transport of jobs, education and health facilities and other essential services.

With the population of Greater Sydney projected to grow to 8 million people in the next 40 years, the Plan aims to deliver quick and easy access to jobs and essential services, increase housing supply supported by infrastructure and provide 'green infrastructure' including the Sydney Green Grid.

Eastern City District Plan

The Eastern City District is one of five Districts in the Sydney Metropolitan Area. Over the next 20 years the Eastern City District will grow with 157,500 additional dwellings around new and existing transport infrastructure with a focus on well-connected walkable places. The Plan will be delivered by Local Strategic Planning Statements (LSPS) and Local Environmental Plans (LEP) prepared by local councils.

Future Transport Strategy 2056

Future Transport Strategy 2056 is an overarching strategy which aims to provide a safe, efficient, and reliable transport system. It aims to shift the focus away from private cars towards integrated solutions which encourage walking and cycling and using public transport use.

An aim of *Future Transport Strategy 2056* for Sydney is to make walking the first transport choice for trips under two kilometres and grow the share of cycling for trips up to 10 kilometres. It works to support the delivery of three 30-minute cities with reliable 'turn up and go' public transport services such as metro and light rail and easy interchange between different modes of transport.

Greater Sydney Services and Infrastructure Plan

The *Greater Sydney Services and Infrastructure Plan* builds on the metropolitan-wide outcomes identified in *Future Transport Strategy 2056*. It considers the direction for managing growth and development set in the *Greater Sydney Regional Plan* with a focus on transport and movement.



Committed initiatives include priority cycleway links such as the Greenway and the Sydney Metro from northwestern to southwestern Sydney. Initiatives subject to further investigation include bus links between the Eastern Suburbs and Inner West and a loop from the existing Inner West Light Rail connecting North Leichhardt and Pyrmont via the Bays Precinct and Old Glebe Island Bridge.

Parramatta Road Corridor Urban Transformation Strategy

The State Government has adopted a long-term strategy to regenerate the Parramatta Road Corridor. The *Parramatta Road Corridor Urban Transformation Strategy* (PRCUTS) and Implementation Toolkit and sets out land use and transport planning principles to accommodate 27,000 new homes and 50,000 new jobs across the corridor over the next 30 years.

PRCUTS identifies eight precincts for urban growth and renewal within the corridor. Four of the eight precincts are wholly or partly contained within the Inner West LGA being:

- Kings Bay shared with City of Canada Bay and Burwood Council
- Taverners Hill
- Leichhardt
- Camperdown.

Draft Bays West Place Strategy (draft at July 2021)

This Strategy was publicly exhibited in April 2021 and sets out a vision for a connected, vibrant and activated precinct with excellent cycling and walking opportunities to the Balmain Peninsula and Balmain East.

2.2 Local Government

The relevant strategic documents that are relied upon in this study are summarised below and are a compilation of relevant documents from Inner West Council as well as from Ashfield, Leichhardt and Marrickville Councils.

Ashfield Town Centre Public Domain Strategy 2014

The *Ashfield Town Centre Public Domain Strategy* establishes a master planning program for Ashfield Town Centre. The key urban design issues addressed included maximising accessibility and safety for pedestrians, cyclists, wheelchair, seniors and pram users.

Ashfield Traffic Management Strategy 2017



The *Ashfield Traffic Management Strategy* outlines an action plan for vehicle traffic on local roads in the former Ashfield LGA. The strategy reviews the road network hierarchy setting the desired transport environments for each road type and outlined recommended treatments and costings for implementation over ten years.

Leichhardt Bike Plan 2016

The *Leichhardt Bike Plan* aimed to provide cycling infrastructure for the 'interested but concerned' user. The Plan provided a guide to develop the existing bicycle network to maximise integration with other transport modes and neighbouring LGAs.



Marrickville Bike Strategy (2007)

The *Marrickville Bike Strategy* aimed to increase the appeal of cycling with a bicycle network and parking plan and creating bicycle friendly neighbourhoods. The strategy considered three classes of routes in a hierarchy, regional routes, local links, and local streets.

Our Inner West 2036 – A Community Strategic Plan for the Inner West (2018)

The Inner West Community Strategic Plan identifies the community's vision for the future. Strategic direction 2 in the Plan outlines strategies to create unique, liveable, networked neighbourhoods including delivering integrated infrastructure for transport and active travel and ensuring transport infrastructure is safe, connected and well maintained.

Our Place Inner West Local Strategic Planning Statement (March 2020)

The Inner West Local Strategic Planning Statement provides the land-use planning framework in accordance with the *Eastern City District Plan*. It will be used to guide Inner West Council's Local Environmental Plan and Development Contributions Plan.



Greenway Master Plan (2018)

The GreenWay is a recreational and active transport route, an ecological corridor and a place of cultural significance. With NSW Government funding the Greenway it is now in development and Inner West Council needs to establish the 'trellis' network of pedestrian and cycling friendly streets connecting with the GreenWay.

Going Places, An Integrated Transport Strategy for Inner West (2019)

The Inner West Integrated Transport Strategy builds on the strategies from the previous Ashfield, Leichhardt, and Marrickville LGAs to unify the transport policy and align with State Government objectives. The key aims are as follows:

- Plan land use to support active and sustainable transport.
- Prioritise people in centres and main streets and revitalise key roads.
- Commit to active transport infrastructure, services, and programs.
- Encourage shift to public and shared transport from private vehicles.

Our Inner West Housing Strategy (2020)

The Housing Strategy aims to connect Council's vision for housing in the Inner West LGA with State Government plans. The plan aims to locate the majority of new housing opportunities within a 10-minute walk of centres, transport and services.

Inner West Employment and Retail Lands Strategy (2020)

The *Retail and Employment Lands Strategy* prioritises the long-term supply of industrial land, more commercial space and identifies distinct areas of business and employment lands. It provides controls for commercial and industrial land uses to facilitate job growth and thriving economies.

Inclusion Action Plan for People with a Disability 2017-2021

The *Inner West Council Inclusion Action Plan 2017-2021* outlines Council's commitment to improving opportunities for people with a disability to participate fully in community life. It outlines six areas for action. Planning for infrastructure specifies accessible footpaths, pathways and public transport as well as mobility parking and community transport for people with a disability who cannot use accessible public transport.

Climate + Renewables Strategy (2019)



The Strategy outlines the key focus areas to mitigate against climate change including switching to a renewable powered fleet and fostering zero emissions mobility solutions such as walking, cycling and public transport.

Inner West Pedestrian Access and Mobility Plan (2021)

The Pedestrian Access and Mobility Plan (PAMP) identifies more than 4000 opportunities to improve pedestrian routes across the next 10 years.

Dulwich Hill Station Public Domain Master Plan 2019

The *Dulwich Hill Station Public Domain Master Plan* is a ten year strategy to transform the streets and public spaces around Dulwich Hill station into a pedestrian-oriented village. The scope of the project is for public domain improvements in streets, lanes, plazas and other public spaces.

Marrickville Road (East) Public Domain Master Plan 2018

The *Marrickville Road (East) Public Domain Master Plan* is a 10-year plan to be delivered in stages. It outlines plans for traffic calming to improve safety, planting of trees and landscaping, pedestrian and bicycle infrastructure including additional crossings, seating and bicycle lanes, improved footpaths and better pedestrian lighting.



3. EXISTING LAND USES AND TRANSPORT INFRASTRUCTURE

In order to better understand the anticipated impact of the planned increases to dwellings and employment areas in the LGA, a review of existing conditions has been undertaken.

3.1 Existing Housing Locations

The Inner West Council estimated resident population for 2017 was 194,564 with a population density of 55.29 people per hectare (Inner West Housing Strategy). **Table 1** shows the number of existing dwellings in areas to be investigated for additional housing in future.

Table 1: Derived from Table 5 in Inner West Housing Strategy 2020

Investigation Area	Estimated existing dwelling numbers
Arlington	1,582
Ashfield	4,654
Croydon	1,564
Dulwich Hill	3,845
Lilyfield East	1,450
Marrickville	5,091
Petersham	6,250
Waratah Mills	697
Camperdown	293
Leichhardt	571
Taverner's Hill	900
Kings Bay	56
Marrickville Metro	0
Lilyfield West, Leichhardt North, Leichhardt South	414

The density and types of housing vary across the LGA including the following:

- Higher density housing, comprising flats, units and apartments which tend to be concentrated along the train line and parts of Parramatta Road, Victoria Road Rozelle and New Canterbury Road.
- Medium density housing, comprising semi-detached dwellings, row or terraces houses are predominant in Balmain, Lilyfield, Annandale, Camperdown, Newtown, Summer Hill and Enmore
- Low Density Housing, comprising of detached dwellings and representing over 65% of housing stock in much of Haberfield, Ashfield South, parts of Marrickville and Tempe.



Figures 1 to 3 below illustrate the proportion of high, medium and detached dwellings based on SA1 boundaries in the Inner West LGA, as published in the Inner West Housing Strategy. SA1s are a statistical area used by the Australian Bureau of Statistics which generally have a population of 200 to 800 people and are internally connected by road transport.

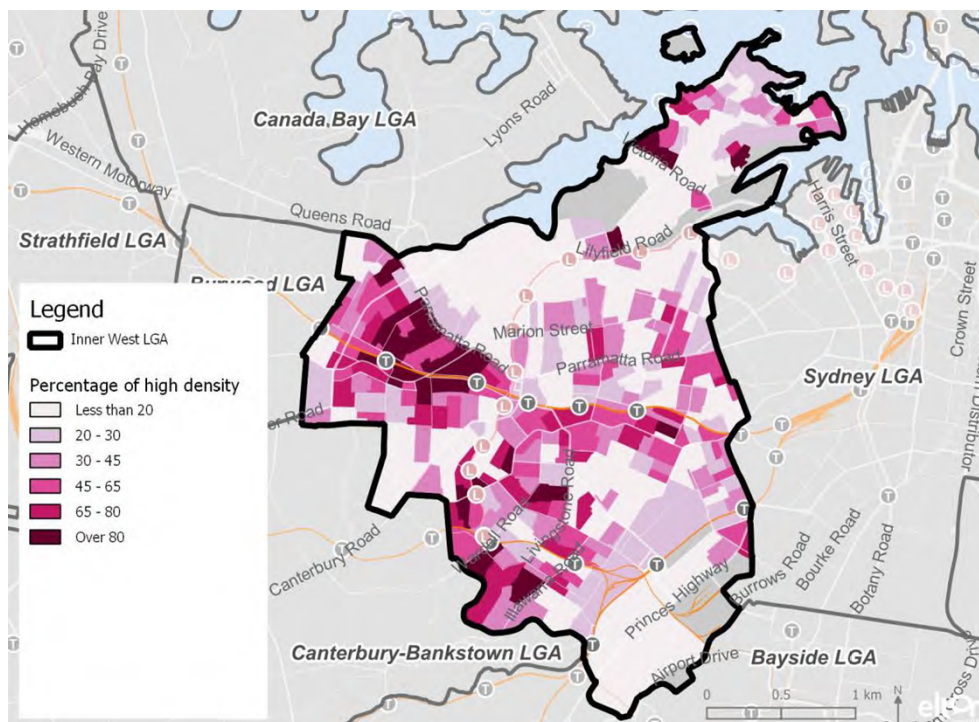


Figure 1: Proportion of housing that is apartments, flats or units, 2016

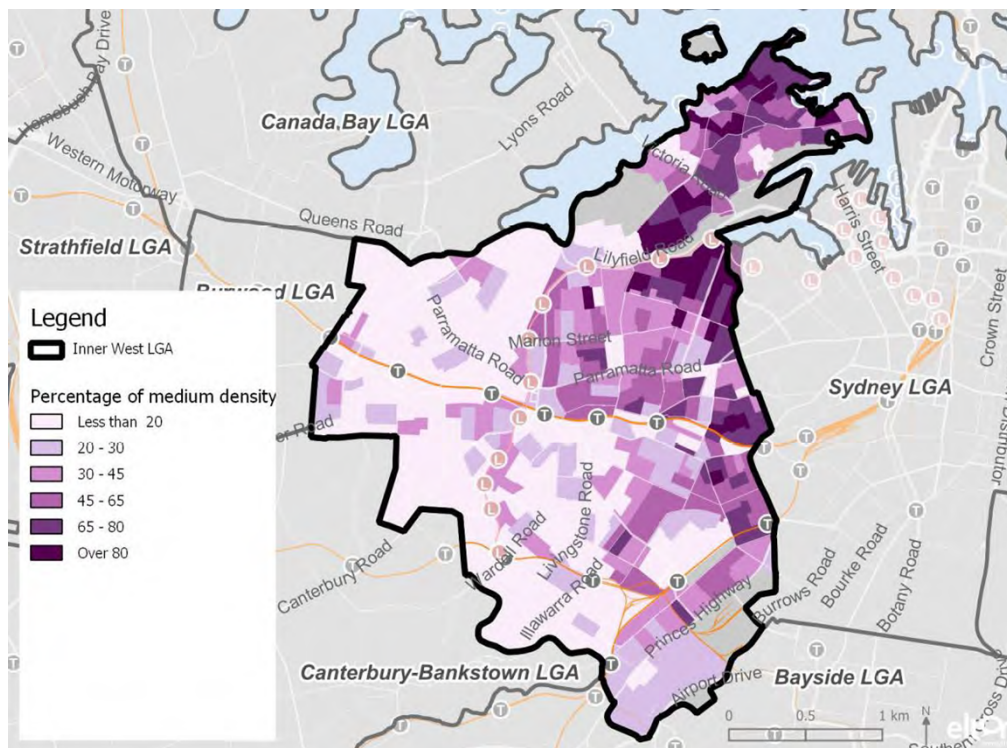


Figure 2: Proportion of medium density housing, 2016

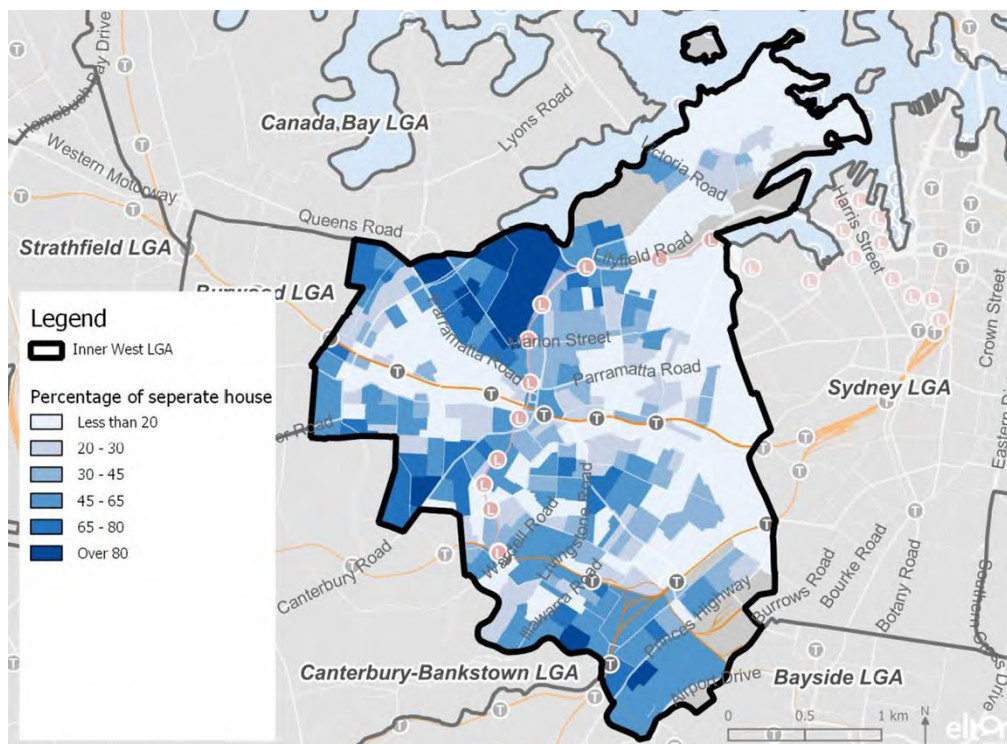


Figure 3: Proportion of detached dwellings, 2020



3.2 Existing centres and employment locations

The current supply of employment floor area in employment precincts is shown in **Table 2** below. Employment floorspace throughout the LGA is varied in both land uses and location. Table 2 reflects the employment floorspace in centres accommodating predominantly retail and commercial uses with limited industrial uses. Locations throughout the LGA experience a specialisation of industries including arts and recreational services and food and accommodation services.

Work to establish Ashfield as the LGA's primary business and administration centre will build on the existing commercial floorspace in the centre and, protecting the existing supply of commercial floorspace will be important so not to inadvertently affect rents and affordability of the location.

Table 2: Employment Floorspace in Commercial Centres

Centres	Floorspace (sqm)
Ashfield	110,575
Newtown – Enmore	71,120
Rozelle	62,152
Norton Street centre (Parramatta Road to Marion Street)	58,743
Balmain	54,510
Marrickville	44,550
Norton Street North (Marion Street to Lilyfield Road)	38,423
Dulwich Hill (centre, station, west)	25,225
Petersham	21,060
Marion Street centre	16,774
Annandale	14,055
Summer Hill	13,360
Haberfield	8,525
Balmain East	5,107
Stanmore	2,730
Croydon	data unavailable

Source: *Inner West Employment and Retail Lands Study, 2019*

3.3 Existing Transport Infrastructure

An overview of the current transport infrastructure available in the Inner West LGA is outlined below.



3.3.1 Walking

The Inner West generally provides an extensive network of footpaths, kerb ramps and crossings on local, regional, and state roads.

Many local roads in the LGA accommodate comparatively lower traffic volumes and speeds providing reasonably good amenity for walking amenity however these streets are increasingly used by drivers to avoid congestion on State and Regional roads especially during peak periods. Major arterial roads (State roads) throughout the LGA create a significant impediment to walking connectivity as result of heavy traffic volumes, long distances between formal crossing points, limited crossing opportunities at intersections and long delays at traffic signals. Improvements are needed on footpath amenity and surfacing on State roads, particularly Parramatta Road, Victoria Road, Rozelle, and the eastern end of Sydenham Road. Appendix B shows traffic signals that do not provide pedestrian crossings on all approaches and advocacy with the NSW government is required to address some of these gaps.

Locations that do not provide footpaths within optimal walking distance of rail services are presented in Appendix A.

3.3.2 Cycling

Cycling facilities in the Inner West LGA comprise mainly on-road markings where cyclists ride with traffic, as well as paths shared with pedestrians in parks and bedside canals. Safe cycling infrastructure in the Inner West is disconnected and disjointed, particularly in relation to major arterial thoroughfares which act as an impediment to cycling. Railway lines and storm water canals also create a barrier to cycling connectivity throughout the LGA.

Some bicycle parking is provided in the centres and close to train stations.

Figure 3 below shows cycling infrastructure in the LGA including shared paths on State Roads such as the Princes Hwy and Victoria Road, separated cycleways and paths in parks and beside canals such as Cooks River and Hawthorne Canal.

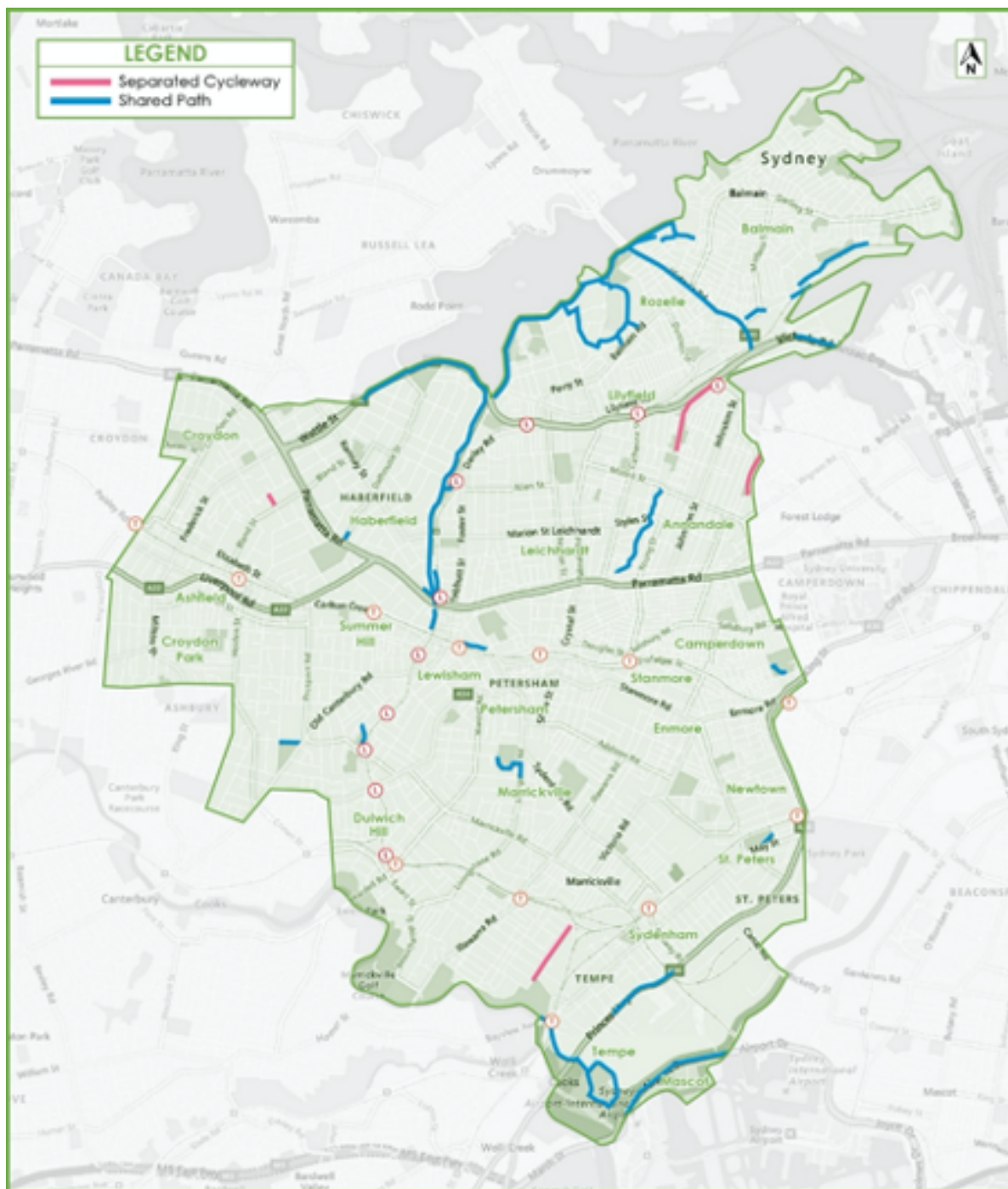


Figure 3: Cycling infrastructure throughout the LGA

Formalised cycling infrastructure has been installed, or is due to be constructed, in the following locations:



- Carrington Street Marrickville
- Lewisham to Newtown link beside the T2 Inner West rail line
- Livingstone Road Marrickville
- Greenway links
- Cooks River cycle path
- Cycle links to be provided by WestConnex at Rozelle Interchange

Paths along Cooks River in the south of the LGA, the Greenway and Hawthorn Canal, Whites Creek and Johnston's Creek provide safer cycling facilities however cycling facilities throughout the remainder of the LGA do not support safe cycling and are likely to be an impediment to a mode shift towards active transport.

3.3.3 Light Rail Services

A light rail service is provided through the LGA between Dulwich Hill and Rozelle and connecting with Pyrmont, Haymarket, and Central Station. Twelve stops are provided with a typical distance of 400-600 metres between them.

Light Rail Stations within the Inner West LGA are as follows:

Dulwich Hill	Dulwich Grove	Arlington
Waratah Mills	Lewisham West	Taverners Hill
Marion	Hawthorne	Leichhardt North
Lilyfield	Rozelle Bay	

Figure 4 below shows the 400-metre radius (approximately 5 minutes walking time) and 800-metre radius (approximately 10 minutes walking time) to each station, although actual walking distance could be greater such as due to barriers and path alignment.

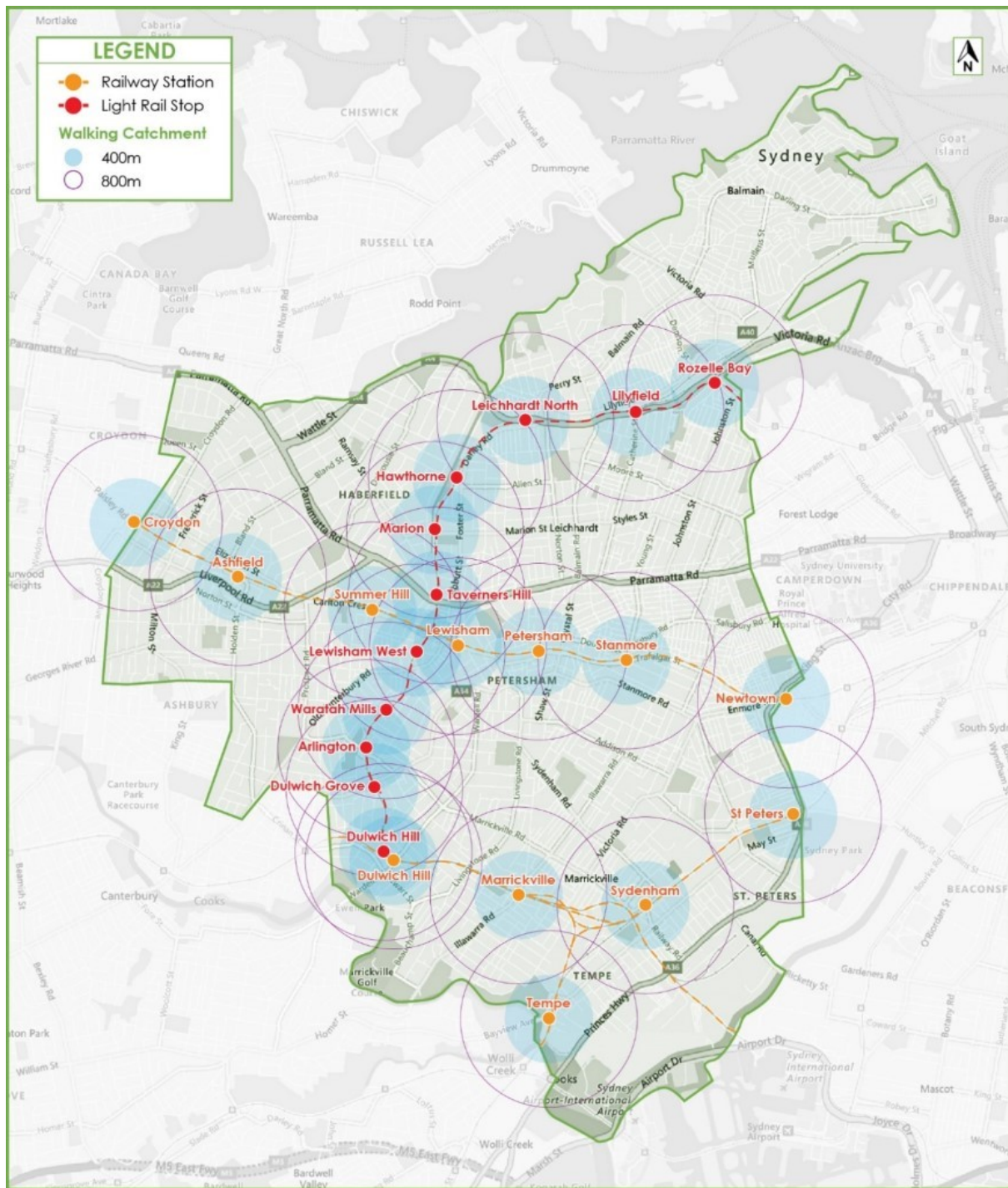


Figure 4: Rail Station Walking Catchments



3.3.4 Heavy Rail Services

There are two primary heavy rail lines serving the Inner West LGA. The T2 Inner West and Leppington line connects the Inner West with Sydney CBD and suburbs to the west and south west. The T3 Liverpool line connects Sydney CBD and suburbs to the southwest. The T8 Campbelltown/Macarthur line serves Tempe and Sydenham Stations and the Cronulla/Illawarra T4 line, which can be accessed from Sydenham Station, provides access to the southern and eastern suburbs.

