

**Design
for a better
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HEALTH INFRASTRUCTURE

**THE CHILDREN'S
HOSPITAL AT
WESTMEAD STAGE 2
REDEVELOPMENT -
PAEDIATRIC SERVICES
BUILDING**

PRELIMINARY GREEN
TRAVEL PLAN

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JANUARY 2021

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The Children's Hospital at Westmead Stage 2 Redevelopment - Paediatric Services Building Preliminary Green Travel Plan

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1 INTRODUCTION

1.1 BACKGROUND

Health Infrastructure (HI) and Sydney Children's Hospital Network (SCHN) are planning The Children's Hospital at Westmead (CHW) Stage 2 Redevelopment. The redevelopment will enable the expansion and replacement of several paediatric and neonatal services in a new Paediatric Services Building and refurbishment of the existing facility.

As part of the Stage 2 Redevelopment, HI and SCHN are planning to demolish the existing CHW multi-storey staff car park (P17) to construct a new Paediatric Services Building (PSB). Furthermore, a new multi-storey car park (MSCP) is planned to be built on the former Ronald McDonald House site (known as the Lodge).

These works follow the completion of the Westmead Stage 1 Redevelopment where the Central Acute Services Building (CASB) has been completed. The CASB is set to be officially opened in 2021.

A State Significant Development (SSD) Application is to be lodged with the NSW Department of Planning, Industry and Environment (DPIE). The application is seeking consent for the construction of the proposed PSB.

A separate SSD Application is to be lodged for the construction of the proposed MSCP and ancillary works.

Health Infrastructure engaged WSP to prepare a Preliminary Green Travel Plan to support the Stage 2 Redevelopment SSDA's.

This Preliminary Green Travel Plan responds to the Planning Secretary's Environmental Assessment Requirements (SEAR's) issued for The Children's Hospital at Westmead – Paediatric Services Building project and dated 20 November 2020, specifically the following SEAR:

*Include a **transport and accessibility impact assessment**, which includes measures to ameliorate any adverse traffic and transport impacts due to the development based on the analysis, including:*

- *travel demand management measures to encourage sustainable transport (such as a Green Travel Plan and / or specific Workplace Travel Plan)*
- *Infrastructure improvements, including details of timing and method of delivery.*

1.2 SUSTAINABLE TRAVEL PLAN 2017-2026 (STP)

1.2.1 OVERVIEW

The Sustainable Travel Plan 2017-2026 (STP) was prepared for the Westmead Health Precinct, in 2017. The STP was initiated by the Westmead Redevelopment Stage 1 works which included the construction of a 12-storey Central Acute Services Building (CASB). The CASB is planned to be opened in early 2021.

The STP identified several traffic and transport challenges across the precinct including:

- *High private vehicle usage and unmet parking demand*
- *Geographical constraints limiting vehicle access opportunities e.g. Parramatta River, Parramatta Park, Toongabbie Creek, Western Railway Line*
- *Traffic congestion internally and externally*
- *Undesirable pedestrian and cyclist connections*
- *Large walking distances to public transport for some employees*
- *Some indirect public transport services and walking and cycling connections.*

The STP aimed to *enable the organisations to better manage their staff travel to, and was designed to increase the use of sustainable transport modes such as walking, cycling and public transport.*

1.2.2 ACTIONS

At the heart of the STP are its actions. These actions were developed collectively between the SCHN, HI and the Local Health District. In total 7 key action groups were developed focused upon identifying goals, reduce car use and promoting new and improved infrastructure through prioritisation with partners.

- Action 1: Identify Goals and Implement Framework
 - Action 1.1: Set a mode share target
 - Action 1.2: Governance & Implementation
- Action 2-3: Reduce Drive Alone Travel
 - Action 2: Campaign to encourage public transport use
 - Action 3: Campaign to encourage walking and cycling
- Action 4: Review Policy Framework
 - Action 4: Revise access to parking and enforce parking rules
- Action 5: Monitor and Evaluate
 - Action 5.1: Establish baseline and evaluation program
- Action 6: Install New Infrastructure
 - Action 6.1: Install supporting infrastructure with nearby stakeholders
- Action 7: Collaborate Externally to Improve Public and Active Transport Access
 - Action 7.1: Coordinate with state and local transport stakeholders
 - Action 7.2: Off-street parking changes and steps to manage on-street parking
 - Action 7.3: Improve awareness of pedestrian routes and conditions.
 - Action 7.4: Coordinate with local transport stakeholders (Parramatta Council)
 - Action 7.5: Coordinate with local transport stakeholders (TfNSW)

Where the STP focused on the whole of the Westmead Health Precinct, this plan focuses exclusively on the CHW site. The actions outlined in section 2 will leverage the applicable actions established in the STP and also include new measures derived from new baseline data and/or CHW specific measures.

1.3 FORECAST CHW ACTIVITY

The CHW Stage 2 Redevelopment is planned to accommodate more employees, visitors and patients by 2031/32, as summarised in Table 1.1.