The T3 Bankstown/Liverpool line and 11 stations between Sydenham and Bankstown are currently being upgraded to a metro line by 2024 to increase capacity, accessibility, and the frequency of services. Sydenham, Marrickville and Dulwich Hill stations are the only stations in the Inner West LGA.

An interchange to bus services is available at all heavy rail stations in the Inner West LGA except at St Peters which has bus stops on the Princes Highway 100m from the station. Interchange to a bus service is only available at five of the 11 light rail stations in the LGA. Interchange between heavy and light rail services can be made at Dulwich Hill and between Lewisham Station and Lewisham West Light Rail Station with a 400m walk however, the walking route involves deviations to access safe road crossings. Car share vehicles are available at most light rail stations.

The audit of rail services focuses on the facilities provided by Council to encourage rail travel, including walking facilities, parking for bicycles and motor vehicles, taxi rank, and drop-off facilities for 'kiss and ride' or rideshare. Newtown and Croydon Stations are not included in the audit as they are outside the Inner West LGA but active transport links are considered elsewhere in this report. The results of the audit can be seen in **Table 3** below.

**Table 3: Summary of Rail Services Audit**

Station	Bus Stop/ Interchange	Taxi Rank	Car Park	Drop-off facilities	Bicycle parking
Heavy Rail					
Ashfield	Yes	Yes	Yes	Yes	Yes
Summer Hill	Yes	Yes	No	Yes	Yes
Lewisham	Yes	No	No	Yes	Yes
Petersham	Yes	Yes	No	No	Yes
Stanmore	Yes	No	No	Yes	Yes
St Peters	100 m away on Princes Highway	Yes	No	No	Yes
Sydenham	Yes	Yes	Yes	Yes	Yes
Marrickville	Yes	Yes	No	Yes	Yes
Dulwich Hill	Yes	No	Yes	Yes	Yes
Tempe	No	No	Yes	Yes	Yes
Light Rail					
Dulwich Hill	Yes	No	No	Yes	Yes
Dulwich Grove	Yes	No	No	"No parking"	Yes
Arlington	No	No	No	Yes	Yes
Waratah Mills	No	No	No	Yes	Yes
Lewisham West	No	No	No	No	Yes
Taverners Hill	Yes	No	No	Yes	Yes
Marion	Yes	No	No	Yes	Yes
Hawthorne	No	No	No	Yes	Yes
Leichhardt North	No	No	No	Yes	Yes
Lilyfield	Yes	No	No	Yes	Yes
Rozelle Bay	No	No	No	No	Yes



3.3.5 Bus Services

There are 60 bus routes operating within the LGA. A map of bus stops within the Inner West LGA is provided in **Figure 5** showing a 400m radius to each stop (approximately 5-minute walking distance) highlighting the coverage, although actual walking distance will potentially be greater than 400m due to barriers, crossing opportunities and path alignment. It is noted that 400m coverage does not extend to parts of Marrickville South, Dulwich Hill, Haberfield, and Lilyfield. In addition, areas of Tempe, Stanmore and St Peters do not have a bus stop within 800m (approximately 10 minutes walking time).

A desktop audit of the infrastructure supporting bus services demonstrated that Council could support bus use by achieving DSAPT accessibility compliance to bus stops with a focus on the key growth areas identified in Section 4.

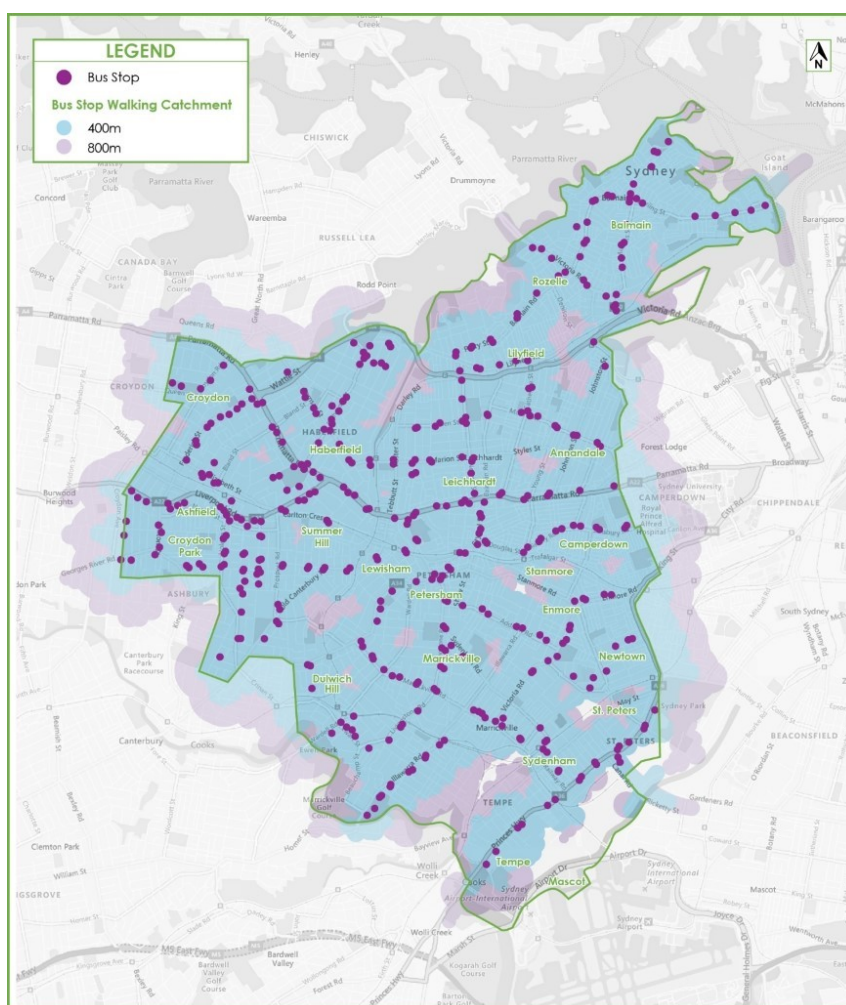


Figure 5: Bus stop walking catchment



3.3.6 Road Network and Car Parking

The road network provides extensive access for motorists throughout the LGA. Arterial road corridors (State roads) provide major connections between regions and include Parramatta Road, Victoria Road Rozelle, New Canterbury Road/Stammore Road/Enmore Road, City West Link, Sydenham Road, Liverpool Road Ashfield, and King Street/Princes Highway. Regional roads (collector roads) provide 'relief' for and connections to State roads.

Local roads are controlled by council and make up the majority of the Inner West road network. They generally accommodate lower speeds and traffic volumes however, they are increasingly used by drivers to avoid congestion on State and Regional roads, especially during peak periods. Inner West Council manages the local road network through Local Area Traffic Management Plans (LATM) by aiming to improve safety and amenity.

Generally, all streets provide access for pedestrians, cyclists, public transport, freight/delivery vehicles, private vehicles, and car parking. Streets have many competing demands for space including through movements, local access, space for walking, cycling and bus access and kerbside car parking. The high priority given to car transport has resulted in a road network which can be unsafe and inefficient for all users especially during peak travel periods. The transport priorities identified in Part 5.4 of *Going Places, An Integrated Transport Strategy for Inner West* aims to address this by reducing the priority given to non-commercial motor vehicles.

Off-street car parking is provided by Council and private operators throughout the LGA. A review of car parking facilities owned by Council has been undertaken and the findings of this audit can be seen in **Table 4**. The facilities identified are either stand-alone facilities or are adjacent to another Council facility. They provide surface car parking with either time restricted parking, unrestricted parking or a combination of these. Some locations such as Haberfield, Rozelle, Marrickville, Leichhardt and Dulwich Hill centre near Marrickville Rd have multiple car parking facilities providing the opportunity to explore the implementation of other transport services such as weather-protected bicycle parking, 'drop-off' facilities for taxi/ride share and electric vehicle charging facilities. The use of suitable car parking facilities could be explored to accommodate deliveries/servicing for local businesses. The Barclay Street facility in the Sydenham industrial area could relieve the footpath car parking which is an ongoing problem in this area.

Table 4: Off-Street Parking Facilities



Car Park Name	Time Restrictions				
	2P	3P	4P	9P	Unrestricted
Ewart Lane car park, Dulwich Hill					
Loftus Street car park, Dulwich Hill		32			50
Seaview Street (North), Dulwich Hill			54		4
Seaview Street (South), Dulwich Hill	44				2
Ashfield rooftop of Ashfield Mall	372				4
Ashfield basement of the residential tower at Brown Street near the railway underpass		61			4
Ashfield commuter car park near Ashfield railway station off Brown Street					
Lang Street Croydon car park (Centenary Park)					18
Beattie Street car park Balmain	24				1
Croydon, the east of Ashfield aquatic centre					60
Edgeware Road car park Enmore	42				1
UTS Rowing club car park Haberfield					38
Dalhousie Street car park Haberfield (Dickson St)					
69 Dalhousie Street car park Haberfield	10				1
Federation Place car park Haberfield		26			2
Hay Street car park Leichhardt	60				1
Marion Street car park Leichhardt	83				4
Renwick Street car park Leichhardt	10				
Leichardt Park car park Marrickville					60
Barclay Street car park Sydenham					
Calvert Street car park Marrickville	31				2
Thornley Street Marrickville					4
Frampton Avenue East Marrickville	25				2
Frampton Avenue West Marrickville	90				5
Garners Avenue Marrickville	42				2



Car Park Name	Time Restrictions				
Mackey Park car park Marrickville			36		2
Marrickville Town Hall	7				3
Steel Park car park Marrickville					25
Lennox Street car park Newtown	49				3
Charles Street car park Petersham					
Chester Street car park Petersham	20				
Crystal Street car park Petersham				58	2
Queen Street car park Petersham	6				1
Regent Street car park Petersham					
Sadlier Crescent car park Petersham	11				
Merton Street Rozelle (western side)	44				2
Merton Street car park Rozelle (eastern side)	24				1
Temple Street Stanmore	12				1
Hardie Avenue car park Summer Hill	121				2
Tempe Reserve car park Tempe					191
Tempe Station car park					141

3.3.7 Taxi, Ride Share, and Car Share

There is no formal taxi policy in the Inner West LGA and taxi facilities are provided on a case by case basis.

Dedicated taxi ranks are provided adjacent to stations at Ashfield, Summer Hill, Petersham, St Peters, Sydenham, and Marrickville, allowing for integrated travel modes. It is noted Lewisham, Stanmore and Dulwich Hill stations do not provide dedicated taxi connections. No taxi services are provided at light rail stations however, car share facilities are available at most stations.

Car share provides a short-term vehicle access with more convenience than traditional vehicle hire, enabling residents and businesses to consider short term car hire for occasional use. More than 300 car share vehicles are located throughout the LGA in both on-street and off-street locations.



4. FUTURE POPULATION AND TRANSPORT NEEDS

4.1 Future Housing Growth Locations

The *Inner West Housing Strategy* was adopted by Council in March 2020. The Strategy provides for population and housing growth in alignment with infrastructure. The Strategy provides preliminary estimates for 6 – 20 year periods taking into account existing capacity for growth as well as the Parramatta Road Corridor Transformation Strategy, investigation areas around transport services and the Bays Precinct.

In addition to infill development throughout the LGA, the *Inner West Housing Strategy* identifies the Parramatta Road corridor and areas within 800m of a heavy rail stop or 400m of a Metrobus stop, ferry wharf or light rail station as having most potential to accommodate growth. Figure 6 below from the Inner West Local Strategic Planning Statement identifies Investigation Areas for additional housing. Housing accommodation of various building typologies is anticipated in suburbs throughout the LGA with primary growth anticipated along the Parramatta Road corridor as well as Ashfield, Marrickville and Dulwich Hill along the Southwest Metro project. Locations throughout the LGA, further from transport hubs that are forecast to experience moderate rates of growth, as a result of infill apartment development, include Stanmore, Tempe, St Peters and Sydenham.

The Parramatta Road corridor is anticipated to accommodate an array of housing typologies, formats and sizes. The Taverners Hill Precinct will optimise walking, cycling, and access to public transport with Tebbutt Street as the main street. The Camperdown Precinct will be focussed around Pyrmont Bridge Road, Mallett Street and Parramatta Road with residential development and uses to support biotechnology and employment uses supporting nearby institutions. The Parramatta Road Transformation Strategy outlines high-frequency transport in both the medium and long-term within the Corridor and to key adjacent destinations and this will be essential to support the anticipated development.

Other Investigation Areas identified for residential development are located within 800m of heavy rail stations on the T2 Inner West rail line and the T3 Bankstown line and within 400m of light rail stop along the Inner West Light Rail Line.



Petersham has been identified with the potential to accommodate housing development south-west of the station. Potential growth in Ashfield has been identified south of the town centre and north-east of the rail line. While in Croydon the areas north and south-east of Croydon Station have been identified to hold opportunity for additional housing. The T3 rail line is currently under construction for conversion to Metro and locations along this line identified for growth in residential populations include Marrickville in and around the town centre, and Dulwich Hill which also has access to light rail and the Greenway.

Along the light rail line, Lilyfield is anticipated to function as a transitional area to The Bays Precinct with low to medium-rise residential flat buildings and townhouses. Around the Arlington light rail stop, opportunity has been identified to deliver multi-dwelling development within a short walk of the light rail stop while the Waratah Mills area provides housing opportunities between the light rail line and Old Canterbury Road.

In the above locations identified for growth, vehicle congestion and road capacity have been repeatedly identified as a constraint to development and modal transfer away from private car travel will be necessary to support the anticipated growth and maintain the amenity of this constrained urban location. The infrastructure recommendations associated with this project apply the transport hierarchy specified in the Inner West Integrated Transport Strategy to support modal transfer.

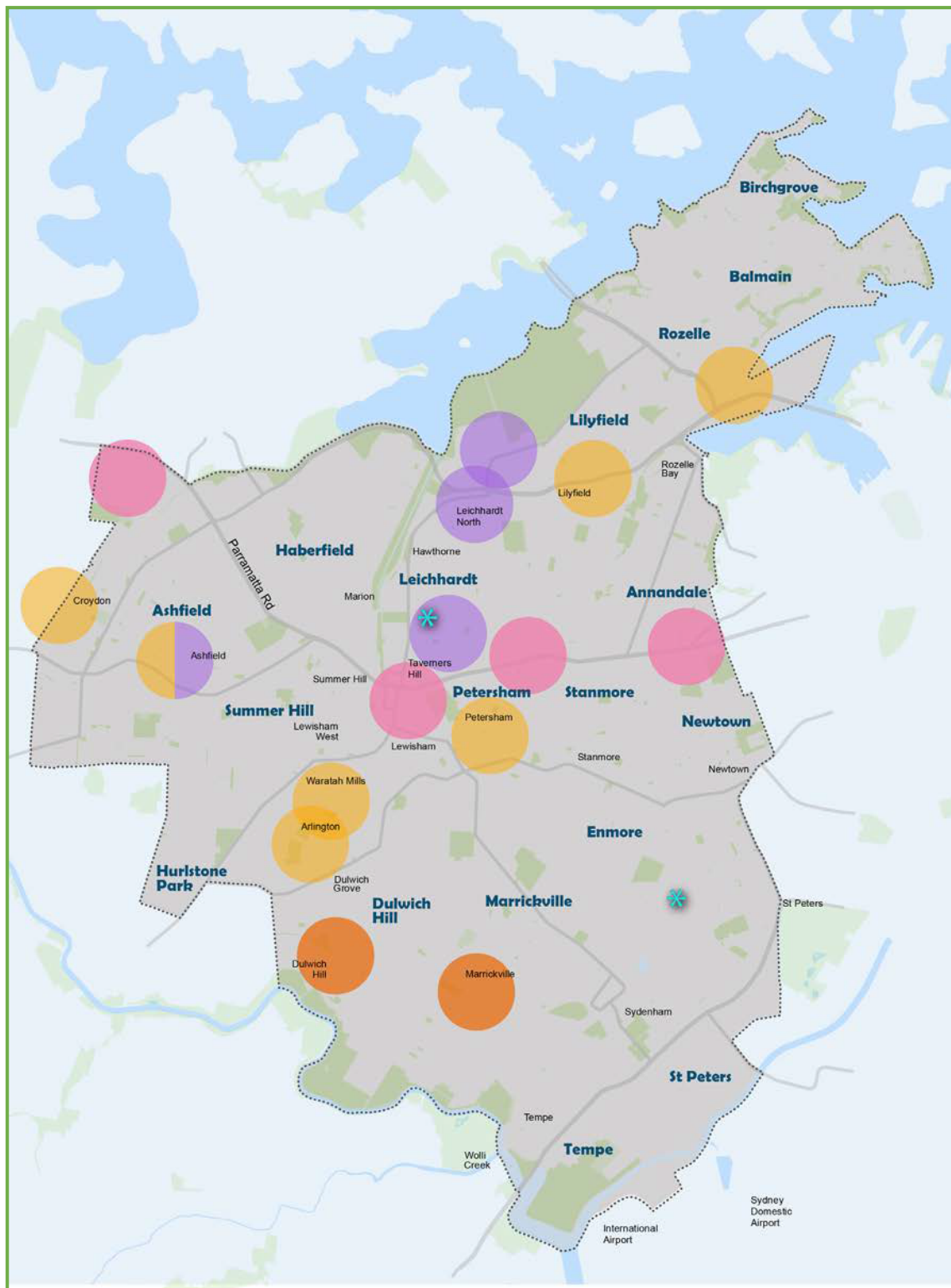


Figure 6: Investigation Areas for Additional Housing (Our Place Inner West LSPS, 2020)



Table 5 below shows the anticipated change in residential accommodation and residential population for suburbs throughout the Inner West.

Table 5: Forecast residential growth to 2036

Suburb	Population profile.id 2016	Forecast additional residential accommodation 2016 - 2036	Forecast Population Change 2016 - 2036	% population change 2016 - 2036
Annandale	9,973	414	570	6%
Ashfield (North)	13,695	676	890	7%
Ashfield (South)	11,851	2868	3742	32%
Balmain	11,146	260	288	3%
Balmain East	2,053	13	4	0%
Birchgrove	3,415	0	297	9%
Camperdown	3,689	92	131	4%
Croydon	5,421	796	1416	26%
Dulwich Hill	14,295	2031	3225	23%
Enmore	4,125	101	156	4%
Haberfield	6,779	481	757	11%
Leichhardt	15,514	2148	5049	33%
Lewisham	3,383	683	1091	32%
Lilyfield	8,088	850	1302	16%
Marrickville (North)	17,255	3034	5472	32%
Marrickville (South)	10,745	4194	1718	16%
Newtown	8,411	249	362	4%
Petersham	8,522	1945	3033	36%
Rozelle	9348	1894	3018	32%
St Peters - Sydenham	4546	355	571	13%
Stanmore	8320	556	811	10%
Summer Hill	7666	619	724	9%
Tempe	3782	117	188	5%
Total	192022	24376	34814	18%

Source - Elton Consulting May 2020



4.2 Future Employment Growth Locations

The *Inner West Employment and Retail Lands Strategy*, adopted by Council in September 2020, indicates that by 2036 an additional 271,245 sqm of gross floor area will be needed to accommodate industries and businesses in employment lands throughout the LGA. There are a number of State Government led projects either underway or planned for the future in the Inner West LGA including the Parramatta Road Corridor Urban Transformation Strategy, Camperdown – Ultimo Collaboration Area and the Bays Precinct. Over time, these projects will have significant impacts on business activity in the LGA.

The *Inner West Employment and Retail Lands Study* identifies employment precincts and commercial centres throughout the LGA. **Figure 7** below shows the employment precinct overview. The larger employment precincts including Marrickville-Sydenham, the Parramatta Road corridor, and Princes Highway Enterprise Corridor with the associated airport industrial land serve the broader economy as well as the Inner West LGA. The *Inner West Employment and Retail Lands Strategy* aims to protect employment lands in accordance with the directions in the *Eastern City District Plan*.

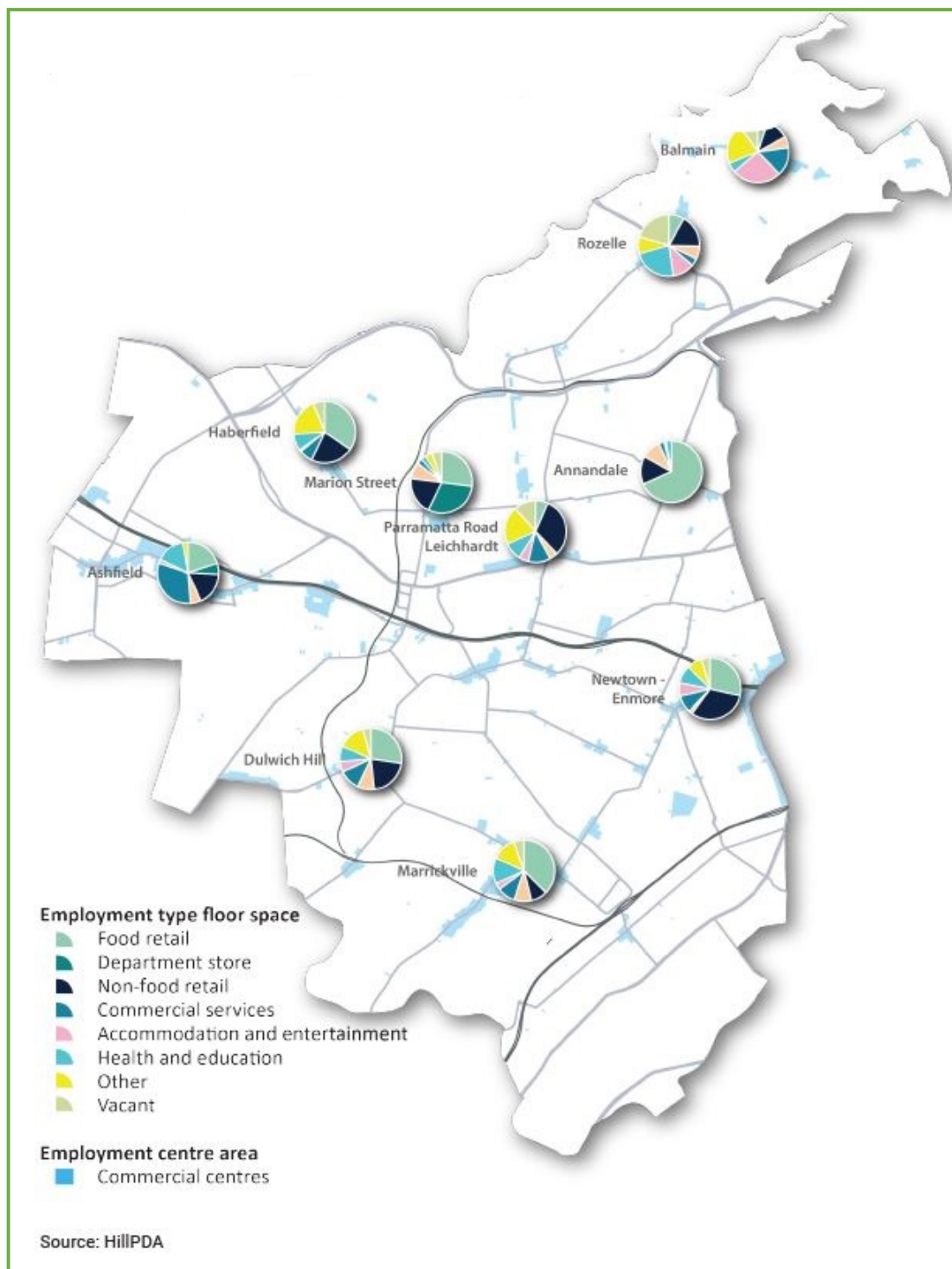


Figure 7: Employment Precinct Overview
(Inner West Employment and Retail Lands Strategy, 2020)



The *Inner West Employment and Retail Lands Strategy* identifies the need to establish a clear hierarchy of commercial and retail centres to provide clarity around growth expectations and discourage the growth of retail and stand-alone shopping centres outside of centres.

The Strategy identifies Ashfield as the only Major Centre in the LGA comprising the largest mix of retail, commercial, administrative, entertainment and community facilities. Ashfield station on the T2 Inner West heavy rail line provides train services to Sydney's major metropolitan CBDs in Sydney and Parramatta and a Strategic Centre in Burwood.

Balmain, Marrickville, Newtown–Enmore, Norton Street Leichhardt and Rozelle are identified as Town Centres providing over 10,000sqm of retail, business premises and office premises including a large supermarket.

Local Centres including Croydon, Dulwich Hill and Dulwich Hill station, Haberfield, Marion Street Leichhardt, Petersham and Summer Hill provide 3,000sqm to 10,000sqm of floorspace associated with retail, business premises and office premises serving the local community.

Neighbourhood Centres generally comprise less than 3,000sqm of overall floorspace associated with retail, business premises and office premises. They provide a range of small-scale retail and other services for the convenience needs of people living and working nearby. Such centres include Addison Road Marrickville, Orange Grove Lilyfield, Catherine Street and Lewisham. **Table 7** below shows the Centre hierarchy role and function specified by the Inner West Employment and Retail Lands Strategy.

**Table 7: Centre Hierarchy Role and Function**

Hierarchy	Centres	Future role
Major centre	Ashfield	<p>The major centre is the highest order centre in the Inner West LGA, comprising the largest mix of retail, commercial, administrative, entertainment and community facilities. The centre will emerge into an employment and economic generator servicing an LGA wide catchment.</p> <p>Ashfield has the best public transport access in the LGA, both on the rail line and with feeder buses.</p>
Town centre	Balmain Marrickville Newtown – Enmore Norton Street Rozelle	<p>These town centres provide essential access to goods and services close to where people live. They are serviced by good public transport which increases their accessibility from the surrounding community. The town centres provide a mix of retail, commercial and community space with retail space and are usually anchored by a supermarket of 1,000sqm or over. They generally contain over 10,000sqm of retail, business premises and office premises.</p>
Local centre	Annandale Croydon Dulwich Hill Dulwich Hill station Haberfield Marion Street Norton Street North Petersham Summer Hill Stanmore Balmain East	<p>Local centres provide a range of business, retail and community uses that serve the local community. The centres generally range in size from 3,000sqm to 10,000sqm of floorspace associated with retail, business premises and office premises.</p>
Neighbourhood centre	Addison Road Rozelle West (Terry Street) Lewisham West Lilyfield Road Orange Grove Catherine Street Dulwich Hill West Lewisham Sydenham	<p>Neighbourhood centres provide a range of small-scale retail and other services that serve the convenience needs of people that live and work in the surrounding neighbourhood. Higher order retail and commercial uses that serve the wider community are not located in neighbourhood centres.</p> <p>Neighbourhood centres generally comprise less than 3,000sqm of overall floorspace associated with retail, business premises and office premises.</p> <p>Note: All other existing B1 - Neighbourhood Centre zoned centres not listed</p>



Stand Alone Shopping Centres	Marrickville Metro Leichhardt Market Place	Stand-alone centres provide for the weekly or monthly shopping needs of the local community. They generally serve a broader catchment and provide a diversity of retail uses including department and grocery stores. The size and offering of stand alone shopping centres needs to be carefully managed to avoid adverse impacts on nearby street-based centres.
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Source: *Inner West Employment and Retail Strategy, 2020*

4.2.1 Employment and industrial precincts

Industrial floor space throughout the LGA is forecast to accommodate approximately 3,200 additional jobs to 2036, representing 18 percent of the forecast growth from 2019. The *Inner West Employment and Retail Lands Study* outlines additional industrial floor area in Marrickville-Sydenham, the Princes Highway near the airport, the Camperdown Precinct, the Canterbury Road Enterprise Corridor in the south-western edge of the LGA, Victoria Road Marrickville and Addison Road Marrickville as well as other locations throughout the LGA such as along the Parramatta Road corridor in Kings Bay (shared with the City of Canada Bay Council and Burwood Council) and Taverners Hill and White Bay and the Rozelle-Balmain Road area.

The Princes Highway and airport enterprise corridor is strategically located close to Sydney Airport, Port Botany and Sydney's motorway network and the corridor is anticipated to accommodate approximately 30,000sqm of additional industrial floorspace.

The Marrickville-Sydenham precinct is one of the most significant employment and industrial precincts in the Inner West and Greater Sydney containing a diversity of businesses and industries in a range of premises types and sizes. It's anticipated this precinct would accommodate additional industrial floor area of approximately 75,000sqm.

The Carrington Road industrial area is expected to accommodate additional industrial floor space of approximately 16,000sqm and the Moore Street Leichhardt precinct approximately 8,000sqm. Other locations anticipated to accommodate additional industrial employment floorspace include the Camperdown area and Kings Bay on Parramatta Road, the Addison Road industrial area, Victoria Road Marrickville, the Canal Road Precinct, 'St Peters Triangle' and White Bay.



4.2.2 Commercial and retail centres

In a specified hierarchy of commercial centres throughout the LGA, approximately 8,000 commercial/office jobs and approximately 2,500 retail jobs are forecast to 2036. **Table 8** below from the *Inner West Employment and Retail Lands Strategy* shows the forecast commercial office floorspace in different centres from 2019 to 2036 with Rozelle-Balmain, Leichhardt, Marrickville including Marrickville Metro shopping centre and Ashfield projected to experience growth in commercial office floorspace. Other commercial centres in the LGA anticipated to accommodate further employment floorspace include Enmore-Newtown, Petersham, Stanmore, Dulwich Hill and Frame Areas in Camperdown and Leichhardt identified in the *Parramatta Road Corridor Urban Transformation Strategy*.

Table 8: Forecast Commercial office floor space in centres 2019-2036

Commercial Centre	Required GFA		
	2019-26	2026-36	2019-36
Ashfield	8,606	8,905	17,511
Balmain	0	2,019	2,019
Leichhardt	16,816	3,249	20,065
Rozelle	17,553	28,797	46,350
Marrickville	18,756	9,670	28,426
Newtown-Enmore	5,260	2,828	8,088
Petersham and Stanmore	6,402	4,142	10,543
Leichhardt Frame	8,472	3,574	12,045
Camperdown Frame	1,753	943	2,696
Others	18,399	10,166	28,565
Total	102,017	74,291	176,309

Source: *Inner West Employment and Retail Lands Strategy*, 2020

The *Inner West Employment and Retail Lands Strategy* recognises the need to create quality public domain space in centres to support business and cultural activity. Specified actions include increased public domain space in centres by repurposing existing road space and increasing the tree canopy along main streets. The Strategy recognises local distribution centres should be considered in growing commercial centres to support business needs and liberate use of existing road space for business loading and servicing.



4.2.3 Primary Employment Growth Areas

Leichhardt

The Leichhardt area includes Marion street, the Norton Street core area, Norton Street north and the Precinct and Frame Areas along Parramatta Road and is anticipated to experience additional office/commercial jobs and retail jobs to 2036 with a significant proportion to anticipated to be delivered by 2026. Marion Street has a wide catchment area that draws from Leichhardt and surrounding suburbs as well as further afield. Intersections around Marion Street were surveyed to understand the existing demand around the Leichhardt Marketplace shopping centre.

The *Parramatta Road Corridor Urban Transformation Strategy* outlines the Leichhardt Core Precinct around Norton Street and Leichhardt Frame Area along Parramatta Road. The Taverners Hill Precinct and Frame Area located to the west of Leichhardt are also intended to accommodate an expanded residential population and a mixed-use precinct capitalising on public and active transport links.

Parramatta Road is a Classified Road and is controlled by State Government and, to support the growth forecast for Parramatta Road, advocacy for designated road space for high-capacity public transport is recommended to support the intended growth.

Marrickville and Marrickville Metro

To 2036, Marrickville including areas north and south of the T3 rail line and the Marrickville Metro shopping centre are anticipated to require approximately 28,426sqm of commercial floorspace and more than 25,000sqm of retail floorspace.

Marrickville centre is oriented along Marrickville Road and Illawarra Road and consists of general retail, services, commercial offices, pubs, restaurants and cafes and a large supermarket as well as an emerging night-time economy. Marrickville Road primarily serves a local catchment area while the Marrickville Metro shopping centre, located just over a kilometre away, acts as a regional shopping centre due to a range of retail outlets, large supermarkets and rooftop parking. The centre is currently undergoing an expansion.

Ashfield

Ashfield is the primary business and administration centre of the Inner West LGA and is identified as the LGA's only Major Centre.

Ashfield centre is mainly located on the southern side of the T2 rail line and consists of major office buildings, general retail and other services, pubs, restaurants and cafes with approximately half of the



retail floorspace located in Ashfield Mall. Liverpool Road is a Classified road which has resulted in a negative impact on this centre as a result of severed connectivity, noise and pollution, while also impeding opportunities to widen footpaths for street activities such as outdoor dining and footpath trading. Ashfield is expected to accommodate approximately 17,511sqm additional commercial/office space as well as 9,741sqm of retail space by 2036 and with TfNSW's Road User Space Allocation Policy (January 2021), opportunities to improve street amenity could be sought to support the growth anticipated.

4.2.4 Other employment locations and commercial centres

Dispersed centres and land uses throughout the Inner West results in a number of locations forecast to experience growth in industrial, commercial/office and retail jobs.

Newtown-Enmore is one of the major centres of the Inner West LGA stretching along King Street and Enmore Road. As a primary entertainment and tourism destination consisting of general retail, commercial offices, services, pubs, bars, restaurants, cafes and supermarkets, the precinct is expected to accommodate approximately 2,600sqm additional retail floor area and approximately 8,000 sqm of commercial office floorspace to 2036.

Growth in Dulwich Hill is outlined across three centres - Dulwich Hill near the intersection of Old Canterbury Road and Marrickville Road, Dulwich Hill West near the intersection of Old Canterbury Road and New Canterbury Road, and Dulwich Hill Station located at Dulwich Hill light rail, heavy rail stations and the Greenway. Dulwich Hill is identified as a key location where the approximately 8,000sqm of additional retail floor space should be accommodated for by 2036. In addition an industrial precinct adjacent to Dulwich Grove light rail station is potentially anticipated to experience additional floor area.

The Petersham–Stanmore precinct is anticipated to accommodate an additional 10,543sqm of non-retail commercial space (predominantly office space) to 2036 with approximately 60 percent of this floor space to be achieved by 2026. The Balmain area is anticipated to accommodate additional commercial office jobs and industrial floorspace around the waterfront area. A new Enterprise Corridor zone along Victoria Road Rozelle is anticipated to accommodate approximately 28,000sqm of floorspace as well as additional retail workers while the White Bay industrial area is anticipated to provide an additional 9,318sqm of employment floorspace to 2036.

4.2.5 Key growth locations

Parramatta Road Corridor



The *Parramatta Road Corridor Urban Transformation Strategy (PRCUTS)* is the NSW Government's 30-year plan to inform land use planning and infrastructure delivery along the Parramatta Road Corridor. The corridor spans 20 kilometres between Granville in the west to Camperdown in the east. The Inner West LGA holds the Taverners Hill, Leichhardt and Camperdown precincts along the corridor with the Kings Bay precinct shared with the City of Canada Bay Council and Burwood Council. Precinct areas are linked by Frame Areas encompassing land fronting Parramatta Road. The Strategy is given statutory weight through Ministerial directions under the *Environmental Planning and Assessment Act 1979*.

The locations along Parramatta Road in the Inner West anticipated to experience growth in housing and jobs include Taverners Hill, Leichhardt and Camperdown. Inner West Council has committed to accelerate a new Local Environmental Plan (LEP) for part of the corridor generally in line with PRCUTS. The PRCUTS identifies improved high-capacity public transport connections along Parramatta Road as a Key Action and states the Parramatta Road streetscape will be improved with tree planting and pavement treatments to provide a better pedestrian environment with new east-west connections providing better walkability and connectivity in Taverners Hill to public transport nodes and the Greenway.

PRCUTS is supported by a range of publications including an Infrastructure Schedule outlining infrastructure types for Precincts and Frame Areas including prioritised walking and cycling links. The infrastructure recommendations in **Appendix D** includes items identified in the Parramatta Road Infrastructure Schedule.

The *Parramatta Road Corridor Urban Transformation - Strategy Sustainability Implementation Plan* outlines the following reductions in the distances people in each precinct would travel by car and to support this change other transport options will be needed. The infrastructure recommendations in **Appendix D** aim to satisfy this intention.

Kings Bay	26 percent against the Metropolitan Average
Taverners Hill	48 percent against the Metropolitan Average
Leichhardt	43 percent against the Metropolitan Average
Camperdown	24 percent against the Metropolitan Average

Bays Precinct

The development of the Bays Precinct in the northeast of the LGA is to be undertaken by the NSW State Government, under the lead of Infrastructure NSW, and a Place Strategy for Bays West is now in development in consultation with relevant stakeholders.



The Bays Precinct is undergoing significant change, with portions of the precinct currently being used for the construction of the WestConnex motorway interchange and light rail stabling yards. A West Metro station has been confirmed at the Bays Precinct and light rail to the Bays Precinct is noted for investigation in the *Greater Sydney Services and Infrastructure Plan*. The *Inner West Employment and Retail Lands Strategy* recognises potentially large increases in office supply in the medium-long term at the Bays Precinct. The intensification of land uses and new high-capacity transport services will potentially impose significant transport demands on the local area.

Due to lack of Council control over land use planning in the precinct, the future retail and employment uses are uncertain and redevelopment of the precinct is not currently accompanied by developer contributions under the *Environment Planning and Assessment Act 1979* towards increased demands on local infrastructure.



Figure 8: Bays Precinct (Infrastructure NSW)

Sydney Metro City and Southwest Metro Conversion

The Sydney Metro City and Southwest project involves converting the line and stations between Sydenham and Bankstown to metro standards. The *Eastern District Plan* identifies the corridor for transit orientated development and the State Government is working with councils to support planning along relevant parts of the corridor as part of the LEP review process.



The Marrickville and Dulwich Hill station neighbourhoods are identified as housing Investigation Areas from 2019 in the *Inner West Housing Strategy* with additional jobs in the office/commercial and retail sectors anticipated.

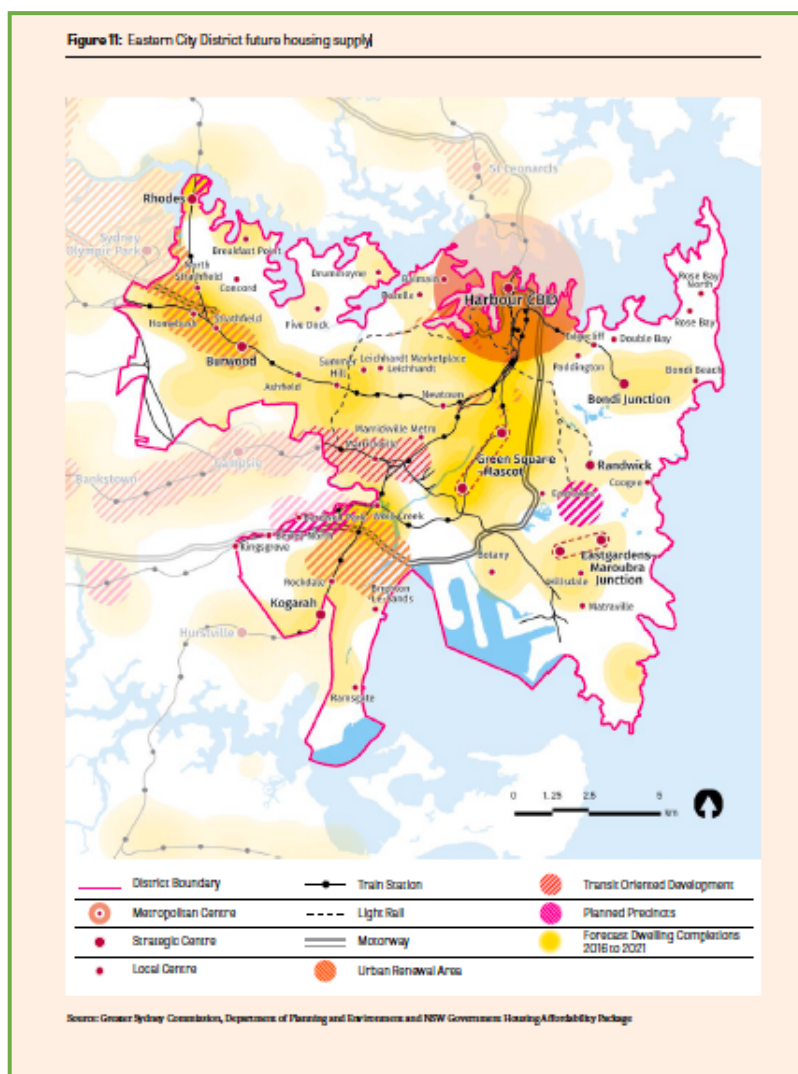


Figure 9: Eastern City District future housing supply (Eastern City District Plan 2018)

4.3 Potential Future Transport Needs

Part 5.4 of *Going Places, An Integrated Transport Strategy for Inner West* establishes a transport hierarchy which prioritises walking and people with disabilities followed by cycling, public transport and delivery/freight services however targets for modal split are not specified.



Journey to Work analysis carried out for the Inner West Integrated Transport Strategy shows a significant proportion of trips made to access work locations in the LGA are made by car. Proximity to a rail line has a high influence on train use for accessing work for residents of the LGA. In the northern half of the LGA, where there are no rail services, there is a higher reliance on buses to travel to work.

The anticipated growth throughout the LGA has been used to estimate future transport demand based on current Journey to Work data from the Australian Bureau of Statistics, to consider the proportion of trips in different directions for primary growth locations. **Figure 10** shows the estimated demand for future travel to work from primary growth locations based on the anticipated population growth, representing the potential demand of future LGA residents to access work. **Figure 11** shows the estimated demand for future travel to work in growth locations based on the anticipated commercial employment growth, representing the potential demand of future workers in the LGA to access commercial or office employment. **Figure 12** shows the estimated demand for future travel to access work in the anticipated growth locations based on retail employment growth, representing the potential demand of future workers in the LGA to access retail employment.

This analysis has been used to identify the provision of transport infrastructure for future travel demand, however ongoing analysis and review of transport movements will be necessary as property development takes place throughout the LGA.



Based on established journey to work movements and for all employment growth combined, **Figure 10** broadly indicates travel to work patterns towards the north east including the Bays Precinct, Camperdown and Leichhardt, when compared with other directions. More dispersed travel is specified from residential growth locations in Ashfield, Dulwich and Leichhardt.

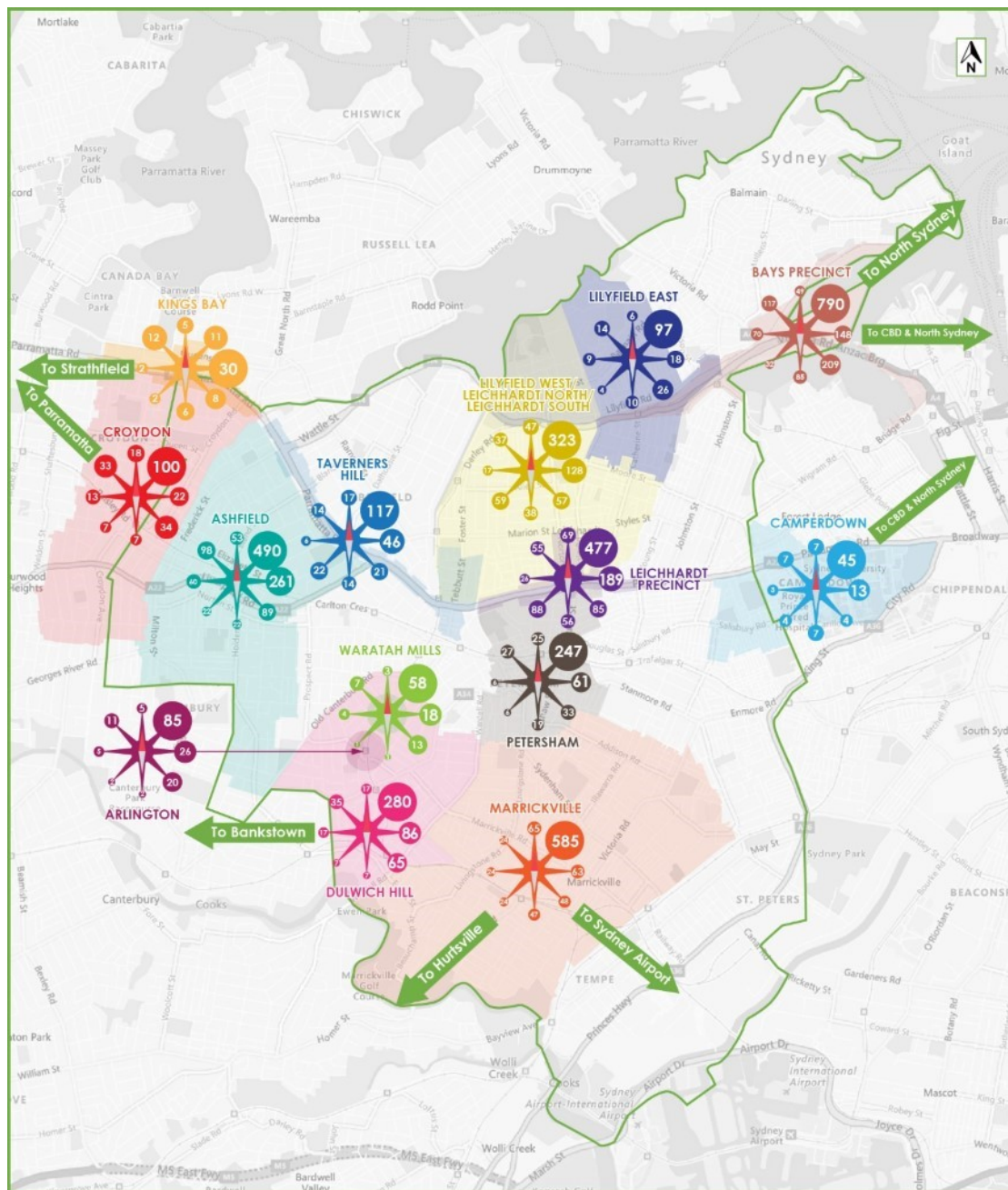


Figure 10: Estimated Future Travel Based on Population Growth



Figure 11 represents the potential demand of future workers in the LGA to access commercial or office employment locations. Trends in retailing and office space mean that additional floor area will be required to service the LGA by 2036 in over 24 commercial centres, with Ashfield specified as the LGA's primary business and administration centres. A greater portion of movement towards Ashfield, Leichhardt and Rozelle is indicated, with travel towards Leichhardt showing greater prevalence from southern and western directions. Travel towards Rozelle is reflected from the south and northwest via Victoria Rd while travel into Ashfield is generally identified from eastern, western and south-western directions. The growth of office and retail floor space at Dulwich Hill Station and Dulwich Hill centre will also create a demand to access employment in these locations.

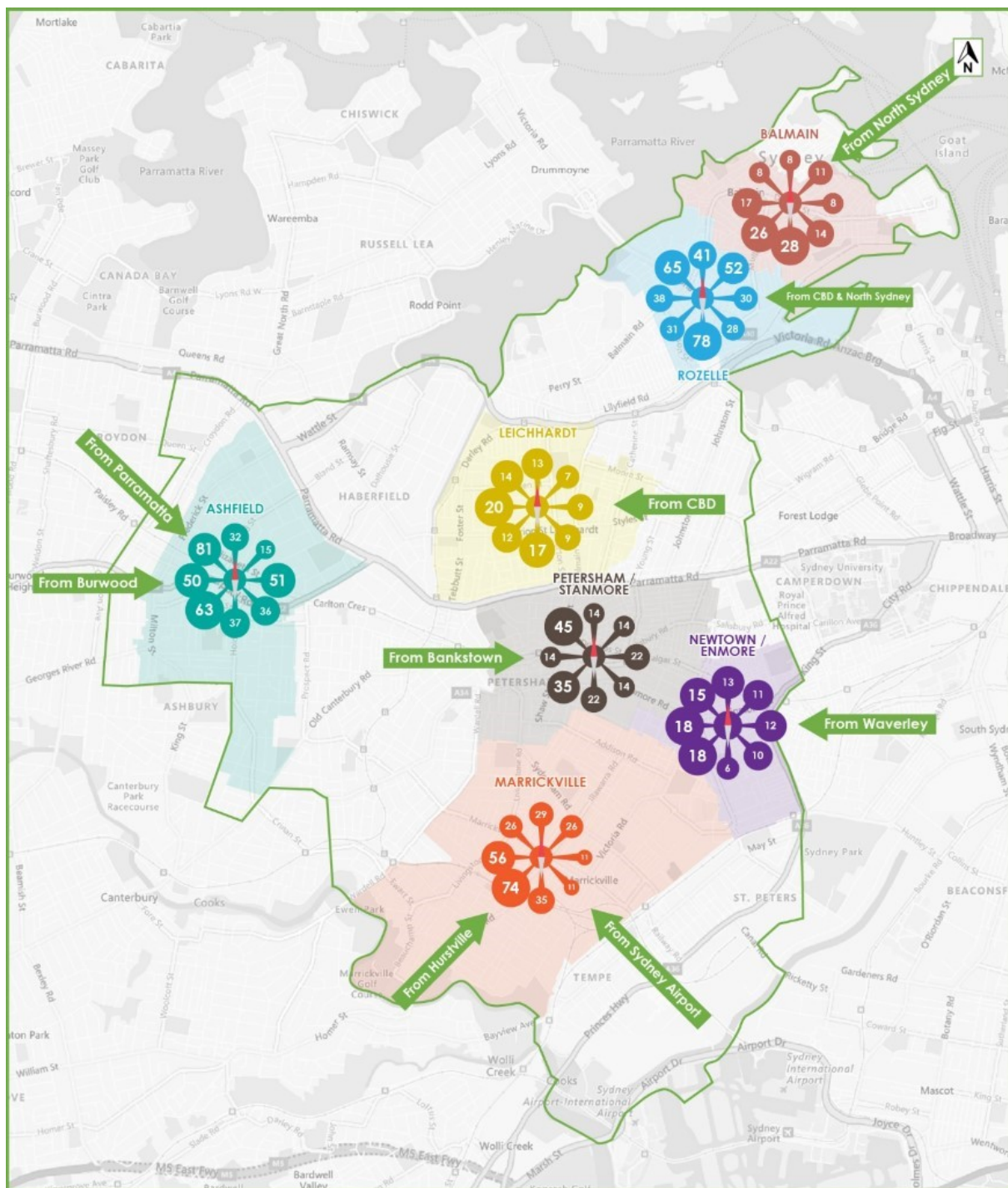


Figure 11: Estimated Future Travel Based on Commercial Employment Growth

Figure 12 represents the potential demand of people working in the LGA in future to access retail employment. Travel to retail employment in the Leichhardt area is indicated from the south and west as well as northern areas while access into Ashfield is more dispersed with greater movement potentially



from eastern, western, north-western and south-western directions. Rozelle is reflected as experiencing journeys southern and north-western directions along Victoria road while retail employment in Marrickville including Marrickville Metro would be approached from southern and south-western directions including Dulwich Hill and Marrickville. The demand of transport and logistical facilities to service retail premises also needs to be taken into account.

Population growth as a result of both residential and employment developments are dispersed throughout the LGA. The Leichhardt precinct is anticipated to accommodate development on Parramatta Rd and the eastern side of Norton St as well as in northern light part to enable office development. In Marrickville increased populations are anticipated on both the northern and southern sides of the railway line as well as rezoning for business zones along Addison Road. Smaller centres such as Croydon, Lewisham station and Stanmore are anticipated to accommodate both residential and employment development.

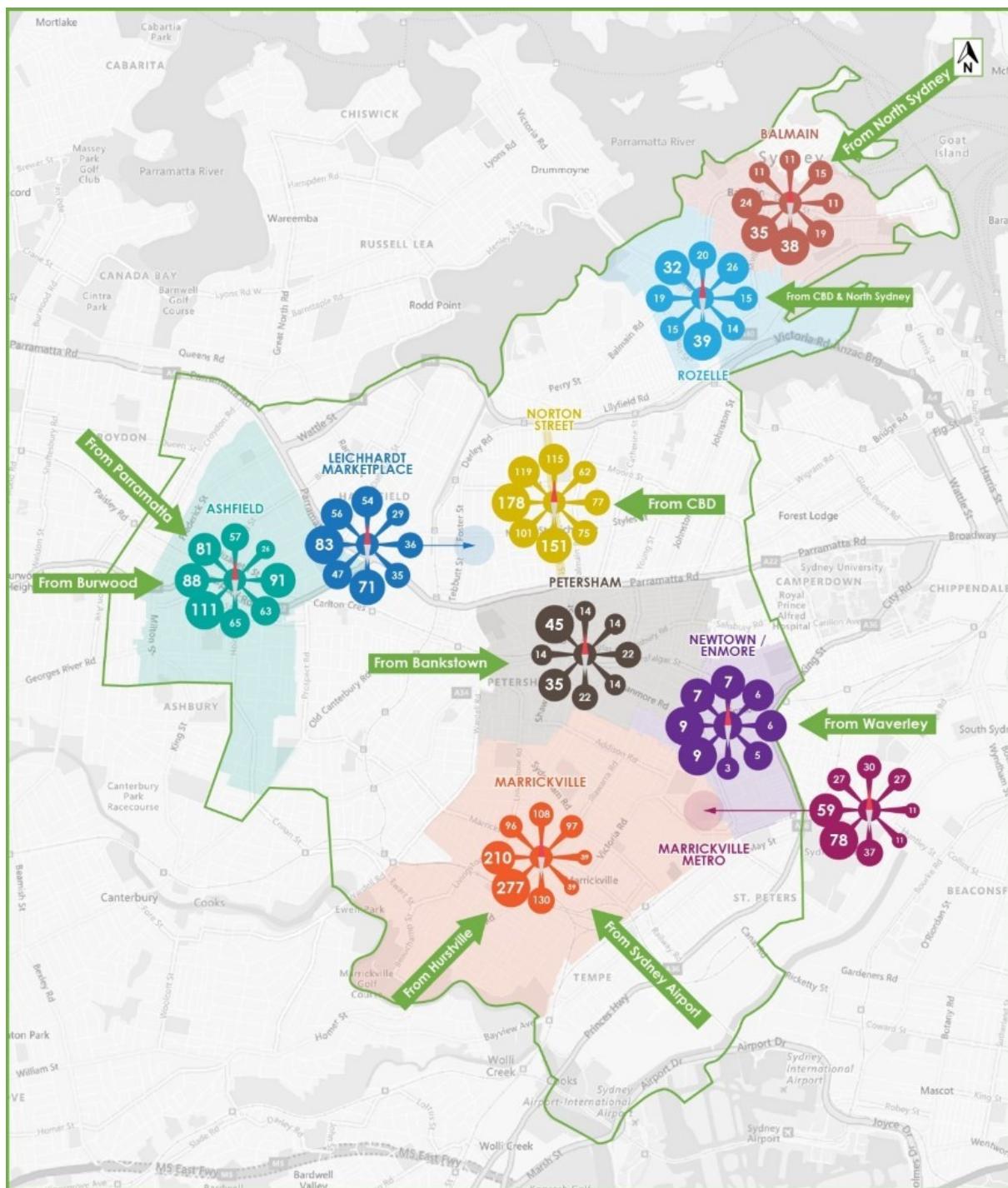


Figure 12: Estimated Future Travel Based on Retail Employment Growth



5. PREDICTIVE TRANSPORT ANALYSIS

To establish the current demand on the road network surveys were undertaken around locations anticipated to experience primary growth in jobs and housing. Modelling of demand for future travel was estimated based on current Journey to Work data from the Australian Bureau of Statistics to consider the proportion of trips in each direction for each growth centre.

Identification of improvements for different transport modes started with gap analysis of the shortcomings of locations relating to mode, which were then used to identify opportunities to overcome limitations, such as a low preference for property acquisition and road widening. Based on Council's adopted transport hierarchy, recommendations are made with the aim of catering for the demand for increasing journeys with increased efficiency in the use of public space as well as high-capacity transport options.

In the Inner West LGA, 717,000 trips are made each weekday contributing to more than 22 million trips made in Metropolitan Sydney. Trip distances for various trip types reflects that on average, journey distances are small compared with metropolitan Sydney. (Going Places, An Integrated Transport Strategy for Inner West, 2019).

Commuting to work forms a smaller proportion of trips in the LGA however these trips are concentrated into small periods of time. Approximately one third of people both live and work in the Inner West LGA and on average, trips made for commuting are shorter in length than equivalent trips made in the Sydney metropolitan area, potentially providing an opportunity for modal shift away from personal car driving. Journey to work data from the ABS in 2016 shows only 2.6% of trips are made by bicycle. Trips for social and recreation purposes are the most significant type of trip undertaken in Inner West followed by shopping trips and commuting to work (Going Places, An Integrated Transport Strategy for Inner West, 2019).

In the past private vehicle trips have increased alongside population growth and with a forecasted growth of approximately 30,000 residents and significant additional employment floorspace, infrastructure is needed to provide more transport options. Additionally, since 2006 working from home by residents in the LGA has increased by 32% and changes as a result of COVID-19 have the potential to result in further increases.



5.1 Gap Analysis

5.1.1 Walking

Whilst the LGA generally provides an extensive network of footpaths, there are deficiencies in access, amenity and capacity throughout the LGA. Locations forecast for more significant population increases warrant particular attention. Walking infrastructure in the Sydenham-Marrickville employment precinct is of a poor standard and the limited space is frequently obstructed by parked vehicles servicing or accessing business premises. Liverpool Road Ashfield experiences high pedestrian volumes with narrow footpaths adjacent to a road carrying a large proportion of heavy vehicles. The Parramatta Road and Victoria Road corridors are State roads and with anticipated population increases occurring adjacent to these roads, advocacy for additional walking capacity and other pedestrian amenities would be warranted.

Appendix A outlines locations lacking footpaths around heavy and light rail stations. Whilst there are constraints in some locations, infrastructure is recommended to provide improved walking access to public transport services. **Appendix B** outlines signalised intersections with incomplete pedestrian access and intersections in locations identified for growth such as Parramatta Rd, Ashfield and Marrickville are recommended for upgrade to provide improved walking access.

5.1.2 Cycling

Cycling infrastructure in the Inner West LGA comprises mainly on-road markings where cyclists ride with traffic and shared paths in parks. Data shows cycling is more popular in locations where safe infrastructure is provided such as Cooks River, the Greenway and ANZAC Bridge.

In 2017, 2018 and 2019 Inner West Council participated in the Super Tuesday bicycle counts conducted by Bicycle Network. Counts were conducted in 50 locations throughout the LGA during the morning peak travel period (7am-9am). In 2019 a total of 7018 trips were counted during the two-hour survey period. The count locations were compared with data from the fitness app Strava reflecting the popularity of the following cycling routes:

- The Greenway in Dulwich Hill and beside Hawthorne Canal and Iron Cove
- Lilyfield Road and Victoria Road Rozelle
- Cooks River, Carrington Road and Victoria Road Marrickville
- East-west in Lewisham beside the T2 Inner West rail line

Currently safe convenient north-south cycling access is restricted in Marrickville and Ashfield. Parramatta Road provides no cycling facilities and poor north-south access. Victoria Road Rozelle



provides a Shared Path with restricted width and conflict with pedestrians and bus passengers. Completion of the Greenway in Dulwich Hill, along with intersecting 'trellis' streets along the route, are needed to support changes in transport behaviour.

5.1.3 Rail/Metro Services

A number of heavy rail stations lack taxi and/or drop-off facilities as well as improved walking and cycling connectivity. Section 3.3.4 outlines current infrastructure at rail stations, and locations without footpaths are shown in Appendix A.

Station locations such as Marrickville, Dulwich Hill, Ashfield and Petersham are to be investigated for population growth in the short-medium term. Ashfield station currently provides inclusive access and work to upgrade Petersham station is now underway. Priority should be given to providing direct and accessible walking access to these stations within an 800m distance as well as drop-off facilities at Petersham station and Lewisham West light rail stop.

5.1.4 Light Rail Services

Bicycle parking and car share vehicles are available at most light rail stations however all stations lack a taxi rank and some light rail stations lack drop-off facilities and car parking facilities. Section 3.3.4 outlines existing infrastructure provision at railway stations.

Pedestrian interchange between light rail and the T2 Inner West rail line is impeded by deviations required to make safe road crossings.

5.1.5 Bus Services

The lack of bus priority and reliability as well as the complexity of the bus network can be a deterrent to increased patronage. The large number of bus routes in the LGA means buses are allocated across many routes at low frequency which also acts as deterrent. The bus network could better support north-south trips and improved connections with Parramatta Road. Existing bus corridors including Parramatta Road, Liverpool Road, Ashfield and Victoria Road, Rozelle provide restricted access to bus stops as a result of infrequent road crossings and an unattractive environment for passenger walking and waiting time due to high volumes of traffic sometimes traveling at high-speeds.

A fully accessible bus service is a critical element in delivering an inclusive community. For people with disabilities, inaccessible bus stops often represent the weak link in the system and can effectively prevent the use of bus services. In the majority of cases Council has responsibility for the overall compliance of the bus stop boarding area and **Appendix C** outlines the basic principles for designing



bus stops with improved accessibility including paths, manoeuvring areas, passing areas, ramps, waiting areas, boarding + kerbs, allocated space, ground surfaces, street furniture, stairs + handrails, signs + information, lighting, tactile ground surface indicators [TGSIs].

5.1.6 Public Car Parks

Public car parking facilities do not provide charging facilities for electric vehicles. Taxi, Ride Share, and Car Share

Demand for pick up and set down in key commercial centres and at light and heavy rail stations should be investigated further as demand shifts from private vehicles.

The future need for infrastructure for autonomous vehicles, such as hubs for vehicle storage and servicing and re-purposing of public car park requires further investigation. Although this is beyond the timeframe of this study, planning for work that will use the space in the interim should not prohibit future changes.

5.2 Intersection Surveys

The intersection surveys and subsequent modelling aim to give a representative picture of transport demand in locations forecast for population growth. Roads throughout the Inner West LGA already experience high traffic demand highlighting the need for modal shift to increase the proportion of trips taken by modes other than private vehicles.

The locations surveyed are shown in Figure 29 focussing on Marrickville (including Marrickville Metro), Leichhardt and Dulwich Hill as these locations are anticipated to experience growth to 2026. The choice of weekday or weekend surveys and modelling was based on the high demand periods most representative of local demand to minimise the inclusion of through-movements which are most prevalent during weekday peak periods. Some locations were assessed for both weekday and weekends as local demand was thought to be high in both scenarios.

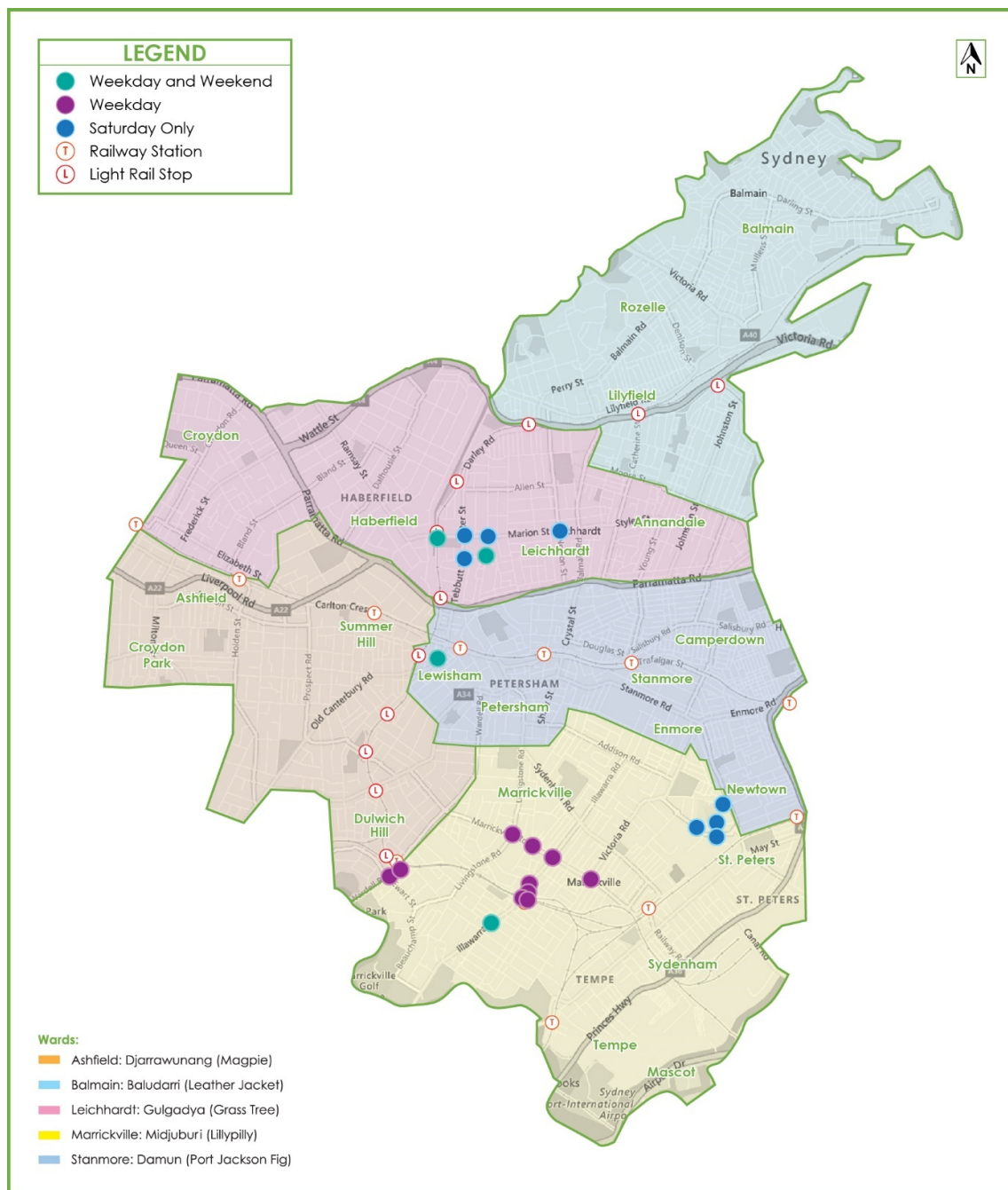


Figure 13: Intersections Survey Locations

5.2.1 Intersection modelling

Intersections at Dulwich Hill station including the Wardell Road pedestrian crossing were assessed as a network. The intersections around Marrickville commercial centre and Marrickville rail station were assessed as a network except for Marrickville Road and Victoria Road, and Illawarra Road and Warren



Road because of the distances, intersections and crossings located between them and the other intersections.

Intersections as shown above in **Figure 13** in Leichhardt, Marrickville and Old Canterbury Road/Henry Street/Hudson Street between Lewisham West light rail stop and Lewisham Station were modelled for weekdays and Saturdays.

The intersections below were modelled in the network for Saturday traffic for Leichhardt, but the weekday models were not included in a network due to the distance between the intersections:

- Marion Street signalised pedestrian crossing at Marion Light Rail station
- Flood Street/Lords Road (near MarketPlace shopping centre)

Intersections modelled on Saturdays were modelled for peak periods. Intersections were modelled as a network except in occasions where the distance between intersections was unlikely to result in significant operational impacts.

5.2.2 Summary of Modelling Outputs

Level of service (LOS) is a concept broadly used to represent the quality of an experience by users of the road network. It has been used extensively to represent the experience of motorists with comparable analysis of user-experience only recently been given to other road users. The wide range of LOS measures are typically summarised into an A – E classification whereby LOS A represents primarily free flowing operation with limited delays and LOS F represents low speeds, high delays and extensive queuing.

Discussions below reflect the LOS provided currently to motorists however, it is recognised that the Inner West Integrated Transport Strategy gives higher priority to walking, cycling and public transport use.

In Dulwich Hill the modelling shows that the Wardell Road/Ewart Street intersection is operating with a low Level of Service for motorists. Although the Dudley Street/Wardell Road intersection has spare capacity the traffic signals at Wardell Road/Ewart Street imposes a constraint on the road network in the immediate area.

The modelling of intersections along Marion Street near MarketPlace and the Marion Street/Norton Street intersection are operating with a low Level of Service for motorists on Saturday while the roundabout at Flood Street/Lords Road is operating at an acceptable Level of Service for motorists



both during the weekday peaks and on Saturday because it not burdened by the through traffic carried by Marion Street.

The signalised pedestrian crossing on Marion Street at the Marion Light Rail Station provides a high level of service for motorists. Traffic queues from the crossing are generally longer during the weekday peak periods however these queues occupy less than half of the available space suggesting the crossing could reasonably accommodate increased frequency of pedestrian crossings during these periods without significantly adverse impacts on traffic along Marion Street.

Modelling of the walking link between the light rail stop and heavy rail station in Lewisham shows that the intersections of Henry Street and Hudson Street with Old Canterbury Road are operating at acceptable Levels of Service during weekday and Saturday peaks, with motorists turning right from Henry Street experiencing some delay during the weekday PM peak. Signalisation or partial signalisation of the intersections would provide a safe crossing to assist pedestrians crossing Old Canterbury Road and assist local traffic from Henry Street to access Old Canterbury Road.





The modelling shows that the Illawarra Road/Warren Road intersections in Marrickville near the Woolworths supermarket is operating with an acceptable Level of Service for motorists during both weekday and Saturday peaks. The Saturday modelling shows the intersections around Marrickville Metro are also operating with acceptable Level of Service for motorists.

The weekday modelling around Marrickville Station and along Marrickville Road shows the intersections are operating with acceptable Level of Service for motorists except as follows:

- Illawarra Road/Warburton Street/Schwebel Street immediately south of Marrickville Station, is operating at an acceptable LoS D in the AM peak.
- Marrickville Road/Livingstone Road is operating at capacity with a LoS E in the AM peak and LoS F in the PM peak.
- Marrickville Road/Victoria Road is operating at capacity with a LoS F in both the AM and PM peak.

The performance of the last two intersections is indicative of the demand due to through traffic as well as local traffic travelling between Marrickville, Petersham, Enmore and beyond.

5.2.3 Analysis Process

Potential growth in traffic was applied to the surveyed traffic volumes to give an indication of the amount of road transport growth that could be accommodated in the network before changes are needed to support additional movement along a point or section of road. This provided a potential benchmark for capacity across the LGA, however some areas have spare capacity while others have already reached capacity. Additionally, the limitations of localised intersection modelling to provide for LGA-wide movement analysis needs to be acknowledged.

Near Dulwich Hill station the modelling suggests the road network is unable to accommodate extra vehicle traffic due to the traffic signals at Wardell Road/Ewart Street. To increase capacity in the transport network without upgrading the traffic signals, provision should be considered for additional capacities and levels of service for modes of transport other than motorists, particularly given the proximity to the Greenway to access Leichhardt and Ashfield and the future South West Metro to access Marrickville and employment near Sydenham.

The intersections along Marion Street Leichhardt demonstrate no spare capacity for vehicle traffic on Saturday. The analysis in Section 4 shows significant movements between Leichhardt and the north-east such as the Bays Precinct as well as from the south such as Marrickville. The NSW Household Travel Survey shows a significant proportion of shorter car trips in the LGA are made by motor vehicle



and increased densification in the Leichhardt area needs to be supported by infrastructure to support trips below 5 or 10km to be taken by modes other than private vehicles.

The modelling shows that intersections in Marrickville, south of the station, have sufficient capacity in the PM peak, which was the worst case modelled. With the intensification forecast for Marrickville south, the available capacity could be captured to improve walking and cycling capacities to access Marrickville station, Marrickville Road and the Cooks River cycling facility to access Dulwich Hill, the Greenway and the airport.

The weekday modelling around Marrickville Station and along Marrickville Road shows that this part of the network cannot accommodate any more motor traffic due to the capacity of a number of intersections limiting the rest of the local network.

The Saturday traffic modelling shows the intersections around Marrickville Metro currently have sufficient capacity providing the opportunity to accommodate infrastructure catering to other transport options without imposing significant impacts on motorists. Improved walking and cycling capacity should be investigated between Marrickville Road, Sydenham station and the Marrickville Metro precinct to support the additional demand shown in Section 4 for additional employment in this region.



6. KEY OUTCOMES

6.1 Transport Mode Shift

In accordance with the transport hierarchy outlined in Council's Integrated Transport Strategy in **Figure 14** the investigation of proposed infrastructure in association with the additional demand imposed by new development aims to recognise restricted street capacity throughout the LGA.

In locations forecast for population growth in the short to medium term such as Dulwich Hill, Parramatta Rd Leichhardt and parts of Marrickville, the modelling results suggest inefficiencies for motor vehicle travel reflecting the need for modal shift to ensure the efficiency of essential motor traffic can be maintained, such as for people with disabilities and business activities. Infrastructure recommendations outlined in **Appendix D** aim to reflect Council's adopted transport hierarchy and optimise the use of existing street capacity with increased use of active and public transport, improved facilities for people with disabilities and efficiency improvements to the road network.



**Figure 14: Adopted transport hierarchy for the Inner West
(Going Places, An Integrated Transport Strategy for Inner West, 2020)**

In addition to the State Government and Local Government strategic documents identified in Section 2 and gap analysis recommendations, the following documents are referenced:



- Local Area Traffic Management (LATM) studies completed by Inner West Council and the legacy councils.
- The Parramatta Road Corridor Urban Transformation Infrastructure Schedule and the Parramatta Road Corridor Urban Transformation Planning and Design Guidelines which identifies Prioritised Walking and Cycling Links associated with development on and around Parramatta Road.
- Kegworth Public School Road Safety Audit which assesses four walking/cycling routes to the school.
- Dulwich Public School Road Safety Audit which assesses five walking/cycling routes to the school.

Walking and cycling routes shown below in **Figure 15** and **Figure 16** are specified in the Inner West Integrated Transport Strategy. **Appendix D** outlines improved walking and cycling access throughout the LGA generally in accordance with these networks with priority in locations such as Parramatta Road, Norton Street Leichhardt, Ashfield and Marrickville. Policies and guidelines recently released by the NSW government including the Cycleway Design Toolbox and the Walking Space Guide, provide clearer direction for the planning and design of walking and cycling infrastructure.

The NSW Government's Road User Space Allocation Policy (January 2021) applies to Classified roads such as Parramatta Road, Liverpool Road Ashfield and Victoria Rd Rozelle as well as other state roads throughout the LGA. The policy outlines principles for road space allocation for both physical space and time-priority with priority given to walking including equitable access for people of all abilities, cycling and other micro-mobility devices, public transport and freight and deliveries. The Policy notes these principles should be given priority ahead of protecting or maintaining level of service (LOS) for private vehicle travel and this is consistent with the transport hierarchy adopted by the Inner West Integrated Transport Strategy.

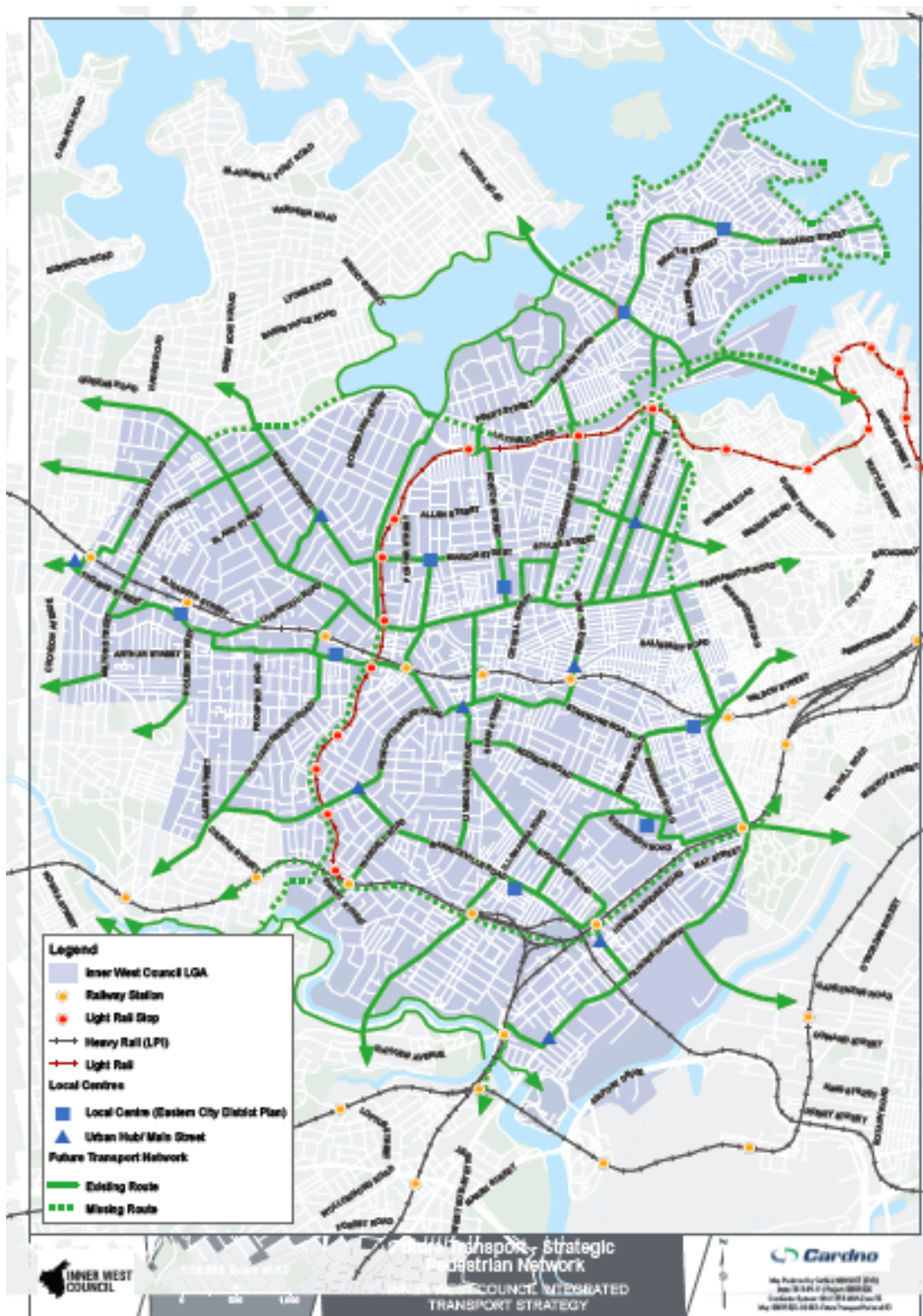


Figure 15: Inner West Strategic Pedestrian Network
(Going Places, An Integrated Transport Strategy for Inner West, 2020)

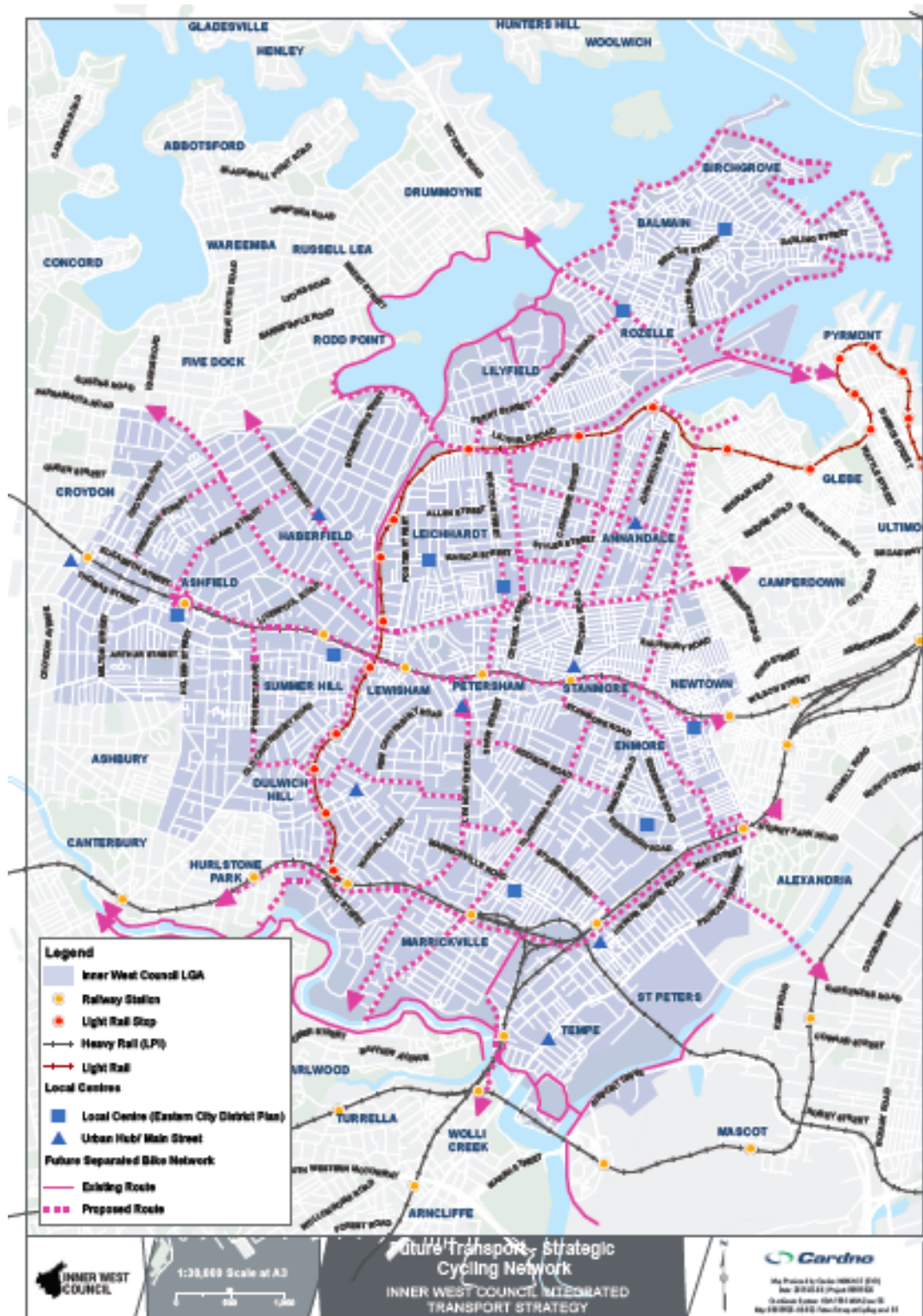


Figure 16: Inner West Strategic Cycling Network
(Going Places, An Integrated Transport Strategy for Inner West, 2020)



6.2 Costing of new transport infrastructure

All costs identified in this report are estimates only and must not be relied on for the purposes of quoting, budgeting or construction. The estimated costs exclude all utility relocation costs (water, sewer, power, communications).

Cost estimates for works identified in council studies have been copied without adjustment and other cost estimates identified are based on general costs for similar works or are based on unit rates. Works can involve multiple components whereby only broad cost estimates could be made, such as upgrading bus stop accessibility for DSAPT-compliance which could potentially involve footpath works to provide increased area and even surfacing as well as removing/relocating obstructions and installing tactile indicators. The scale or scope of some works can vary widely such as cycling facilities which can range from painted road symbols in shared traffic environments to dedicated infrastructure providing physical separation from traffic.

The costs are intended as a strategic guide only and further work is required to determine project scopes and costs. Detailed cost estimates should be sought from a suitably qualified civil engineer or quantity surveyor and the Inner West Contributions Plan should be subject to ongoing review whereby cost variations can be assessed.

6.2.1 Cost apportionment

The costs of public infrastructure need to be reasonably apportioned to those who create the need for the provision to ensure that each party only pays for the portion of demand it creates. This typically includes demands internal to new development created by residents and employees who live or work within the overall LGA. Indeed, this is usually able to be assessed for each suburb, noting that growth is not uniform across the LGA. Demands for infrastructure external to new development may include existing populations, district, and regional users, and non LGA users. If the proposed infrastructure satisfies not only the demand of new development, but also makes up for some existing deficiency, only the portion of demand created by new development can be charged. Development contributions plans cannot be used to remedy current or past problems which are not connected with development that is the subject of the plan.

Council's portion (the external demand) is normally funded through its general revenue. The developer's portion is, however expected to be funded through a development contributions plan or voluntary planning agreement. This recognises the principle that those who generate the need for infrastructure and thus benefit from its provision, pay their fair share.



Facilities that are needed due to support the demand created by new development will require a higher portion of the cost to be contributed by the developer. Provision of future LGA wide facilities to improve active transport, public transport, and local area traffic management will benefit all users and there is a need for these facilities regardless of population growth, although the new population will also benefit. If the population of an area is expected to grow by a certain proportion over a certain period, then the financial contribution made by new development should match that proportion. However, should council identify sites/precincts where the full cost of land acquisitions and/or required infrastructure is to be funded by development contributions then 100 percent of the costs could be apportioned to new development in such circumstances.

6.2.2 Non-Planning Mechanisms for funding new infrastructure

Applicants can offer to enter into a planning agreement with Council to provide an alternative to a monetary contribution under this plan. This could involve an offer to dedicate land free of cost, pay a monetary contribution, provide works in kind or provide another material public benefit, or any combination of these, to be used for, or applied towards, a public purpose in full or partial satisfaction of a monetary contribution.

Council is not obliged to accept such an offer.

Planning agreements are negotiated between developers and Councils in the context of specific proposals for changes to Environmental Planning Instruments or for consent to carry out development. Planning agreements have the potential to be used in a wide variety of circumstances to achieve many different planning outcomes and a contributions plan should aim to work in harmony with voluntary planning agreements.

Possible non-planning mechanisms for transport infrastructure could include the following:

- Establish modal split targets for high priority transport modes in relevant growth locations and monitor performance against these to update actions as needed.
- Work with adjoining councils to investigate and implement infrastructure on regional corridors that satisfies local and state government strategic directions.
- Identify opportunities on Council owned sites to 'demonstrate by doing' such as local distribution centres within commercial centres or visible end-of-trip facilities for active transport users.



6.3 Delivery of infrastructure

The delivery of new development is affected by various and complex factors for both residential and non-residential development of which council planning controls comprises only part.

Work by Elton Consulting subsequently building on the Inner West Housing Strategy identifies locations throughout the LGA that would accommodate new housing in the future along with anticipated population growth scenarios and potential timeframes for realization over the coming twenty years.

Ashfield south of the T2 heavy rail line and Marrickville north of the T3 heavy rail line and the various Dulwich Hill precincts are each anticipated to experience growth throughout the coming 20-year period with greater growth anticipated in the short to medium timeframes. While Rozelle, presumably around White Bay, is anticipated to experience significant housing growth over the longer term. Similarly, it is anticipated that Croydon would experience additional housing development in the longer term while residential development throughout Leichhardt would be experienced in both the immediate and longer term future. Locations throughout the LGA are expected to accommodate additional housing accommodation in moderate to low quantities across both periods identified to 2036.

Priorities for infrastructure delivery of Low, Medium or High importance are specified for the items in Appendix D. The prioritization of the delivery of infrastructure potentially required to support new development will require ongoing assessment following adoption of the Inner West LEP and Contributions Plan.



7. NEXT STEPS

The Inner West LGA will continue to accommodate further development into the short to medium future with new development anticipated along the Parramatta Road corridor and the Southwest Metro line.

These developments can only be sustained by the provision of new and upgraded local infrastructure, including open space and recreation facilities and transport infrastructure. This study focuses on the transport infrastructure needs generated by these developments and contributions of land as well as works and funding from the developers of land will be a key source funding for this infrastructure.

This study builds on the transport hierarchy specified in *Going Places, An Integrated Transport Strategy for Inner West* which prioritises active and sustainable transport modes such as walking, cycling and public transport use. This study will support preparation of the Inner West Local Infrastructure Contributions Plan for the Inner West Local Environmental Plan. Community input will be obtained on the Contributions Plan and any supporting needs studies with public exhibition of the documents.

APPENDIX A

Footpath Infrastructure for Rail Services

APPENDIX B

Pedestrian Crossings at Signalised Intersections

APPENDIX C

DSAPT Bus Stop Design Principles

APPENDIX D

Proposed Infrastructure and Costing

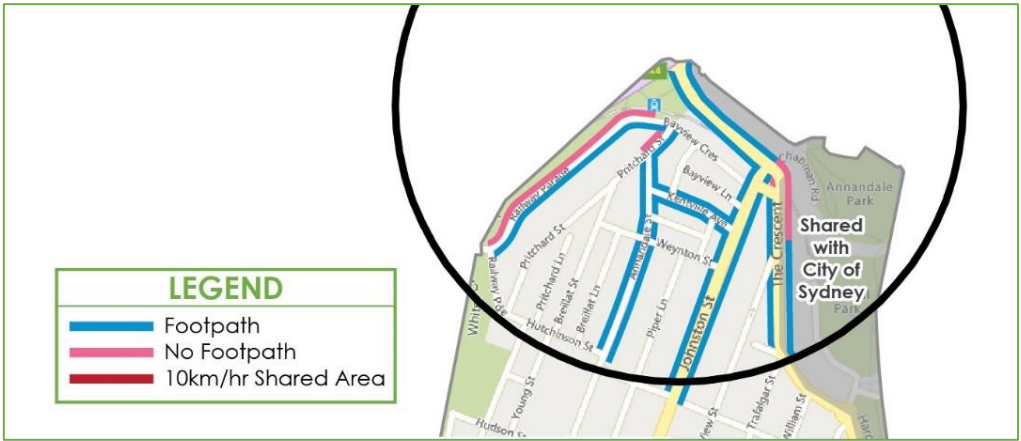


Figure A1: Rozelle Bay Light Rail Station Pedestrian Infrastructure (Annandale)

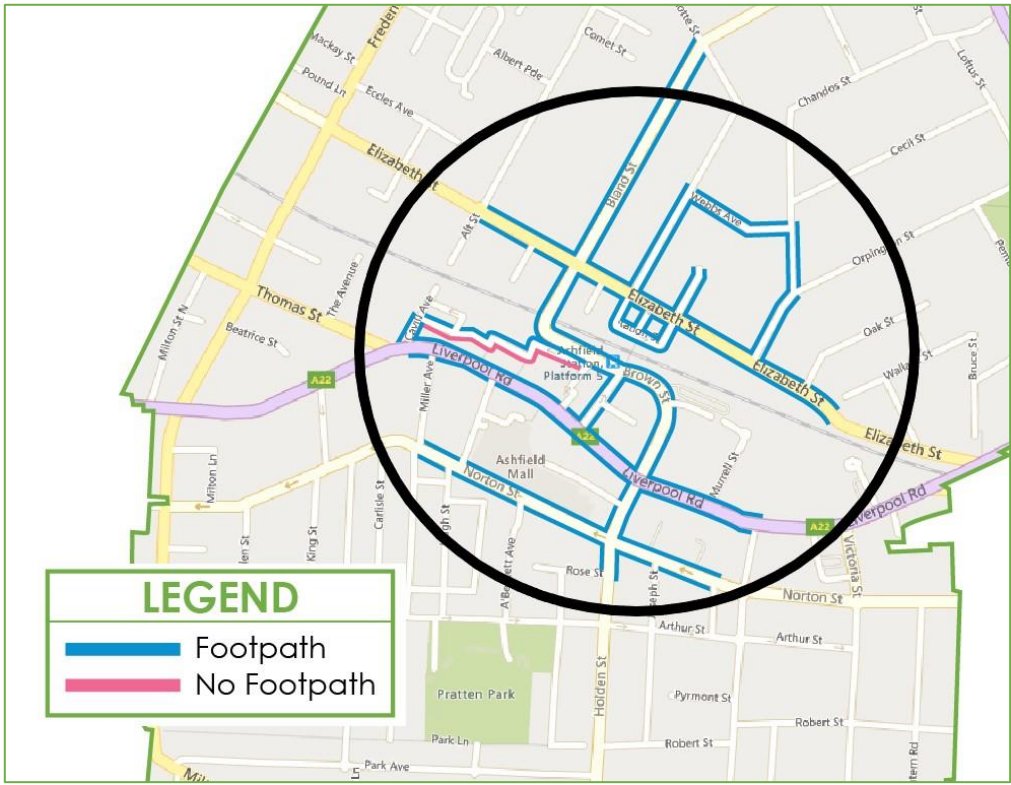


Figure A2: Ashfield Station Pedestrian Infrastructure (Ashfield)

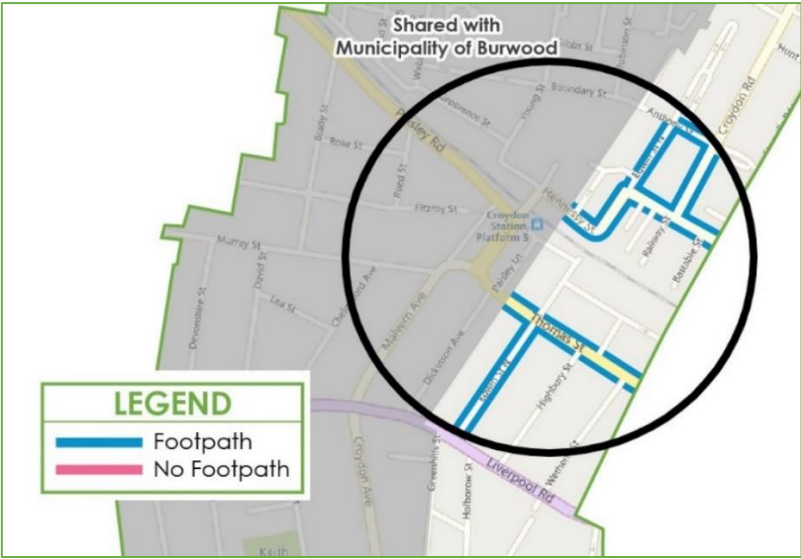


Figure A3: Croydon Station Pedestrian Infrastructure (Croydon)

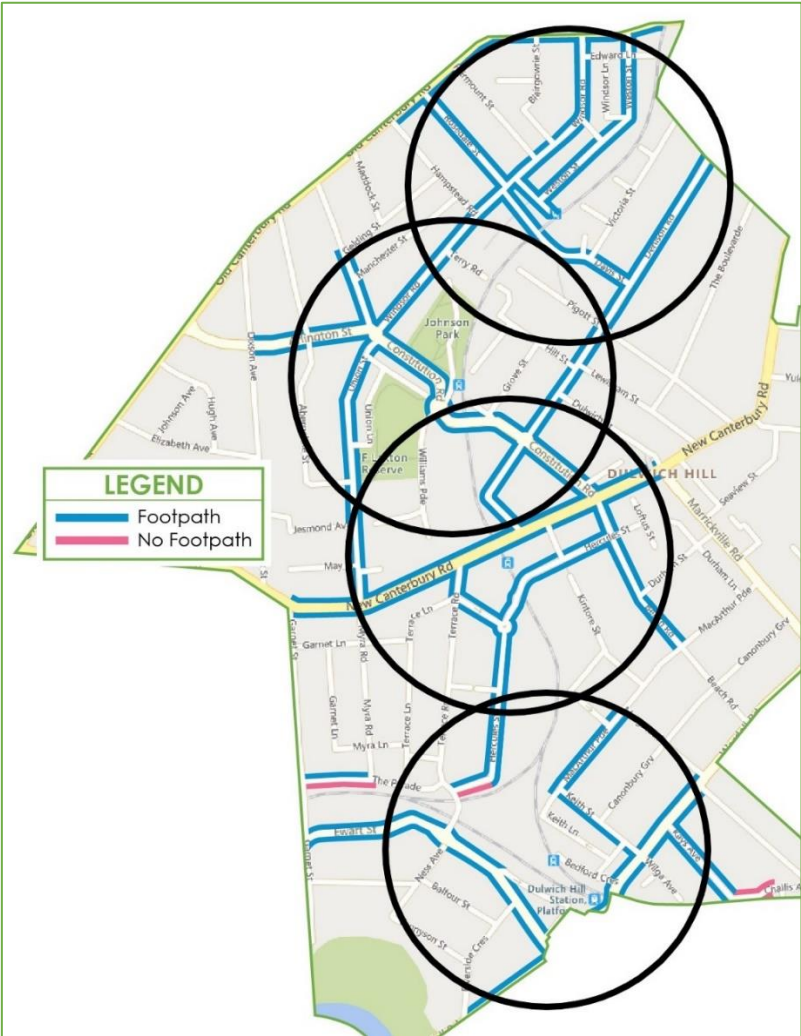


Figure A4: Dulwich Hill, Dulwich Grove, Arlington, Waratah Mills Pedestrian Infrastructure (Dulwich Hill)

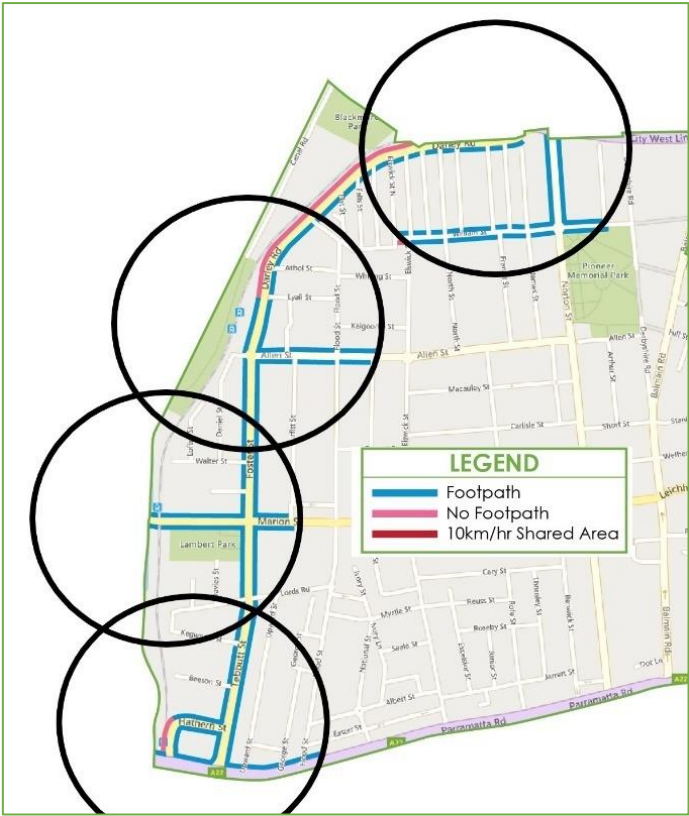


Figure A5: Taverners Hill, Marion, Hawthorne, Leichhardt North Stations Pedestrian Infrastructure (Leichhardt)

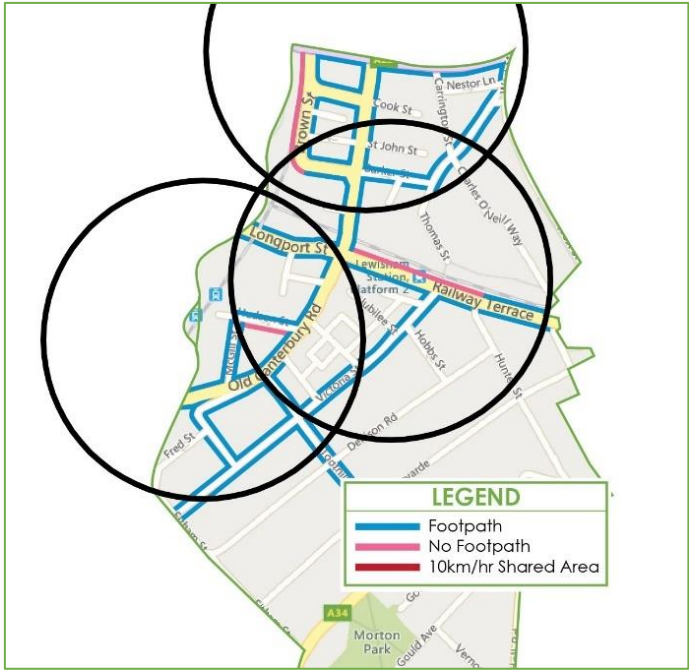


Figure A6: Leisham, Leisham West, Taverners Hill Stations Pedestrian Infrastructure (Leisham)



Figure A7: Dulwich Hill, Marrickville, Sydenham Stations Pedestrian Infrastructure (Marrickville)

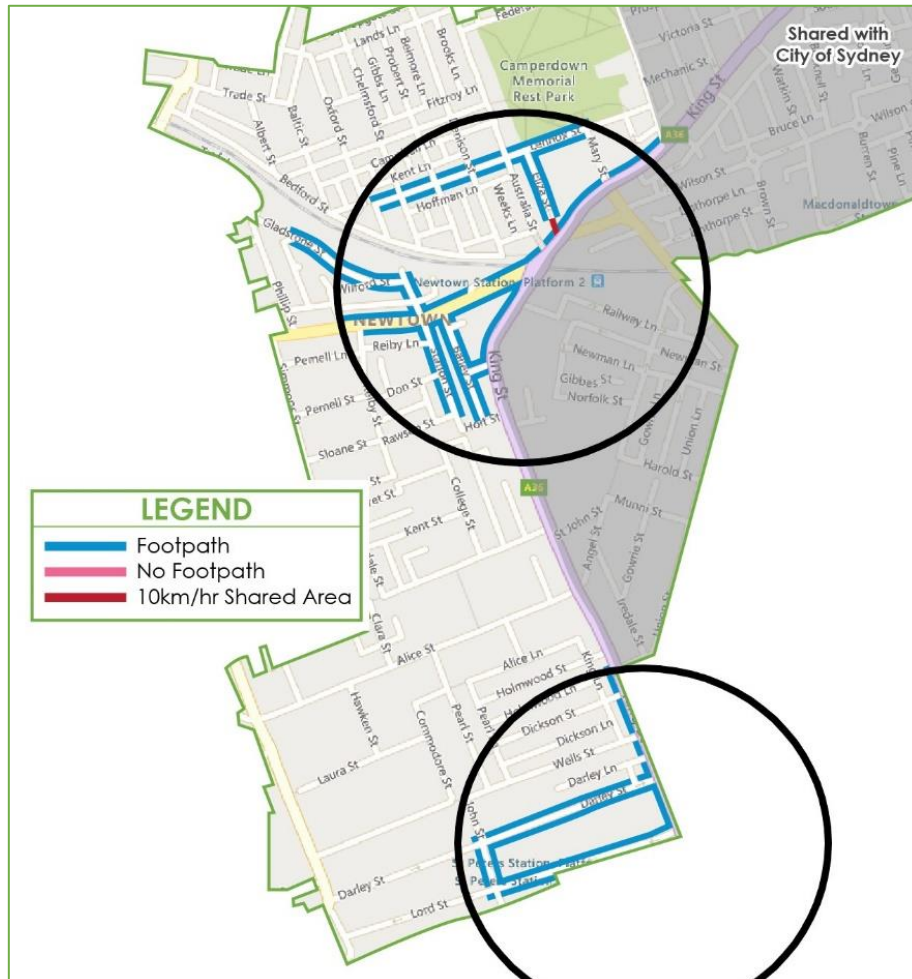


Figure A8: Newtown, St Peters Station Pedestrian Infrastructure (Newtown)

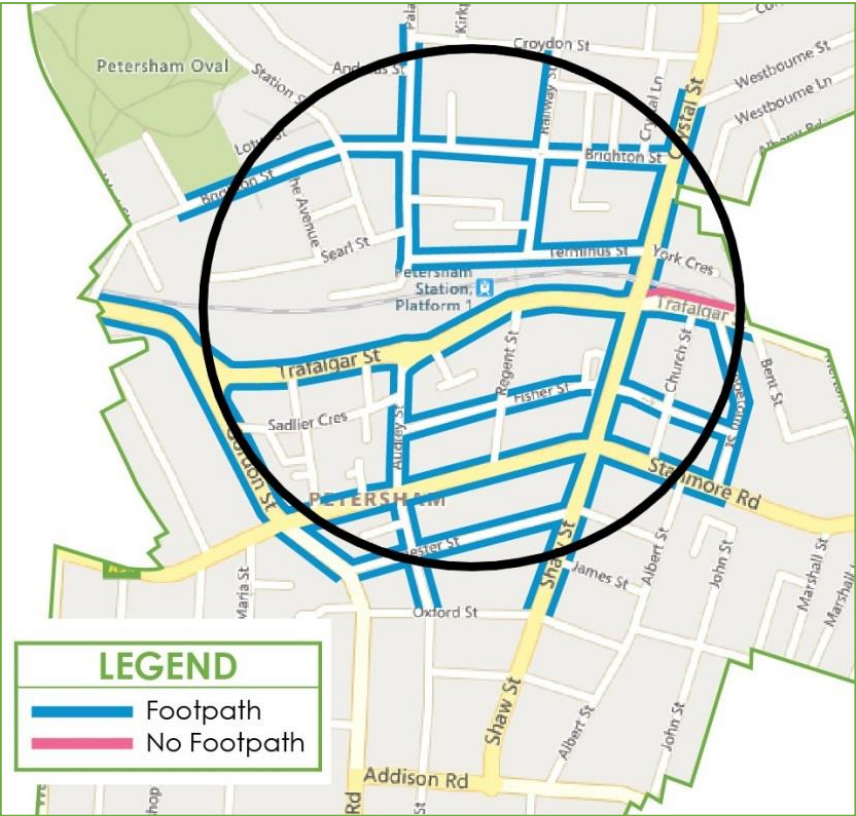


Figure A9: Petersham Station Pedestrian Infrastructure (Petersham)

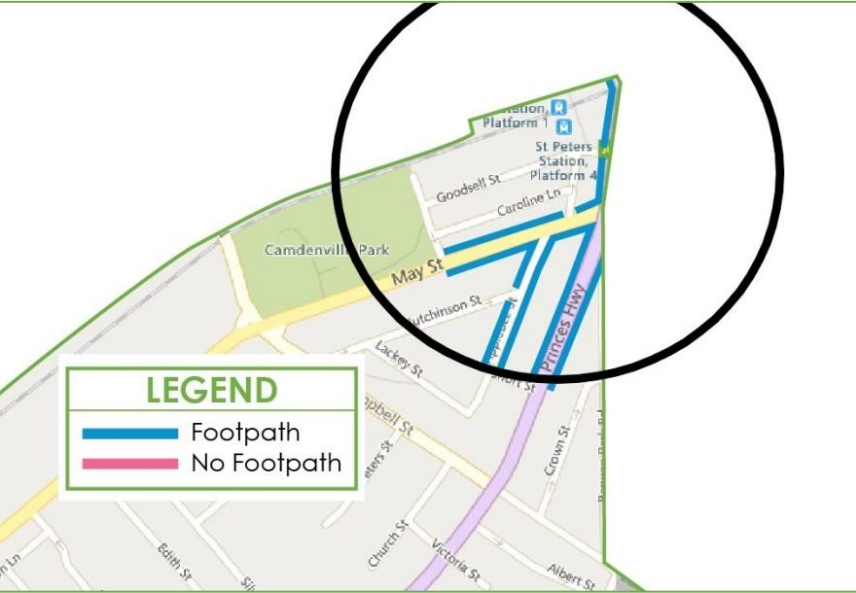


Figure A10: St Peters Station Pedestrian Infrastructure (St Peters)

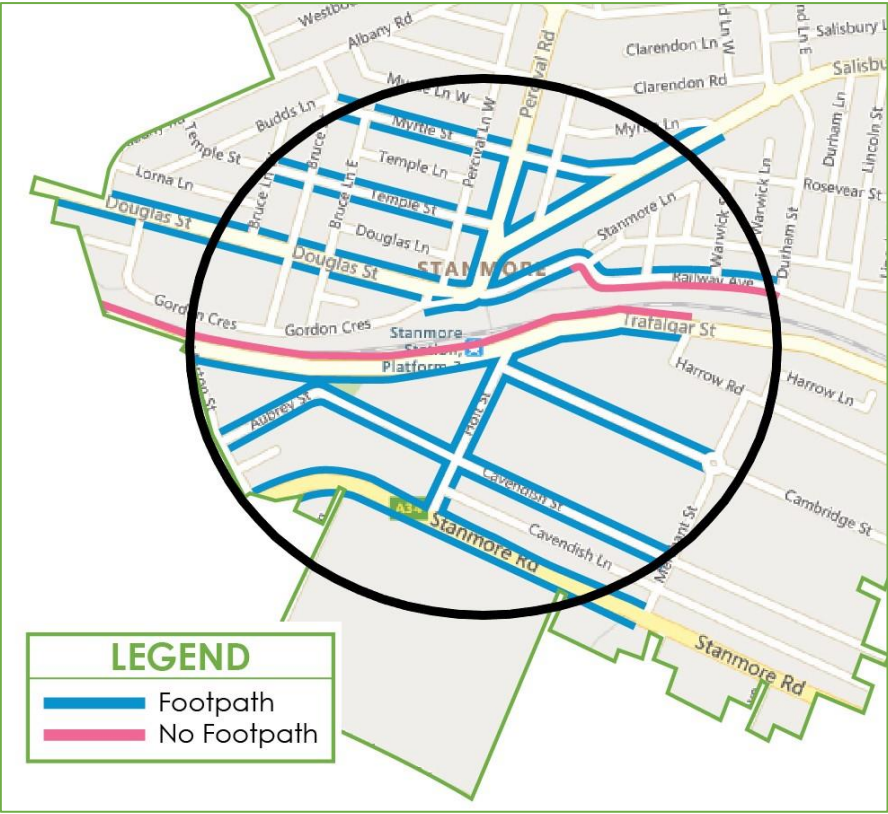


Figure A11: Stanmore Station Pedestrian Infrastructure (Stanmore)

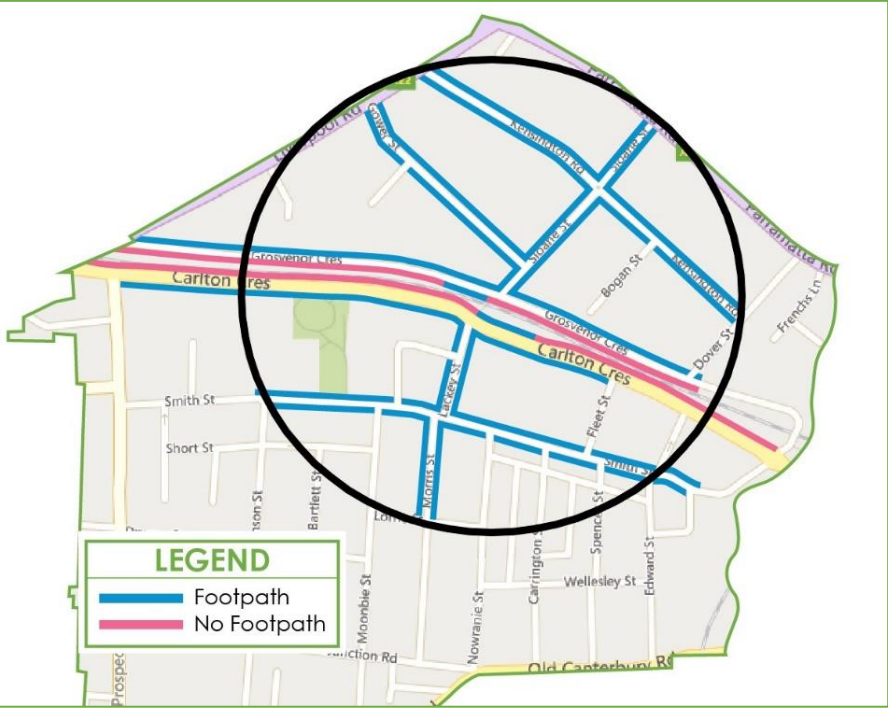


Figure A12: Summer Hill Station Pedestrian Infrastructure (Summer Hill)

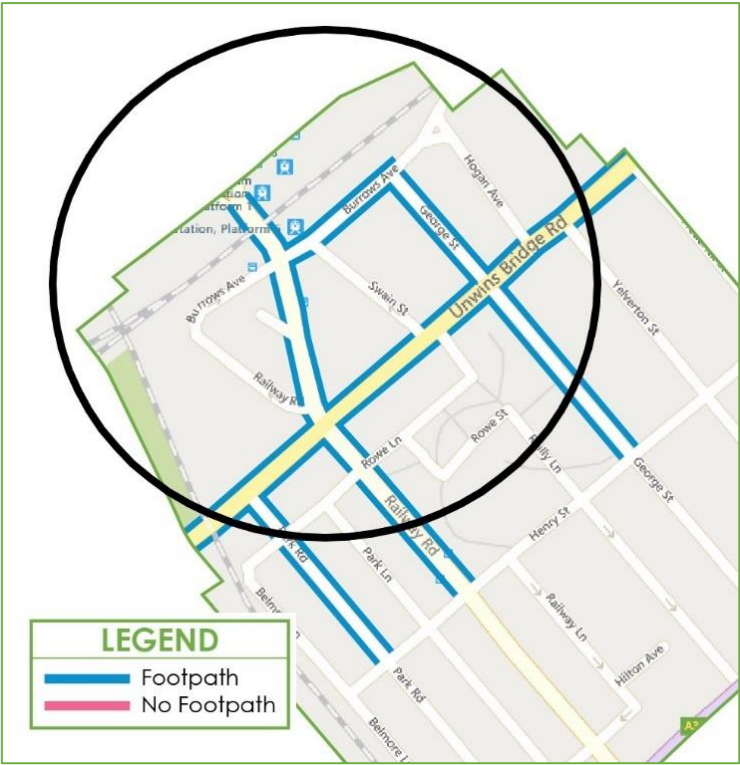


Figure A13: Sydenham Station Pedestrian Infrastructure (Sydenham)

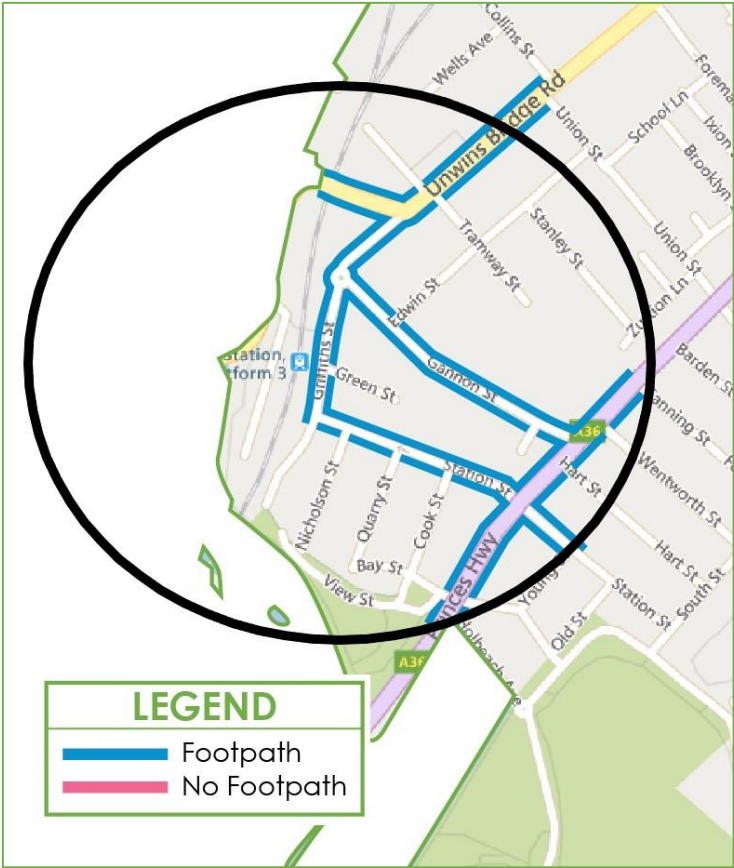


Figure A14: Tempe Station Pedestrian Infrastructure (Tempe)

Table C1: Intersections without Pedestrian Crossings.

Number	Suburb	Intersection	Details
1	Annandale	Johnston Street and The Crescent	No pedestrian crossing on northern and eastern legs
2	Ashfield	Hume Highway and Thomas Street	No pedestrian crossing on northern leg
3	Ashfield	Frederick Street and Parramatta Road and Wattle Street	No pedestrian crossing on northern leg
4	Ashfield	Hume Highway and Elizabeth Street and Grosvenor Crescent	No pedestrian crossing on southern leg
5	Ashfield	Milton Street and Georges River Road	No pedestrian crossing on southern leg
6	Camperdown	Parramatta Road and Pymont Bridge Road and Denison Street	No pedestrian crossing on western and southern legs
7	Camperdown	Parramatta Road and Mallett Street	No pedestrian crossing on eastern leg
8	Camperdown	Salisbury Road and Kingston Road	No pedestrian crossing on eastern leg
9	Croydon	Parramatta Road and Croydon Road and Arlington Street	No pedestrian crossing on south-eastern leg
10	Croydon	Parramatta Road and Great North Road	No pedestrian crossing on southern leg
11	Croydon	Parramatta Road and Harris Road	No pedestrian crossing on western leg
12	Croydon Park	Georges River Road and Holborrow Street	No pedestrian crossing on western leg
13	Haberfield	Parramatta Road and Bland Street	No pedestrian crossing on southern leg
14	Haberfield	Parramatta Road and Wattle Street and Frederick Street	No pedestrian crossing on northern leg
15	Haberfield	Ramsay Street and Marion Street	No pedestrian crossing on northern leg
16	Haberfield	Ramsay Street and Wattle Street	No pedestrian crossing on north-eastern leg
17	Leichhardt	Marion Street and Leichhardt Street and Balmain Road	No pedestrian crossing on northern leg
18	Leichhardt	Parramatta Road and Crystal Street and Balmain Road	No pedestrian crossing on eastern leg
19	Leichhardt	Tebbutt Street and Hathern Street	No pedestrian crossing on northern leg
20	Lewisham	Railway Terrace and West Street	No pedestrian crossing on eastern leg
21	Lewisham	New Canterbury Road and Toothill Street	No pedestrian crossing on north-eastern leg
22	Lewisham	Old Canterbury Road and Toothill Street	No pedestrian crossing on northern leg
23	Lilyfield	Balmain Road and Cecily Street and Park Drive	No pedestrian crossing on southern and western leg
24	Lilyfield	City West Link and Balmain Road	No pedestrian crossing on eastern leg
25	Lilyfield	City West Link Road and Catherine Street	No pedestrian crossing on northern and western legs

26	Lilyfield	City West Link Road and James Street	No pedestrian crossing on eastern leg
27	Lilyfield	Perry Street and Wharf Road	No pedestrian crossing on eastern leg
28	Marrickville	Illawarra Road and Petersham Road	No pedestrian crossing on southern leg
29	Marrickville	Livingstone Road and Beauchamp Street and Warren Road	No pedestrian crossing on northern leg
30	Marrickville	Marrickville Road and Gladstone Street	No pedestrian crossing on southern leg
31	Marrickville	Victoria Road and Edinburgh Road	No pedestrian crossing on eastern leg
32	Newtown	Enmore Road and Princes Highway	No pedestrian crossing on northern leg
33	Petersham	Crystal Street and Brighton Street	No pedestrian crossing on southern leg
34	Petersham	Crystal Street and Douglas Street	No pedestrian crossing on northern or southern legs
35	Petersham	Crystal Street and Trafalgar Street	N/A
36	Petersham	New Canterbury Road and West Street	No pedestrian crossing on eastern leg
37	Petersham	Parramatta Road and Norton Street	No pedestrian crossing on eastern leg
38	Petersham	Parramatta Road and Railway Street	One pedestrian crossing between Renwick Street and Railway Street
39	Rozelle	The Crescent and James Craig Road	No pedestrian crossing on eastern and western legs
40	Rozelle	Victoria Road and Gordon Street	No pedestrian crossing on eastern leg
41	Rozelle	Victoria Road and Robert Street	No pedestrian crossing on north-western leg and southern leg
42	Rozelle	Victoria Road and Terry Street	No pedestrian crossing on eastern leg
43	Rozelle	Victoria Road and the Crescent	No pedestrian crossing on eastern leg (no footpath on east)
44	Rozelle	Victoria Road and Wellington Street	No pedestrian crossing on western leg
45	Rozelle	Victoria Road and Evans Street	No pedestrian crossing on south-eastern leg
46	St Peters	Burrows Road and Canal Road	No pedestrian crossing on southern and eastern leg
47	St Peters	Princes Highway and Campbell Street	No pedestrian crossing on north-eastern leg
48	St Peters	Princes Highway and Canal Road and Mary Street	No pedestrian crossing on south-western leg
49	St Peters	Princes highway and May Street	No pedestrian crossing on northern leg
50	Summer Hill	Parramatta Road and Hume Highway	No pedestrian crossing on eastern leg
51	Sydenham	Princes Highway and Railway Road	No pedestrian crossing on north-eastern leg

52	Tempe	Princes Highway and Gannon Street	No pedestrian crossing on southern leg
53	Tempe	Princes Highway and Holbeach Avenue	No pedestrian crossing on northern leg
54	Tempe	Princes Highway and Ikea Access	No pedestrian crossing on eastern leg
55	Tempe	Richardson Crescent and Unwins Bridge Road	No pedestrian crossing on eastern leg

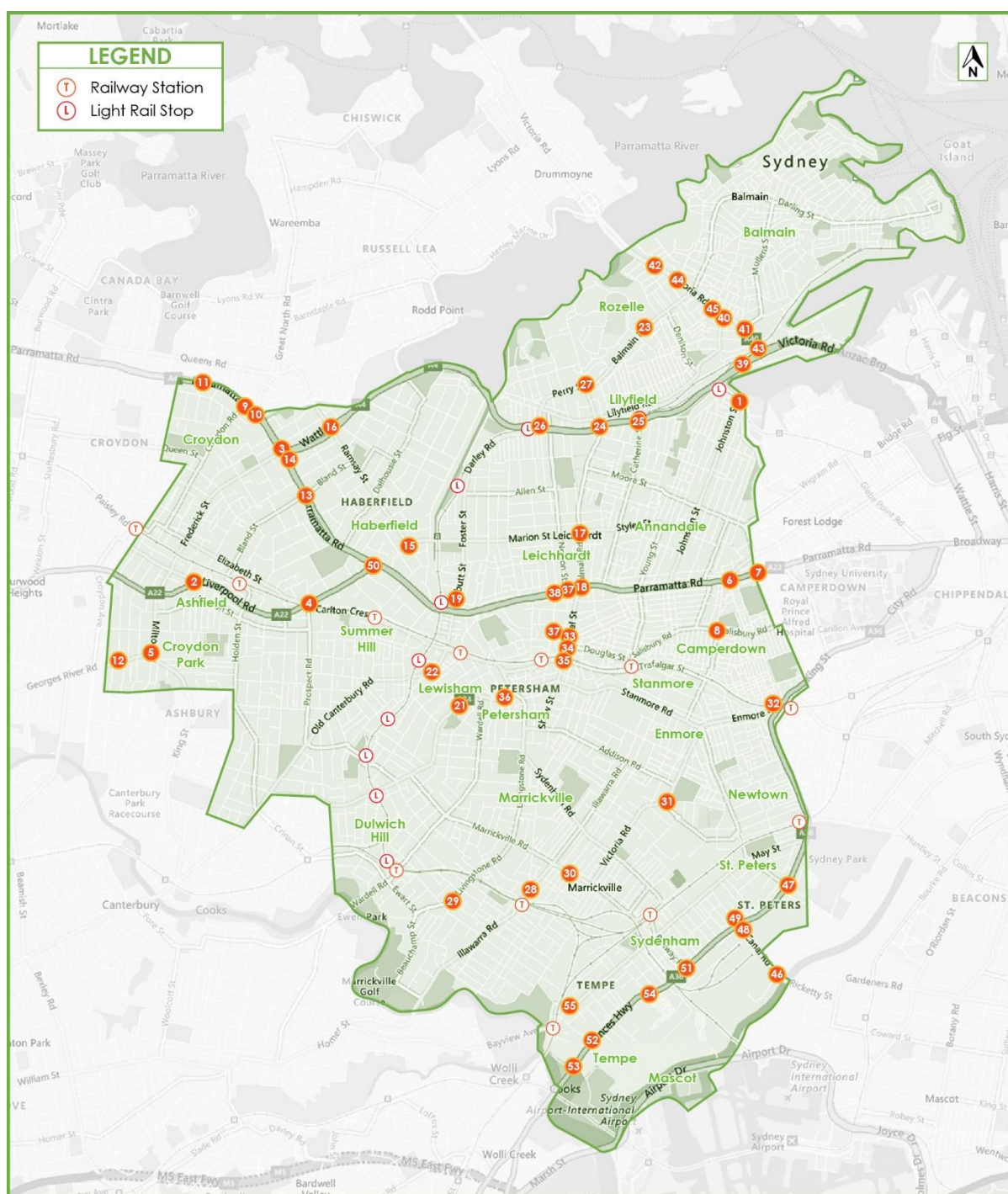


Figure C1: Signalised Intersections with Deficient Pedestrian Infrastructure

Accessible Bus Stops

Key Design and Location Parameters to be addressed

As stipulated by Federal law, any new shelters must meet the requirements set out in the Disability Standards for Accessible Public Transport (DSAPT) 2002. To assist with this, and as a general rule, all shelter design and placement should refer to the 2010 Australian Human Rights Commission (AHRC) 'Guideline for promoting compliance of bus stops with the Disability Standards for Accessible Public Transport 2002'.

A copy of these guidelines is available on the Australian Human Rights Commissions website. Please refer to the Disability Rights page – current projects – Bus stop guidelines.

In the majority of cases Council has responsibility for the overall compliance of the bus stop boarding area. If replacement or new bus shelters are being installed, Council requires a detailed drawing of each location showing the proposed work for approval. This will also apply for new or replacement rubbish bins, bench seating or 'street furniture' being installed at new or existing bus stop locations.

The bus stop area is required to satisfy the following:

- The sign/post designates the location of a 'bus stop' and acts as the primary orientation point for the bus stopping position. Therefore it is the point of reference for the generic site design.
- Provision for the orientation and safety of people with vision impairment in a public pedestrian environment.
- Allow for easy manoeuvring of wheelchairs, mobility devices and prams by providing clear access on even surfaces and sufficient clear space from Tactile Ground Surface Indicators (TGSIs), minimising any adverse impact on others; wheelchair users often encounter difficulties when travelling or manoeuvring over TGSIs and therefore the location of the tactile area to take this into consideration.
- Provision of unobstructed access through the bus area for users of wheelchairs and scooters.
- Pathway width and infrastructure clearances shall consider shared access (e.g. pedestrian and bicycles), so to minimise conflict with all footpath users.

Where there may be some room for further interpretation or adjustment to local conditions the following design features need to be accommodated particularly in regards to the actual location and placement of any structure including bus shelters:

1. Tactile ground surface indicators (TGSIs)

- Council installs TGSIs accordingly to enable identification of the 'stop' for those pedestrians following the property line and/or access path. TGSIs allow for wayfinding of a bus stop sign and therefore embarkation point.
- These are installed with a 600mm band of directional TGSIs extending from the property boundaries and end in a band (600 x 600mm) of hazard TGSIs placed 300mm back from the kerb edge. These are also placed consistently between 290mm - 310mm next to the bus stop sign/post.
- TGSIs must be consistent in their position relative to the property boundary, bus stop sign, boarding point and distance from obstruction. Therefore any additional structures need to accommodate their location (or nominal location given Council's upgrade program) and respect the importance of not encroaching on them. Any obstruction to existing or future placement of tactile indicators must be avoided.
- A minimum of 1.2m between the edge of the TGSIs and the bus shelter shall be maintained to allow a wheelchair or scooter user to pass the shelter while avoiding the warning TGSIs.
- **Any shelter must avoid encroachment on existing or future TGSi treatments pending Council upgrade program. Pending treatments to follow the above format in relation to the bus stop sign.**

Accessible bus stops – summary of key design and location features to be addressed – May 2012

2. Boarding point

- All infrastructure clearances such as the location of bus shelters must provide a clear, unobstructed area at the boarding point to allow for the deployment of a ramp from the bus, and connect to a manoeuvring area that is 2070mm x 1540mm.
- Each stop must provide a firm level surface at the boarding point. A level surface is defined as having a gradient and cross fall of not steeper than 1 in 40, or 1 in 33 where the surface is bitumen.
- Where the boarding point is located within a bus shelter, provide a sufficient manoeuvring area within a bus shelter for a wheelchair user to carry out a 180° turn. Allowance for a manoeuvring area within a bus shelter is 2070mm x 1540mm and shall be level and clear of obstructions for the entire identified space and be well drained.
- **Placement and installation of shelters must allow for this.**

3. Manoeuvring area

- Allowance for a circulation space or manoeuvring area with a minimum size of 2070mm x 1540mm shall be provided. This can be set back from the boarding point and connected by a 1200mm wide access path.
- The space shall be clear of obstructions for the entire identified space including TGSIs.
- The manoeuvring area must provide a firm level surface to allow for easy manoeuvring of wheelchairs, mobility devices and prams.
- **These spaces must not be compromised through placement of other items or structures, including a bus shelter.**

4. Access path

- A 1200mm wide unobstructed pathway is required to allow passage to and from the boarding area to any connecting footpath. Where the path is too narrow, the access path may pass through the boarding point provided it then meets the minimum 1200mm width. The passageway must be available from the boarding point and connect to an area to manoeuvre (that does not encroach on the landing point or tactile indicators).
- Bus shelter location shall maintain at least 1200mm (preferably 1500mm) clear access, around and between all infrastructure and obstructions, to comply with disability standards. This includes access to both the approach and departure sides of the bus stop.
- To achieve a 1200mm clear access path around the shelter where the distance from the kerb to the property line is narrow may require variations in bus shelter designs.
- **Placement of shelters must allow for this.**

5. Passing areas

- As set out in AS1428.2, for two wheelchairs to pass each other, a section of path 1800mm wide and 2000mm long is required every 6m. Therefore when more than one bus shelter is provided at a bus stop, a passing area must be provided between them.
- **Placement of shelters must allow for this.**

6. Shared paths

- Shared paths where pedestrian and bicycles pass each other can present a safety hazard when the pathway is not wide enough or where sight lines are obstructed. Bus shelters further obstruct the sight line of pedestrians stepping out from behind a shelter into a shared cycleway. An appropriate 'effective' path width free from all fixtures and structures must be provided.
- **Placement of shelters must allow for this.**

7. Bus shelters

- The bus shelter location shall not obstruct the footpath, boarding point, manoeuvring area or passing spaces as described above. It must not obstruct clear sight lines to maximise personal safety and allow effective bus pick up (passengers shall be able to easily see and hail approaching bus, and bus drivers shall be able to see passengers waiting for the bus).
- Bus shelters shall be installed on a hardstand that is level and firm with a gradient no steeper than 1 in 40, or 1 in 33 where the surface is bitumen.
- The shelter design shall incorporate allocated wheelchair areas of 1300mm x 800mm.
- Shelter side panels shall extend to the ground; if a gap between the advertising/non-advertising panel and the ground is necessary, this shall be minimised to the extent achievable but the gap shall be no more than 300mm. This is important to alert cane users to the presence of the structure in time to avoid it.
- Provide visual indicators on clear glass panels as stated in AS 1428.1 "frameless or fully glazed panels capable of being mistaken for a doorway or opening where there is no chair rail, handrail or transom should be clearly marked for the full width with a contrasting line not less than 75mm wide at a height between 900mm and 1000mm above the plane of the finished floor".
- Provide high luminance contrast framing on bus shelter structures of 30% luminance contrast with the background particularly for shelters situated against the building line.
- If internal lighting is provided in a bus stop shelter it should conform to minimum levels of maintenance illumination. 150 Lx is considered to be the minimum lighting level necessary for lip readers.
- **Design specifications of shelters must allow for this.**

8. Seating in Shelters

- Suppliers should refer to section 7.2 of the DSAPT which outlines the minimum requirements for available seating sufficient to accommodate people with a disability including wheelchair users. Minimum size for an allocated (wheelchair) space is 800mm x 1300mm. Suppliers are also referred to the AHRC Guideline specifically section 5.10 and 5.11 on "Providing allocated spaces for wheelchair users at a bus stop".
- Seating should meet relevant Australian Standards including AS1428.2 - 1993 requirements in respect to seat/bench height, depth and any arm rest details. Seat heights are generally 420mm – 520mm high and preferably provide arm rests.
- Seating must not intrude into the manoeuvring space required at a boarding point or an access path within a shelter. Sufficient clear width of 1650mm must be provided in front of a seat so that a wheelchair user can safely pass when a person is sitting on the seat. This incorporates 1200mm access path + 450mm space for a seated person's legs.
- **Shelter structures (where provided) must not obstruct the access path or walkways.**

Appendix D Centre Specific Improvements							Cost			
Reference Number	Reference	Relevant Suburb	Description of works	Purpose / Benefit	Estimated Cost	Priority	Growth Apportionment	Apportioned Cost		
	1	Parramatta Road Corridor Urban Transformation Infrastructure Schedule	Croydon	Prioritised Walking Link in accordance with PRCUTS guidelines (generous footpaths, seating, landscaping and priority over other modes at intersections) - Croydon Road between Parramatta Road and Elizabeth Street	Modal transfer, safety	1,300,000	High	28%	\$364,000	
	2	Parramatta Road Corridor Urban Transformation Strategy	Croydon	Croydon Road and Parramatta Road - In collaboration with TfNSW reconfigure traffic signals to provide pedestrian leg on eastern side of intersection and increased time for north/south access	Improved pedestrian access	200,000	High	28%	\$56,000	
	3	Parramatta Road Corridor Urban Transformation Infrastructure Schedule	Leichhardt	Prioritised walking link in accordance with PRCUTS guidelines (generous footpaths, shade and weather protection, seating, landscaping and priority over other modes at intersections) - Parramatta Road between Renwick Street and Catherine Street	Modal transfer, safety	425,000	High	35%	\$148,750	
	4	Parramatta Road Corridor Urban Transformation Infrastructure Schedule	Leichhardt	Prioritised walking/cycling link in accordance with PRCUTS guidelines (generous footpaths, shade and weather protection, seating, landscaping, low speed limits, reduced lane widths, priority over other modes at intersections) - Norton Street between Marion Street and Parramatta Road	Modal transfer, safety	1,200,000	High	35%	\$420,000	
	5	Parramatta Road Corridor Urban Transformation Infrastructure Schedule	Leichhardt	Balmain Road/Parramatta Road – In collaboration with TfNSW, undertake an operational and layout review of the signalised intersection to provide a pedestrian leg on eastern side	Improved pedestrian access	200,000	Medium	35%	\$70,000	
	6	Parramatta Road Corridor Urban Transformation Infrastructure Schedule	Leichhardt	Walking/cycling link - Dot Lane between Norton Street and Hay Street	Modal transfer, safety	100,000	High	35%	\$35,000	
	7	Gap analysis	Leichhardt	Upgrade paths and boarding area of bus stops on Parramatta Road in accordance with the Guideline for Promoting Compliance of Bus Stops with the Disability Standards for Accessible Public Transport 2002 (AHRC)	Modal transfer, safety, inclusive access	500,000	High	35%	\$175,000	
	8	Parramatta Road Corridor Urban Transformation Strategy	Croydon	Improved walking infrastucture - Byron Street Croydon	Modal transfer, safety	90,000	High	28%	\$25,200	

Appendix D Centre Specific Improvements								Cost		
Reference Number	Reference	Relevant Suburb	Description of works	Purpose / Benefit	Estimated Cost	Priority	Growth Apportionment	Apportioned Cost		
Parramatta Road Corridor	9	Parramatta Road Corridor Urban Transformation Strategy	Croydon	Improved walking infrastucture - Scott Street Croydon	Modal transfer, safety	100,000	High	28%	\$28,000	
	10	Parramatta Road Corridor Urban Transformation Infrastructure Schedule / Greenway Masterplan	Leichhardt	Prioritised walking link in accordance with PRCUTS guidelines (generous footpaths, seating, landscaping and priority over other modes at intersections) - Lords Road between light rail line and Flood Street	Modal transfer, safety	400,000	High	35%	\$140,000	
	11	Parramatta Road Corridor Urban Transformation Infrastructure Schedule	Petersham	Prioritised walking link in accordance with PRCUTS guidelines (generous footpaths, seating, landscaping and priority over other modes at intersections) - Carrington Street / Thomas St between Parramatta Road and Lewisham Station	Modal transfer, safety	360,000	High	37%	\$133,200	
	12	Gap Analysis	Croydon	Electric vehicle charging facility - Lang St carpark (Centenary Park)	Vehicle demand	15,000	High	28%	\$4,200	
	13	Ashfield Traffic Managem	Croydon	Bay Street - entry threshold treatment at Croydon Roadhand raised speed table over intersection with Byron Street.	Traffic management, safety	100,000	High	28%	\$28,000	
	14	Parramatta Road Corridor Urban Transformation Infrastructure Schedule	Leichhardt	Prioritised walking link in accordance with PRCUTS guidelines (generous footpaths, seating, landscaping and priority over other modes at intersections) - Tebbutt Street between Parramatta Road and Lords Road	Modal transfer, safety	440,000	High	35%	\$154,000	
	15	Parramatta Road Corridor Urban Transformation Infrastructure Schedule	Leichhardt	Prioritised walking link in accordance with PRCUTS guidelines (generous footpaths, shade and weather protection, seating, landscaping and priority over other modes at intersections) - Parramatta Road between Tebbutt Street and Carrington Street	Modal transfer, safety	115,000	High	35%	\$40,250	
	16	Parramatta Road Corridor Urban Transformation Infrastructure Schedule	Camperdown	Prioritised walking link in accordance with PRCUTS guidelines (generous footpaths, shade and weather protection, seating, landscaping and priority over other modes at intersections) - Parramatta Road between Johnston’s Creek and Mallet Street	Modal transfer, safety	410,000	High	6%	\$24,600	
	17	Parramatta Road Corridor Urban Transformation Infrastructure Schedule	Camperdown	Prioritised walking link in accordance with PRCUTS guidelines (generous footpaths, shade and weather protection, seating, landscaping and priority over other modes at intersections) - Pyrmont Bridge Road between Parramatta Road and Booth Street	Modal transfer, safety	600,000	High	6%	\$36,000	
	18	Parramatta Road Corridor Urban Transformation Infrastructure Schedule	Camperdown	Prioritised walking link in accordance with PRCUTS guidelines (generous footpaths, seating, landscaping and priority over other modes at intersections) - Gordon Street between Parramatta Road and Water Street	Modal transfer, safety	57,000	High	6%	\$3,420	

Appendix D Centre Specific Improvements							Cost			
Reference Number	Reference	Relevant Suburb	Description of works	Purpose / Benefit	Estimated Cost	Priority	Growth Apportionment	Apportioned Cost		
	19	Parramatta Road Corridor Urban Transformation Infrastructure Schedule	Camperdown	Prioritised walking link in accordance with PRCUTS guidelines (generous footpaths, seating, landscaping and priority over other modes at intersections) - Australia Street between Parramatta Road and Derby Street	Modal transfer, safety	275,000	High	6%	\$16,500	
	20	Parramatta Road Corridor Urban Transformation Infrastructure Schedule	Camperdown	Prioritised Walking Link in accordance with PRCUTS guidelines (generous footpaths, shade and weather protection, seating, landscaping and priority over other modes at intersections) - Booth Street / Mallett Street between Guihen Street and Fowler Street	Modal transfer, safety	500,000	High	6%	\$30,000	
	21	Parramatta Road Corridor Urban Transformation Strategy	Croydon	Iron Cove link (stage 1) - Walking/cycling path along Iron Cove Creek on council owned land (Lot 61 DP 1220258) between Parramatta Rd and Church Street	Modal transfer, safety	430,000	High	28%	\$120,400	
	22	Parramatta Road Corridor Urban Transformation Strategy	Croydon	Iron Cove link (stage 2) - Walking/cycling path along Iron Cove Creek on Sydney Water land between Church Street and John St and link to Croydon Rd at Centenary Park	Modal transfer, safety	385,000	High	28%	\$107,800	
	23	Parramatta Road Corridor Urban Transformation Strategy	Croydon	Iron Cove link (stage 3) - Cycling link between stage 2 link and Elizabeth Street (low speed limits, reduced lane widths, priority over other motorists at intersections) - Croydon Road between Elizabeth Street and John Street	Modal transfer, safety	1,450,000	High	28%	\$406,000	
	24	Ashfield Traffic Management Strategy	Ashfield	In collaboration with TfNSW, undertake an operational and layout review of the signalised intersection Parramatta Rd and Bland Street providing pedestrian leg on eastern side	Improved pedestrian access	20,000	High	19%	\$3,800	
	25	Gap analysis	Camperdown	In collaboration with TfNSW, install bicycle/pedestrian leg on eastern side of Parramatta Road at Denison St/Pymont Bridge Rd Camperdown	Improved pedestrian access	200,000	High	6%	\$12,000	
	26	Gap analysis	Croydon	In collaboration with TfNSW, install pedestrian leg on eastern side of Parramatta Road at Croydon Rd Croydon	Improved pedestrian access	200,000	High	28%	\$56,000	
	27	Gap analysis	Petersham	In collaboration with TfNSW, install pedestrian leg on eastern side of Parramatta Road at Crystal St	Improved pedestrian access	200,000	Medium	37%	\$74,000	
	28	Gap analysis	Leichhardt	In collaboration with TfNSW, install pedestrian leg on Parramatta Road at Norton St, eastern side	Improved pedestrian access	200,000	High	35%	\$70,000	

Appendix D Centre Specific Improvements							Cost			
	Reference Number	Reference	Relevant Suburb	Description of works	Purpose / Benefit	Estimated Cost	Priority	Growth Apportionment	Apportioned Cost	
	29	Parramatta Road UAIP Public Domain Masterplan	Camperdown	Walking/cycling link connecting McCarthy Lane with Parramatta Road with bridge across Johnston’s Creek and via Cahill Lane and Mathieson Street	Modal transfer, safety	6,200,000		6%	\$372,000	
	30	Parramatta Road Corridor Urban Transformation Strategy	Croydon	Prioritised walking link in accordance with PRCUTS guidelines (generous footpaths, seating, landscaping and priority over other modes at intersections) - Lang Street Croydon (eastern side)	Modal transfer, safety	60,000	High	28%	\$16,800	
	31	Parramatta Road Corridor Urban Transformation Strategy	Petersham	Prioritised walking link in accordance with PRCUTS guidelines (generous footpaths, seating, landscaping and priority over other modes at intersections - West St and Flood St Petersham/Leichhardt	Modal transfer, safety	500,000	High	37%	\$185,000	
	32	Parramatta Road Corridor Urban Transformation Strategy	Leichhardt	Prioritised walking link in accordance with PRCUTS guidelines (generous footpaths, seating, landscaping and priority over other modes at intersections) - Tebbut Street between Parramatta Rd and Lords Rd	Modal transfer, safety	430,000	High	35%	\$150,500	
Leichhardt	33	Gap analysis	Leichhardt	Electric vehicle charging facility - Hay Street carpark	Vehicle demand	15,000	High	35%	\$5,250	
	34	Gap analysis	Leichhardt	Electric vehicle charging facility - Marion Street carpark	Vehicle demand	15,000	High	35%	\$5,250	
	35	Gap analysis	Leichhardt	Electric vehicle charging facility - Renwick Street carpark	Vehicle demand	15,000	High	35%	\$5,250	
	36	Gap analysis	Leichhardt	In collaboration with TfNSW, install pedestrian leg on Balmain Rd at Marion St/Leichhardt St on northern side	Improved pedestrian access	200,000	Medium	35%	\$70,000	
	37	Gap analysis	Leichhardt	In collaboration with TfNSW, install pedestrian leg on Tebbutt St at Hathern St on northern side	Improved pedestrian access	200,000	High	35%	\$70,000	
	38	Parramatta Road Corridor Urban Transformation Infrastructure Schedule	Leichhardt	Prioritised walking link in accordance with PRCUTS guidelines (generous footpaths, seating, landscaping and priority over other modes at intersections - Flood Street between Parramatta Road and Lords Road	Modal transfer, safety	460,000	High	35%	\$161,000	
	39	Kegworth Public School Road Safety Audit	Leichhardt	Mid-block raised pedestrian crossing in Lords Road for pedestrian desire line through Lambert Park.	Modal transfer, safety	70,000	High	35%	\$24,500	
	40	Kegworth Public School Road Safety Audit	Haberfield	Raised pedestrian crossing on Hawthorne Parade at Lord Street	Modal transfer, safety	70,000	Medium	14%	\$9,800	
	41	Kegworth Public School Road Safety Audit	Leichhardt	Raised pedestrian crossing at Lords Rd and Kegworth St to access Greenway	Modal transfer, safety	70,000	Medium	35%	\$24,500	

Appendix D Centre Specific Improvements							Cost			
	Reference Number	Reference	Relevant Suburb	Description of works	Purpose / Benefit	Estimated Cost	Priority	Growth Apportionment	Apportioned Cost	
	42	Gap analysis	Leichhardt	Signalised pedestrian crossing - Darley Road between Allen St and Lyall St in alignmentline with light rail crossing	Improved pedestrian access	200,000	Medium	35%	\$70,000	
Dulwich Hill	43	Ashfield Traffic Management Strategy / Greenway Masterplan	Summer Hill	Signalise the Edward Street/ Old Canterbury Road / Weston Street intersection	Traffic management, safety	500,000	Medium	12%	\$60,000	
	44	Dulwich Hill Station Detailed Master Plan	Dulwich Hill	Gateway threshold treatment - Wardell Road - Ewart Street	Traffic management, safety	1,071,455	High	24%	\$257,149	
	45	Dulwich Hill Public School Road Safety Audit	Dulwich Hill	Constitution Road - Continue footpath to provide a direct link with the ramp to rail crossing with an appropriate tie in with the service driveway to Johnson Park	Modal transfer, safety	16,400	Medium	24%	\$3,936	
	46	Dulwich Hill Public School Road Safety Audit	Dulwich Hill	Provide missing footpath along Hercules Street, between Terrace Road and the RailCorp driveway point (adjacent to 101 Hercules Street).	Modal transfer, safety	41,100	Medium	24%	\$9,864	
	48	Marrickville East Masterplan	Marrickville	Cycling and streetscape improvements - Marrickville Rd and Railway Pde between Meeks Rd and Gleeson Ave at Sydenham Station	Modal transfer, safety	\$4,091,118	Medium	27%	\$1,104,602	
	49	Gap Analysis	Marrickville	Electric vehicle charging facility - Garners Ave carpark	Vehicle demand	15,000	High	27%	\$4,050	
	50	Gap Analysis	Marrickville	Electric vehicle charging facility - Frampton Ave east carpark	Vehicle demand	15,000	High	27%	\$4,050	
	51	Gap Analysis	Marrickville	Electric vehicle charging facility - Frampton Ave west carpark	Vehicle demand	15,000	High	27%	\$4,050	
	52	Gap Analysis	Marrickville	Electric vehicle charging facility - Henson Park carpark	Vehicle demand	15,000	High	27%	\$4,050	
	53	Gap Analysis	Marrickville	Electric vehicle charging facility - Marrickville library (new) carpark	Vehicle demand	15,000	High	27%	\$4,050	
	54	Gap Analysis	Marrickville	Electric vehicle charging facility - Marrickville library (old) carpark	Vehicle demand	15,000	High	27%	\$4,050	
	55	Gap Analysis	Marrickville	Electric vehicle charging facility - Calvert Street carpark	Vehicle demand	15,000	High	27%	\$4,050	
	56	Gap Analysis	Marrickville	Electric vehicle charging facility - Debbie and Abbey Borgia Recreation Centre carpark, Thornley Street	Vehicle demand	15,000	High	27%	\$4,050	
	57	Gap Analysis	Marrickville	Electric vehicle charging facility - carpark at Steel Park Waterplay Park	Vehicle demand	15,000	High	27%	\$4,050	

Appendix D Centre Specific Improvements								Cost		
	Reference Number	Reference	Relevant Suburb	Description of works	Purpose / Benefit	Estimated Cost	Priority	Growth Apportionment	Apportioned Cost	
Marrickville	58	Gap Analysis	Marrickville	Upgrade paths and boarding area of bus stops serving Marrickville Road between Victoria Rd and Petersham St in accordance with the Guideline for Promoting Compliance of Bus Stops with the Disability Standards for Accessible Public Transport 2002 (AHRC)	Modal transfer, safety, inclusive access	350,000	Medium	27%	\$94,500	
	59	Gap Analysis	Marrickville	Upgrade paths and boarding area of bus stops serving Marrickville Road between Victoria Rd and Petersham St in accordance with the Guideline for Promoting Compliance of Bus Stops with the Disability Standards for Accessible Public Transport 2002 (AHRC)	Modal transfer, safety, inclusive access	100,000	Medium	27%	\$27,000	
	60	Gap Analysis	Marrickville	In collaboration with TfNSW, install pedestrian leg on Illawarra Rd at Petersham Street, southern side	Improved pedestrian access	200,000	High	27%	\$54,000	
	61	Marrickville South LATM	Marrickville	Station Street - Install Shared Zone commencing at Schwebel Street	Traffic management, safety	900,000	High	27%	\$243,000	
	62	Marrickville Bicycle Strategy, Inner West Parks and Recreation Strategy (draft)	Marrickville	Cycleway - Illawarra Road, between Schwebel St and Marrickville Rd	Modal transfer, safety	1,375,000	High	27%	\$371,250	
Ashfield	63	WestConnex Local Area Improvement Strategy	Ashfield	John Street - closure restricting traffic from Frederick Street	Traffic management, safety	250,000	High	19%	\$47,500	
	64	WestConnex Local Area Improvement Strategy	Ashfield	Henry Street - road closure restricting traffic from Frederick Street	Traffic management, safety	250,000	Medium	19%	\$47,500	
	65	WestConnex Local Area Improvement Strategy	Ashfield	Ormond Street - road closure restricting traffic from Parramatta Road	Traffic management, safety	250,000	Medium	19%	\$47,500	
	66	WestConnex Local Area Improvement Strategy	Ashfield	Bland St between Elizabeth St and Parramatta Rd- integrated traffic calming (3) and intersection modifications (4)	Traffic management, safety	4,100,000	High	19%	\$779,000	
	67	Gap analysis	Ashfield	Raised pedestrian crossing - Elizabeth St at Alt St	Improved pedestrian access	70,000	High	19%	\$13,300	
	68	Gap Analysis	Ashfield	Electric vehicle charging facility - Ashfield Pool (west) carpark	Vehicle demand	15,000	High	19%	\$2,850	

Appendix D Centre Specific Improvements							Cost			
	Reference Number	Reference	Relevant Suburb	Description of works	Purpose / Benefit	Estimated Cost	Priority	Growth Apportionment	Apportioned Cost	
	69	Gap Analysis	Ashfield	Electric vehicle charging facility - Ashfield Pool (east) carpark	Vehicle demand	15,000	High	19%	\$2,850	
	70	Gap Analysis	Ashfield	Electric vehicle charging facility - Brown Street carpark	Vehicle demand	15,000	High	19%	\$2,850	
	71	Ashfield Public Domain Strategy - Priority upgrade	Ashfield	Gateway threshold treatment at Thomas St and Liverpool Road	Traffic management, safety	300,000	High	19%	\$57,000	
nct	72	Gap analysis	Rozelle	Raised zebra crossing - Robert St and Buchannan St (port access road)	Traffic management, safety	80,000	Medium	39%	\$31,200	
	73	Gap Analysis	Rozelle	Formalise existing car park at King George Park	Traffic management, safety	500,000	Low	39%	\$195,000	
	74	Gap Analysis / Draft Bays	Rozelle	Lilyfield Rd at Easton Park / Denison St - raised pedestrian/bicycle crossing providing access between Rozelle Parklands and Rozelle/Lilyfield	Traffic management, safety	80,000	Medium	39%	\$31,200	
	75	Gap Analysis	Rozelle	Robert St / Buchanan St - reconfigure intersection to provide improved efficiency and safety for pedestrians, cyclists and motorists	Traffic management, safety	200,000	Medium	39%	\$78,000	
	76	Gap Analysis	Rozelle	Robert St / Mullens St - signalise and reconfigure intersection to provide improved efficiency and safety for pedestrians, cyclists and motorists	Traffic management, safety	1,000,000	Medium	39%	\$390,000	
	77	Gap Analysis	Rozelle	Electric vehicle charging facility - Merton Street carpark	Vehicle demand	15,000	Medium	39%	\$5,850	
	78	Gap Analysis	Rozelle	Electric vehicle charging facility - Hamilton Street carpark	Vehicle demand	15,000	Medium	39%	\$5,850	
	79	Gap Analysis	Rozelle	In collaboration with TfNSW, install pedestrian leg on Victoria Road at Gordon Street, eastern side	Improved pedestrian access	200,000	Medium	39%	\$78,000	
	80	Gap Analysis	Rozelle	In collaboration with TfNSW, install pedestrian leg on Victoria Road at Robert Street, eastern side	Improved pedestrian access	200,000	Medium	39%	\$78,000	
	81	Gap Analysis	Rozelle	In collaboration with TfNSW, install pedestrian leg on Victoria Road at Evans Street, eastern side	Improved pedestrian access	200,000	Medium	39%	\$78,000	

Appendix D Centre Specific Improvements							Cost			
	Reference Number	Reference	Relevant Suburb	Description of works	Purpose / Benefit	Estimated Cost	Priority	Growth Apportionment	Apportioned Cost	
Rozelle - Bays Precinct	82	Gap Analysis	Rozelle	Upgrade paths and boarding area of bus stops on Victoria Road Rozelle in accordance with the Guideline for Promoting Compliance of Bus Stops with the Disability Standards for Accessible Public Transport 2002 (AHRC)	Modal transfer, safety, inclusive access	350,000	Medium	39%	\$136,500	
	83	Gap Analysis	Rozelle	Robert St between Mullens St and Buchanan St - Install footpath on southern side, adjacent to former power station/future metro station	Improved pedestrian access	2,000,000	Low	39%	\$780,000	
	84	Draft Bays West Place Street	Rozelle	Denison Street between Lilyfield Rd and Brockley St; Brockley St (all), Foucart/Padstow St between Brockley St and Balmain Rd - Active transport link (generous footpaths, seating, landscaping, low speed limits, reduced lane widths, priority over other motorists at intersections)	Modal transfer, safety	1,787,500	Low	39%	\$697,125	
	85	Draft Bays West Place Street	Lilyfield	Cecily Street - Active transport link (generous footpaths, seating, landscaping, low speed limits, reduced lane widths, priority over other motorists at intersections)	Modal transfer, safety	160,000	Low	17%	\$27,200	
	86	Draft Bays West Place Street	Lilyfield	Grove Street - Active transport link (generous footpaths, seating, landscaping, low speed limits, reduced lane widths, priority over other motorists at intersections)	Modal transfer, safety	1,212,500	Low	17%	\$206,125	
									\$0	
Petersham - Stanmore									\$0	
	87	Gap Analysis	Stanmore	Electric vehicle charging facility - Charles Street carpark	Vehicle demand	15,000	Low	13%	\$1,950	
	88	Gap Analysis	Petersham	Electric vehicle charging facility - Chester Street carpark	Vehicle demand	15,000	Low	37%	\$5,550	
	89	Gap Analysis	Petersham	Electric vehicle charging facility - Crystal Street carpark	Vehicle demand	15,000	Low	37%	\$5,550	
	90	Gap Analysis	Petersham	Electric vehicle charging facility - Queen Street carpark	Vehicle demand	15,000	Low	37%	\$5,550	
	91	Gap Analysis	Petersham	Electric vehicle charging facility - Sadlier Crescent carpark	Vehicle demand	15,000	Low	37%	\$5,550	

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	92	Gap Analysis	Petersham	In collaboration with TfNSW, install pedestrian leg on Railway Tce at West Street, eastern side	Improved pedestrian access	250,000	Low	37%	\$92,500		
Other Areas in the LGA	93	Gap Analysis	Enmore	Electric vehicle charging facility - Edgeware Rd carpark Enmore	Vehicle demand	15,000		9%	\$1,350		
	94	Gap Analysis	Lilyfield	Electric vehicle charging facility - Leichhardt Park Aquatic Centre carpark	Vehicle demand	15,000	High	17%	\$2,550		
	95	Gap Analysis	Lilyfield	Brenan Street at Whites Creek - pedestrian/bicycle crossing linking Rozelle Parklands and Whites Creek active transport corridor	Modal transfer, safety	80,000	Medium	17%	\$13,600		
	96	Gap analysis	Balmain	Install traffic signals at Beattie St and Mullens St Balmain including pedestrian crossings on all approaches	Traffic management, safety	250,000	Low	5%	\$12,500		
	97	Gap Analysis	Newtown	Electric vehicle charging facility - Lennox Street carpark Newtown	Vehicle demand	15,000		8%	\$1,200		
	98	Gap analysis	Haberfield	Electric vehicle charging facility - Haberfield Library carpark	Vehicle demand	15,000	Low	14%	\$2,100		
	99	Gap analysis	Haberfield	Electric vehicle charging facility - carpark 69 Dalhousie Street	Vehicle demand	15,000	Low	14%	\$2,100		
	100	Gap analysis	Haberfield	Electric vehicle charging facility - Federation Place carpark, Gilles Ave	Vehicle demand	15,000	Low	14%	\$2,100		
	101	Gap analysis	Stanmore	Electric vehicle charging facility - carpark Temple Street Stanmore	Vehicle demand	15,000	Low	13%	\$1,950		
	102	Gap analysis	Balmain	Electric vehicle charging facility - Beattie Street carpark Balmain	Vehicle demand	15,000	Low	5%	\$750		
	103	Gap analysis	Camperdown	Electric vehicle charging facility - Hordern Place carpark Camperdown	Vehicle demand	15,000	Low	6%	\$900		
	104	Gap analysis	Summer Hill	Electric vehicle charging facility - Hardie Avenue carpark Summer Hill	Vehicle demand	15,000	Low	12%	\$1,800		
	105	Gap analysis	Tempe	Electric vehicle charging facility - Tempe Reserve carpark, Holbeach Ave Tempe	Vehicle demand	15,000	Low	9%	\$1,350		
		106	Lewisham West Public Domain Improvements / Greenway Masterplan	Lewisham	Shared zone/plaza in Hudson Street and removal of roundabout at light rail station. Signalised pedestrian crossing at Hudson and Old Canterbury Road and close Henry St at intersection with Old Canterbury Road.	Traffic management, safety	2,000,000	Medium	32%	\$640,000	
		107	Greenway Masterplan	Leichhardt	East/west walking/cycling connections to Greenway in Hawthorne Canal Precinct - Marion St (between Ramsay St and Foster St)	Modal transfer, safety	1,237,500	High	35%	\$433,125	
		108	Greenway Masterplan	Leichhardt	East/west walking/cycling connections to Greenway in Hawthorne Canal Precinct - Allen St (between Darley Rd and Flood St)	Modal transfer, safety	575,000		35%	\$201,250	
		109	Greenway Masterplan	Dulwich Hill	East/west walking/cycling connections to Greenway in Mills Precinct - Davis St (between Windsor Rd and Denison Rd)	Modal transfer, safety	800,000	High	24%	\$192,000	

Appendix D Centre Specific Improvements								Cost		
Reference Number	Reference	Relevant Suburb	Description of works	Purpose / Benefit	Estimated Cost	Priority	Growth Apportionment	Apportioned Cost		
	110	Greenway Masterplan	Dulwich Hill	East/west walking/cycling connections to Greenway in Dulwich Hill Parks Precinct - Constitution Rd (between Windsor Rd roundabout and Denison Rd)	Modal transfer, safety	975,000	High	24%	\$234,000	
	111	Greenway Masterplan	Dulwich Hill	East/west walking/cycling connections to Greenway in Dulwich Grove Precinct - Ewart Street between Terrace Rd and Ewart Lane beside rail corridor	Modal transfer, safety	300,500	High	24%	\$72,120	
	112	Integrated Transport Strategy / Sydney Green Grid	Leichhardt	Prioritised walking/cycling link - Whites Creek Lane between Moore/Booth Street and Albion St (landscaping, low speed limits, traffic calming, reduced lane widths)	Modal transfer, safety	2,500,000	Medium	35%	\$875,000	
		SUM				\$50,230,073		26%	\$12,840,516	

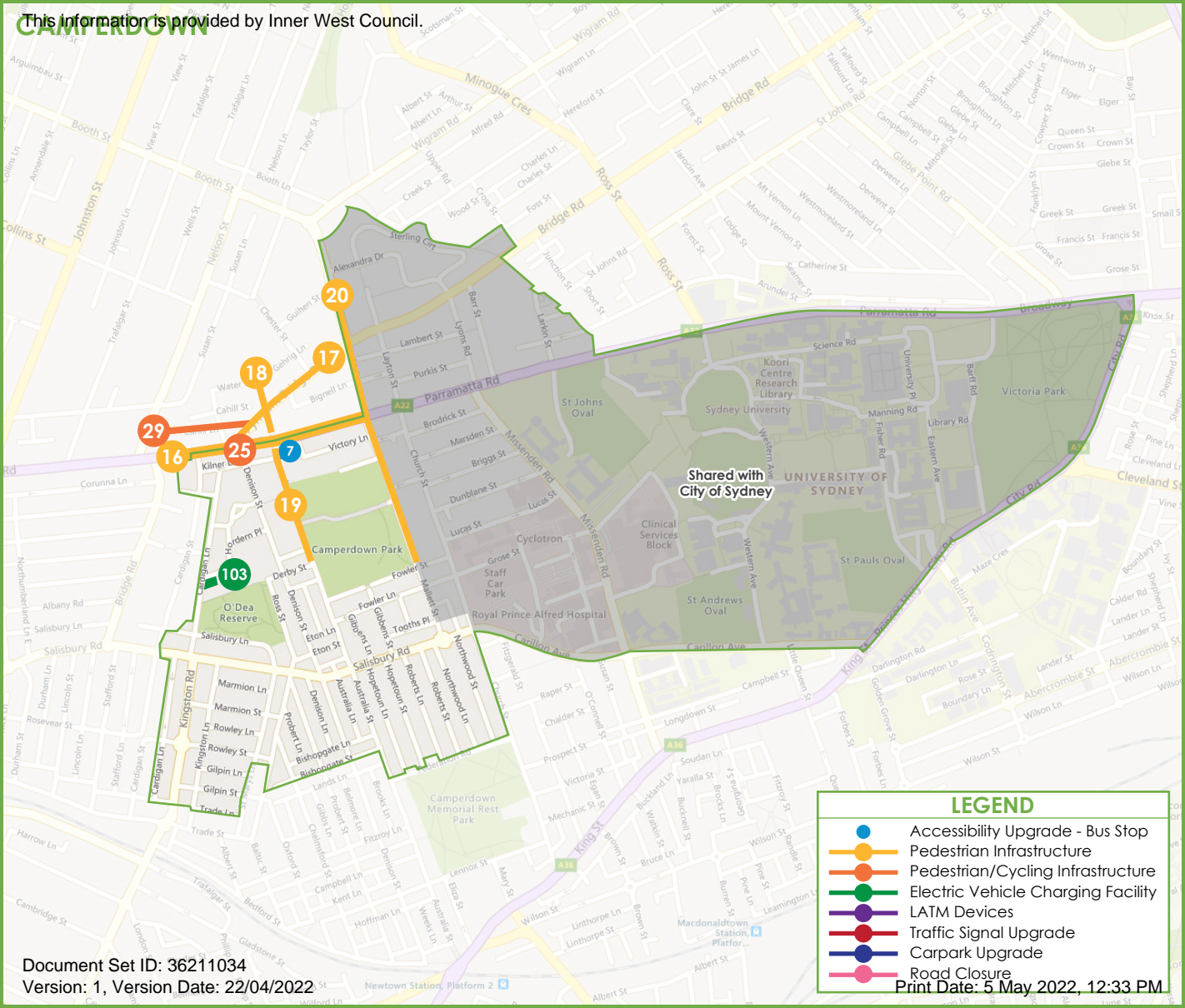


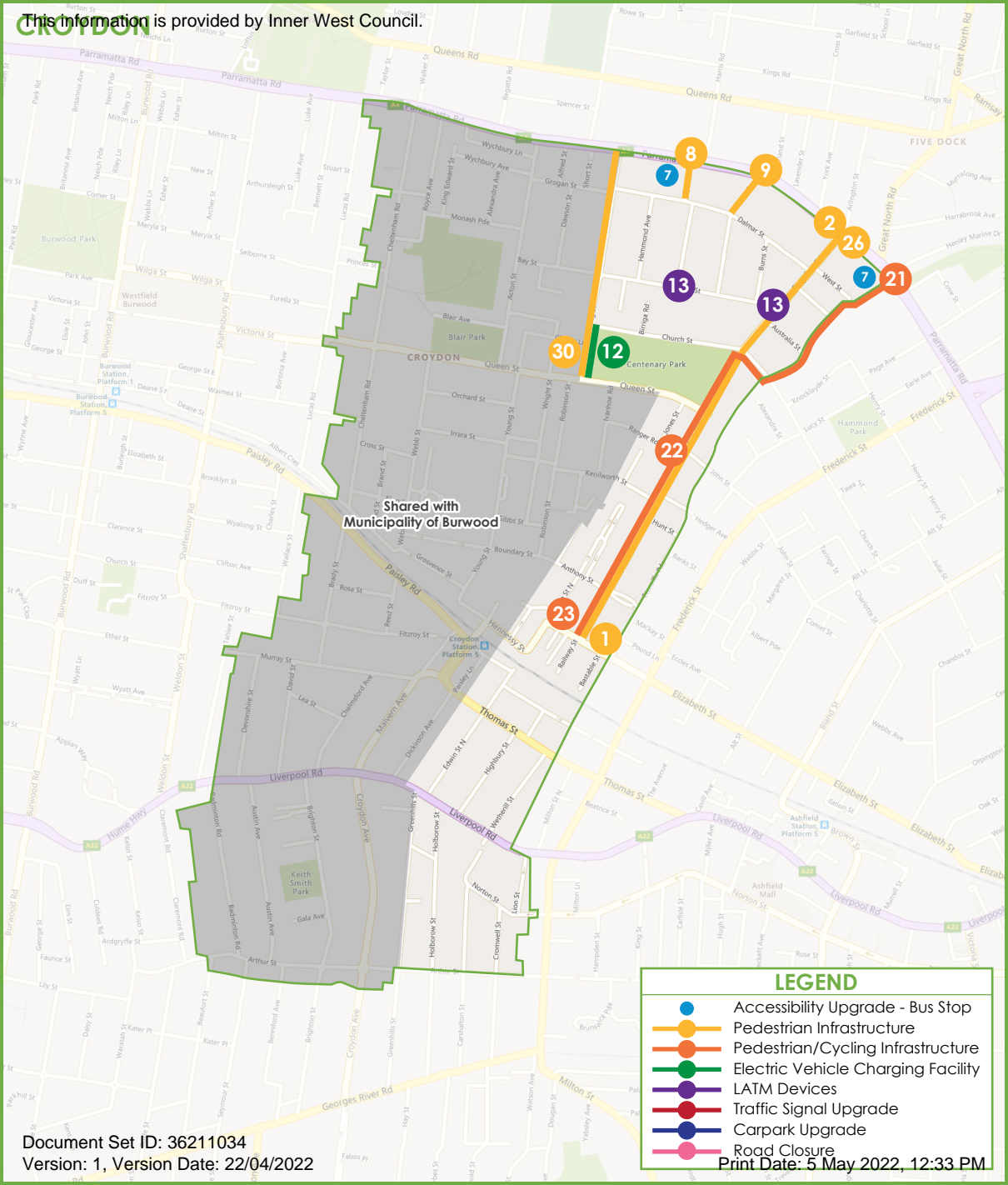
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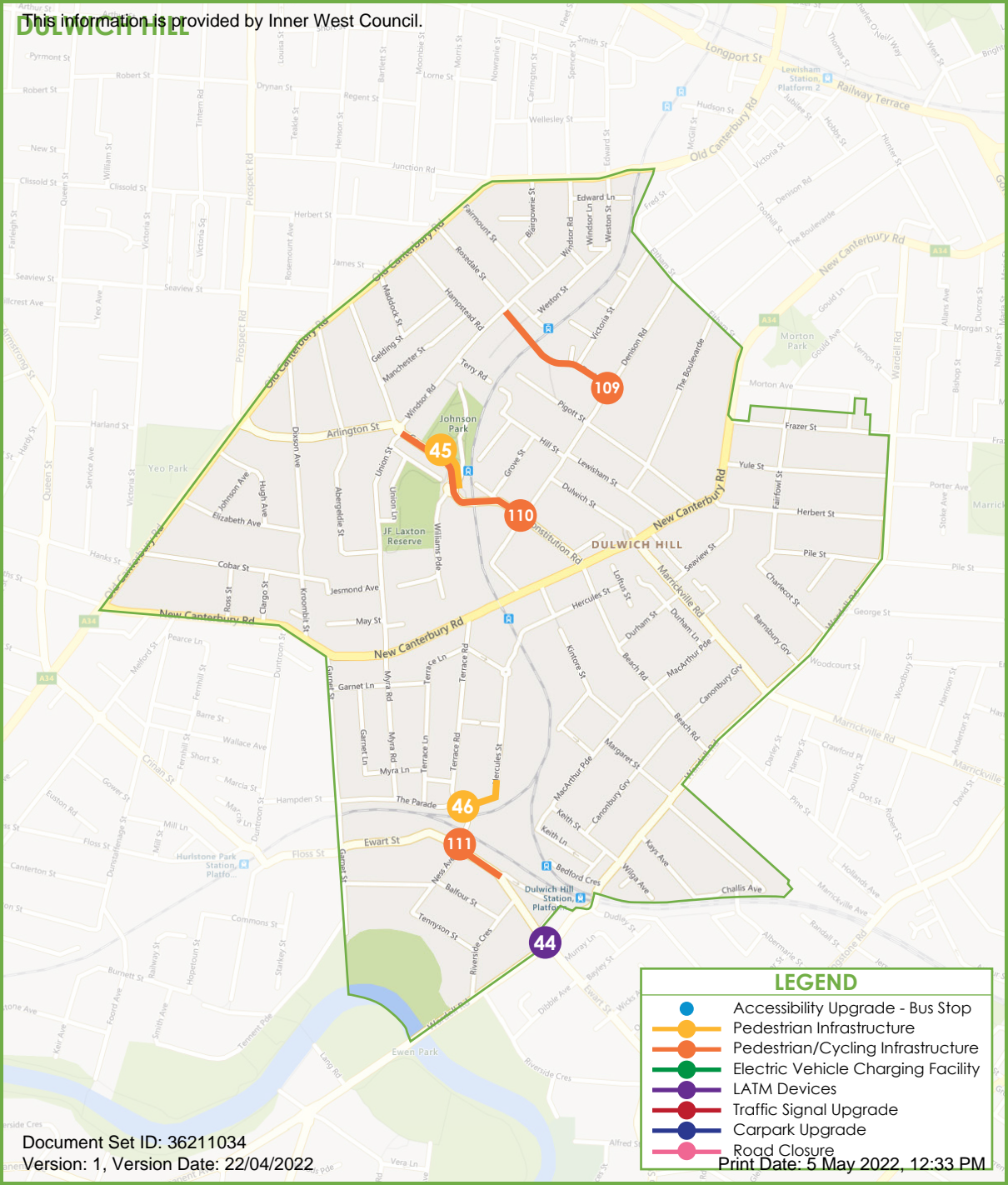
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- Pedestrian/Cycling Infrastructure
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- LATM Devices
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- Carpark Upgrade
- Road Closure

CAMPERDOWN



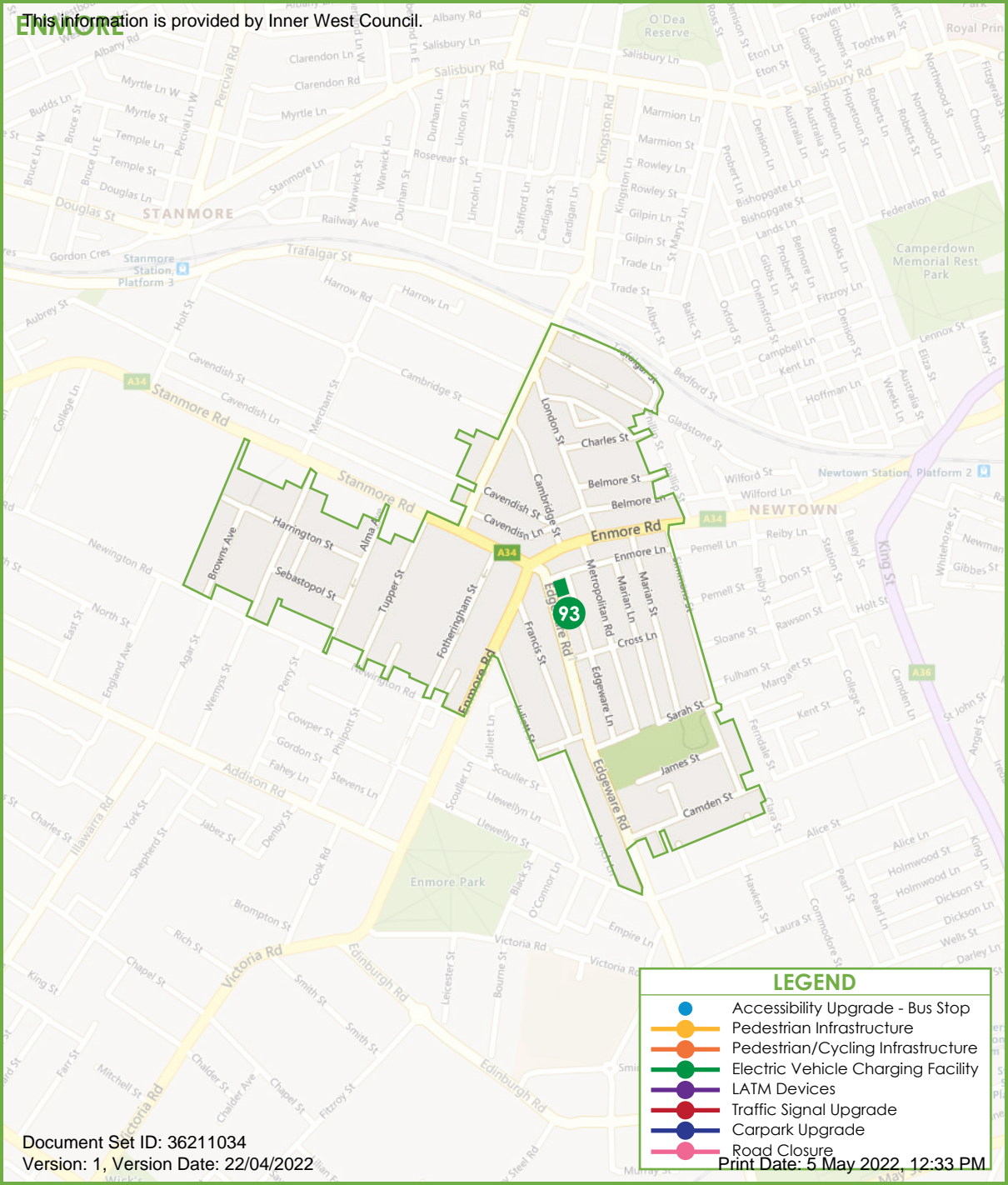


DULWICH HILL



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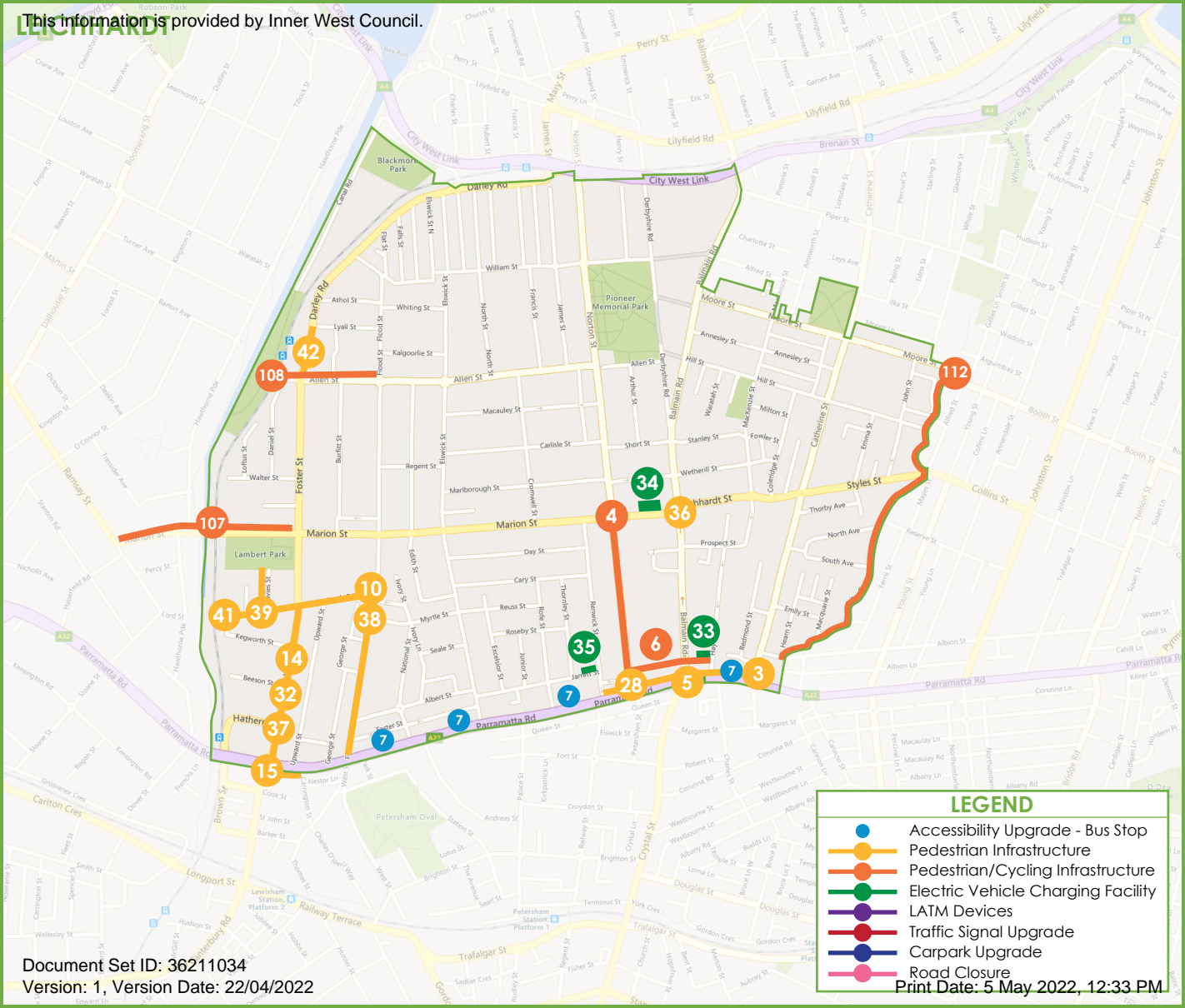
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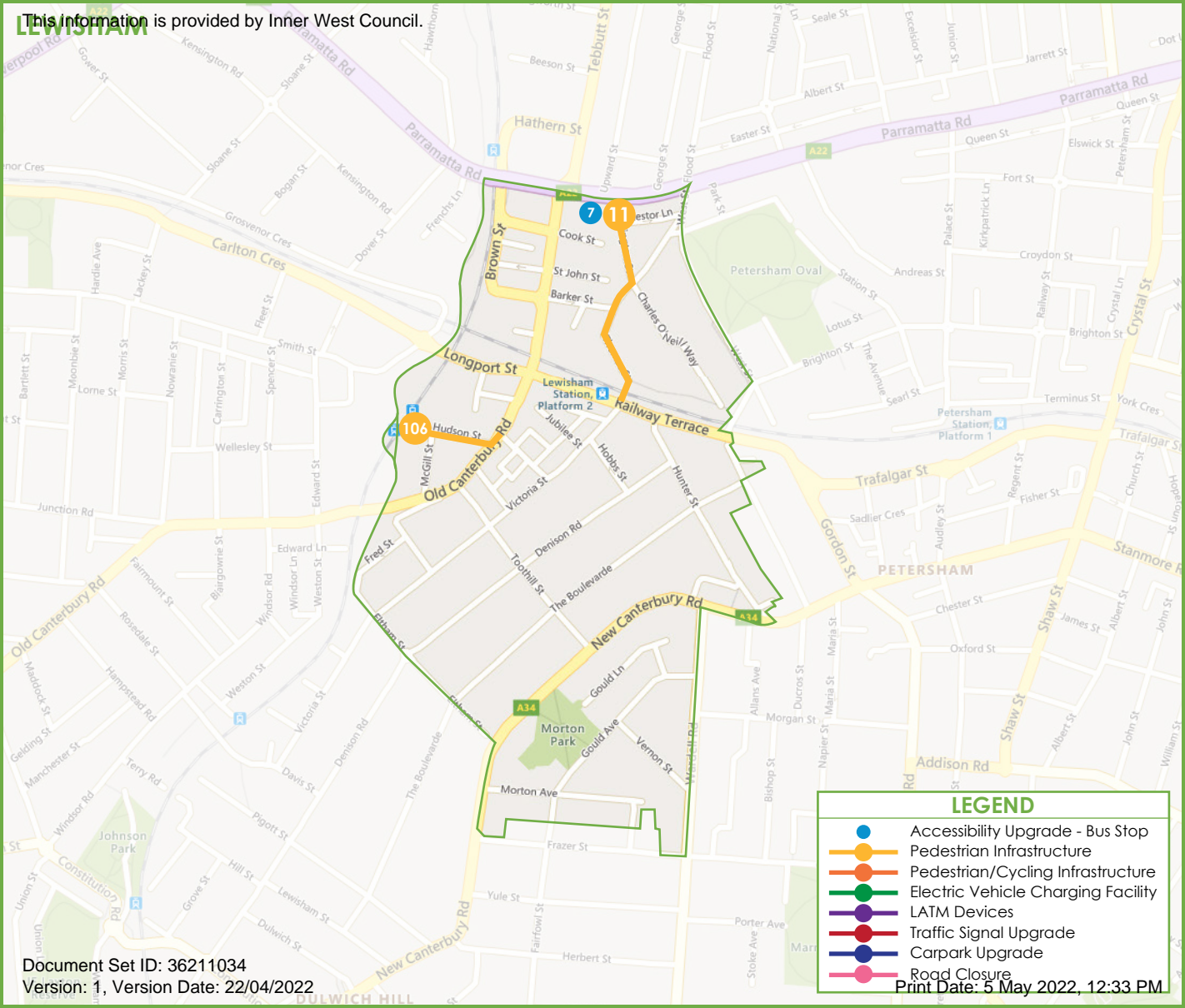
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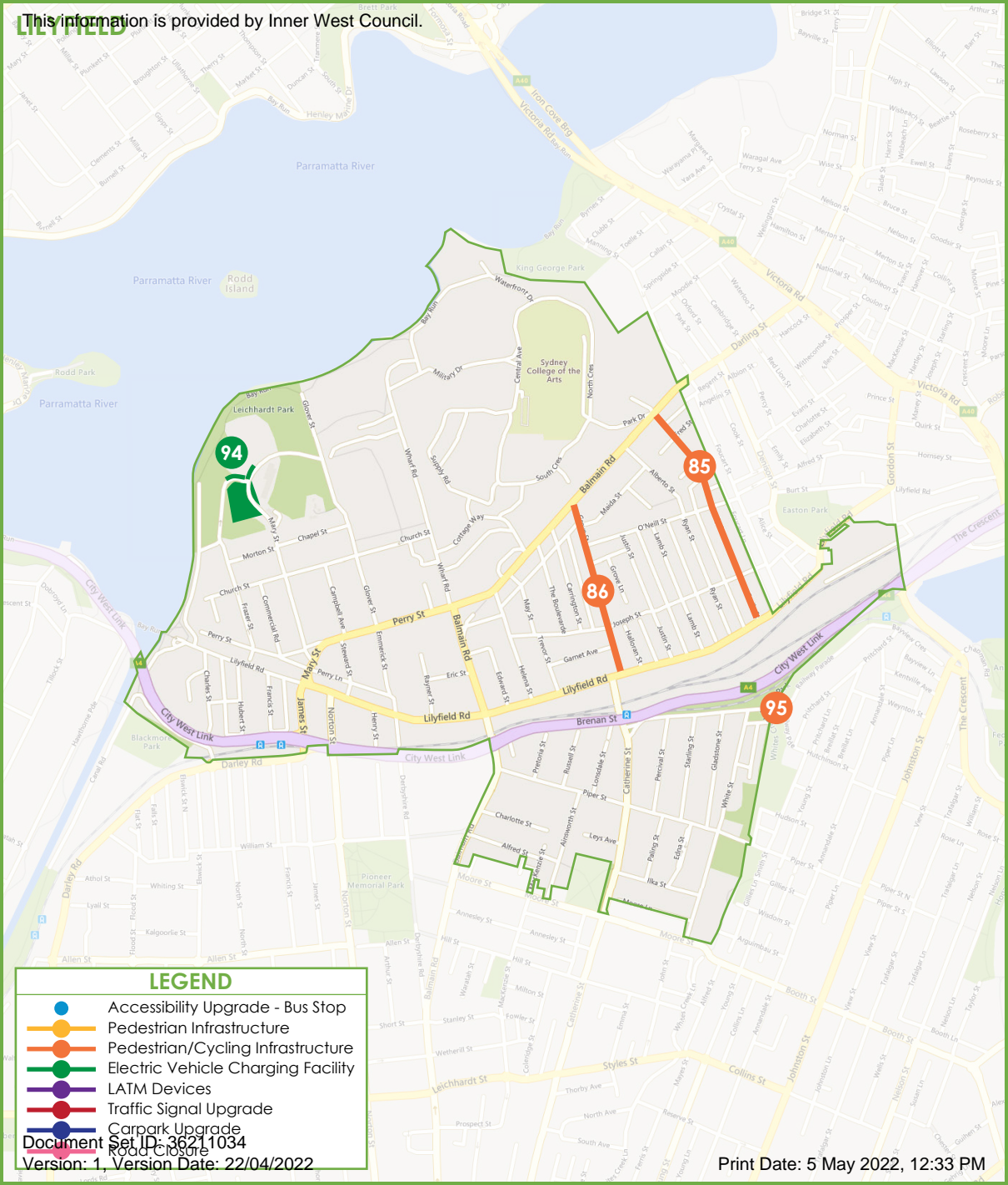
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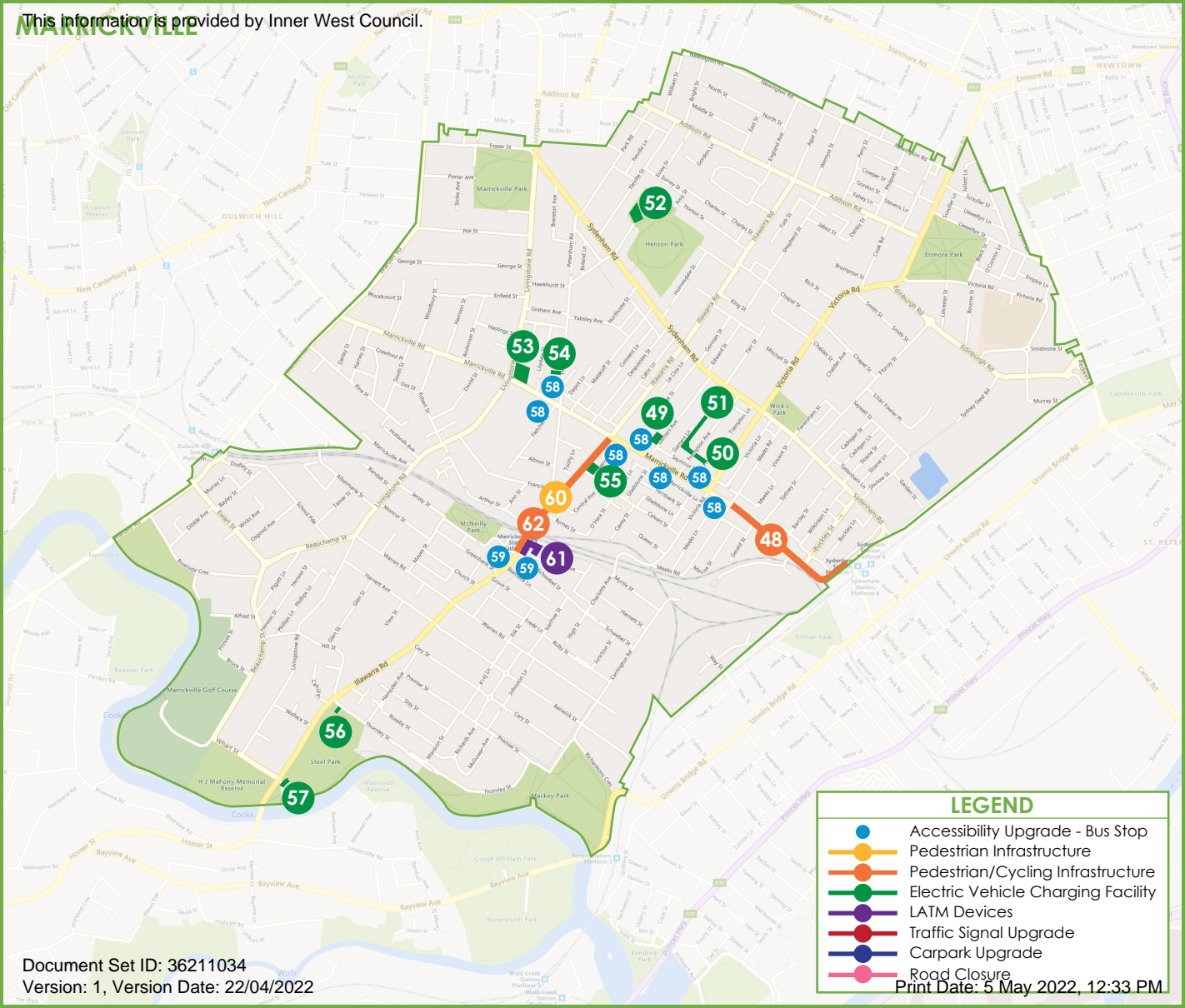
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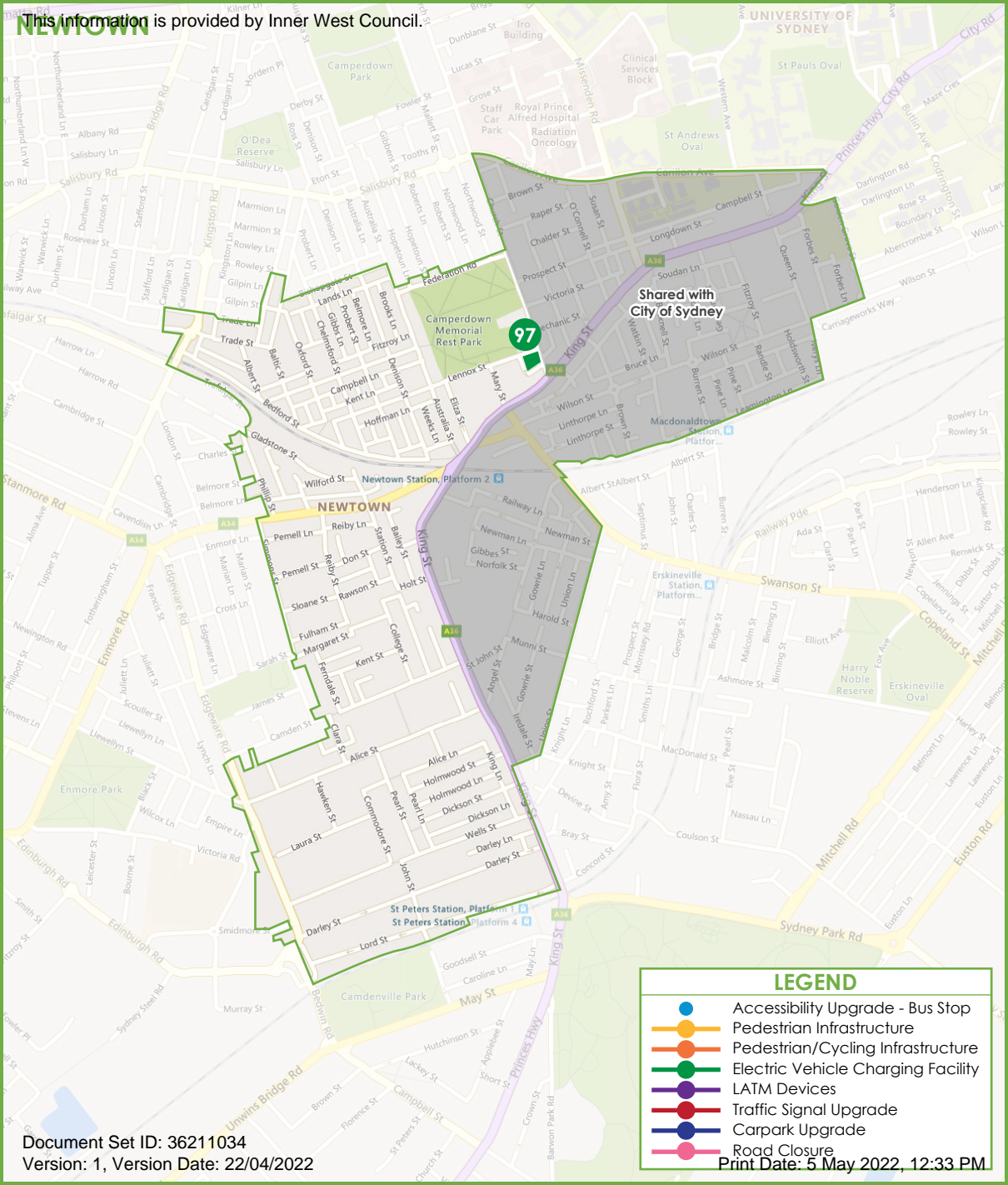
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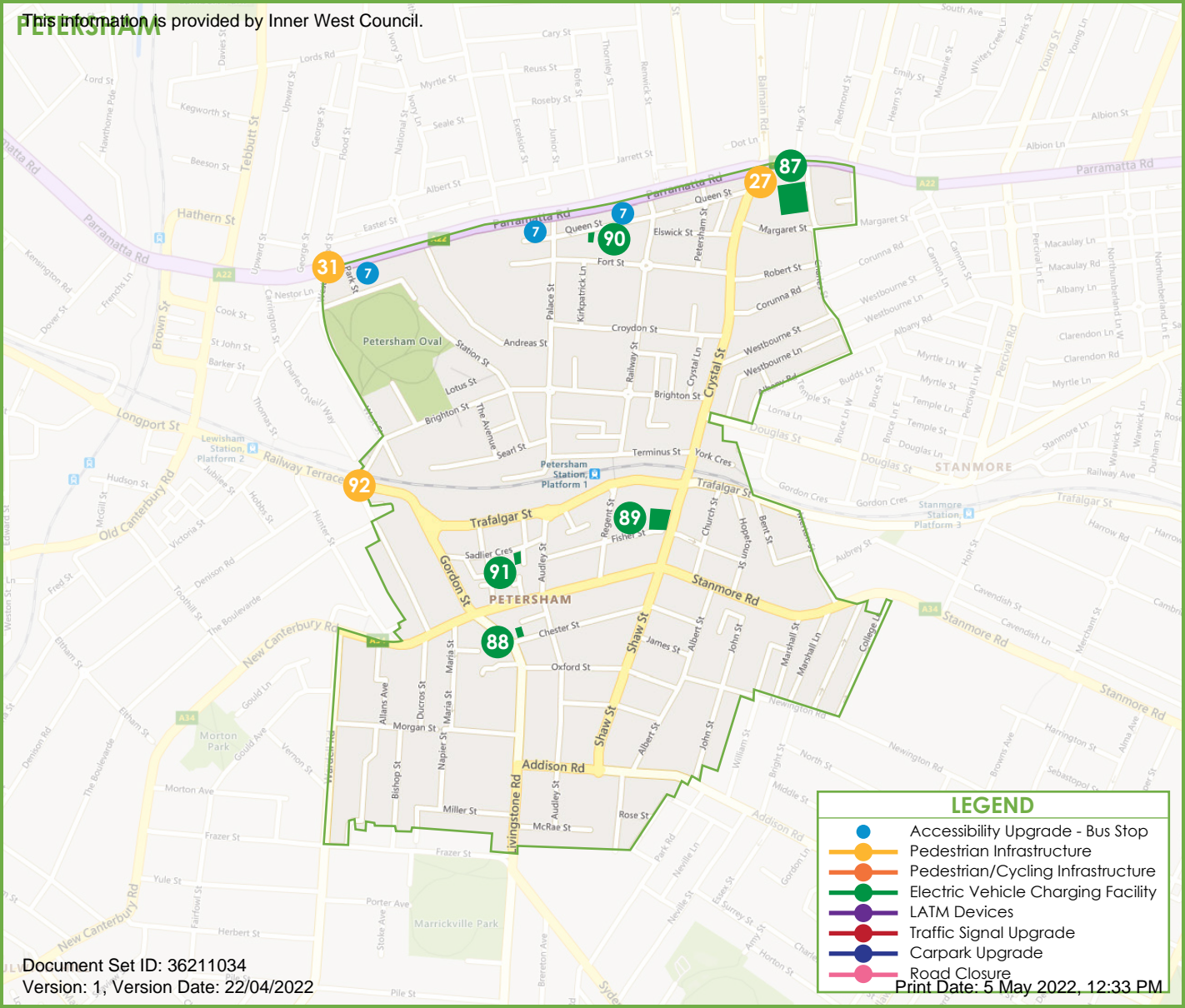
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