Table 1.1 CHW forecast growth

Category	2019	2026/2027	2031/2032
CHW full time equivalent (FTE)staff	3,204	3,664	4,014
Outpatients service events annual (weekday daily)	239,623	275,251	297,941

Category	2019	2026/2027	2031/2032
Emergency Department (ED) presentation annually (daily)	62,641	75,600	85,089
Inpatients bed	359	474	474

2 CHW STAFF TRAVEL PATTERNS

2.1 JOURNEY TO WORK

Australia Bureau of Statistics (ABS) Journey to Work (JtW) data from the 2011 and 2016 Census's were reviewed to understand the commuter mode share patterns for staff of the Westmead area. For 2011, the Travel Zone (TZ1045) and Statistic Area Level 2 (SA2) datasets were reviewed. For 2016, the data is only available for SA2 and therefore only this dataset has been analysed. The extent of the datasets are shown in Figure 2.1. The data extents are larger than the CHW site or the Westmead Health Precinct. However, given that the precinct has a large staff population, the data is considered to be representative of employees of the Westmead Health precinct.

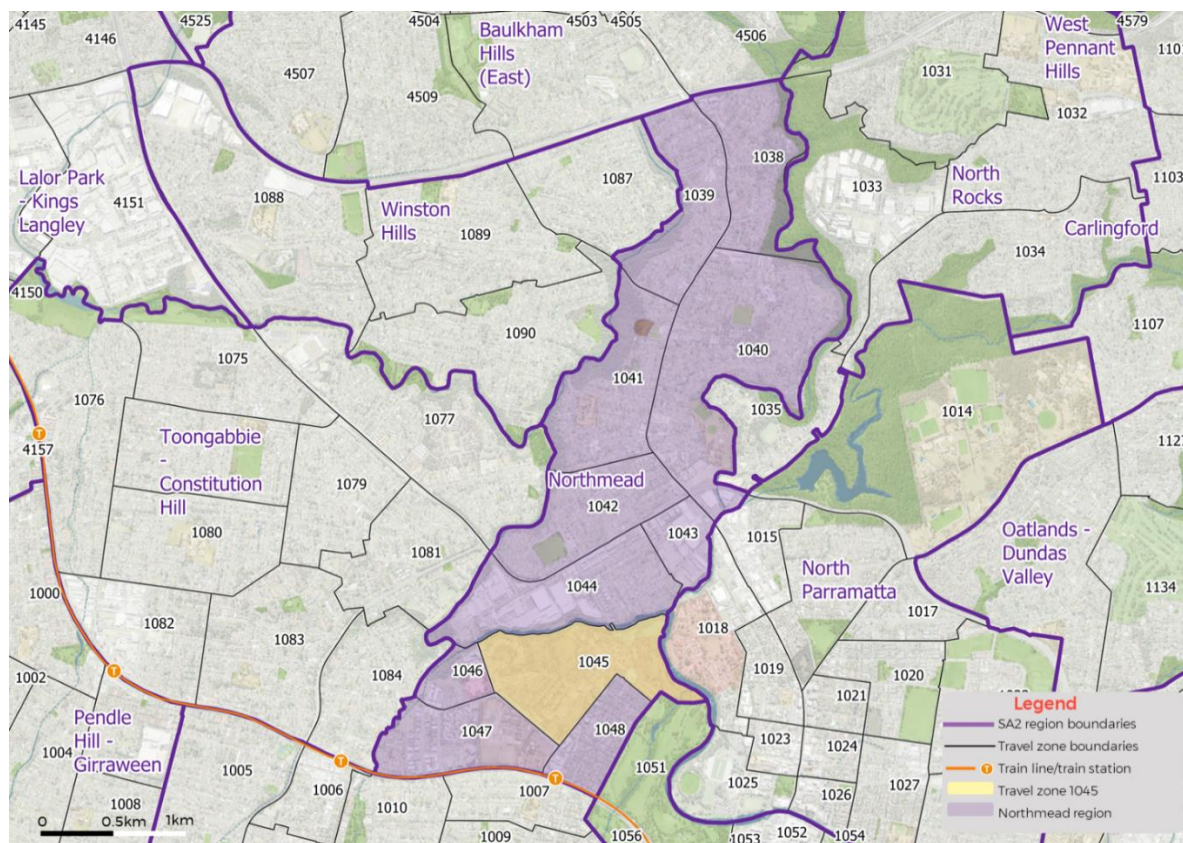


Figure 2.1 Journey to Work region boundaries

The mode share data for 2011 and 2016 JtW data is summarised in Table 2.1. The place of origin for the employees of the area are shown in Figure 2.2.

Overall, the JtW highlights the following:

- Large proportion of employees originate from areas nearby to the Westmead Health Precinct or to the west and north-west of the precinct, with the top three regions being:
- Northmead
- Girraween – Westmead
- Toongabbie – Constitution Hill
- Approximately half of the commuters who live in the Northmead area, walk to their place of work (403 of 996 employees).

- The number of employees who rely on private vehicle has reduced by around 4 per cent since 2011. Similarly, the number of employees who use public transport has increased since 2011 by 7 per cent.

Table 2.1 Journey to work data (staff origins to Westmead)

Data used	2011 Travel Zone	2011 Statistical Area 2	2016 Statistical Area 2	% Change from 2011 to 2016 SA2 to SA2
Number of People	8,766	13,732	14,715	
Vehicle driver	75%	78%	75%	-3%
Vehicle passenger	5%	5%	4%	-1%
Train	10%	9%	12%	+3%
Bus	2%	0%	4%	+4%
Walk	5%	4%	4%	0%
Cycling	1%	1%	0%	-1%
Other	1%	3%	1%	-2%

Source: Australia Bureau of Statistics Journey to Work

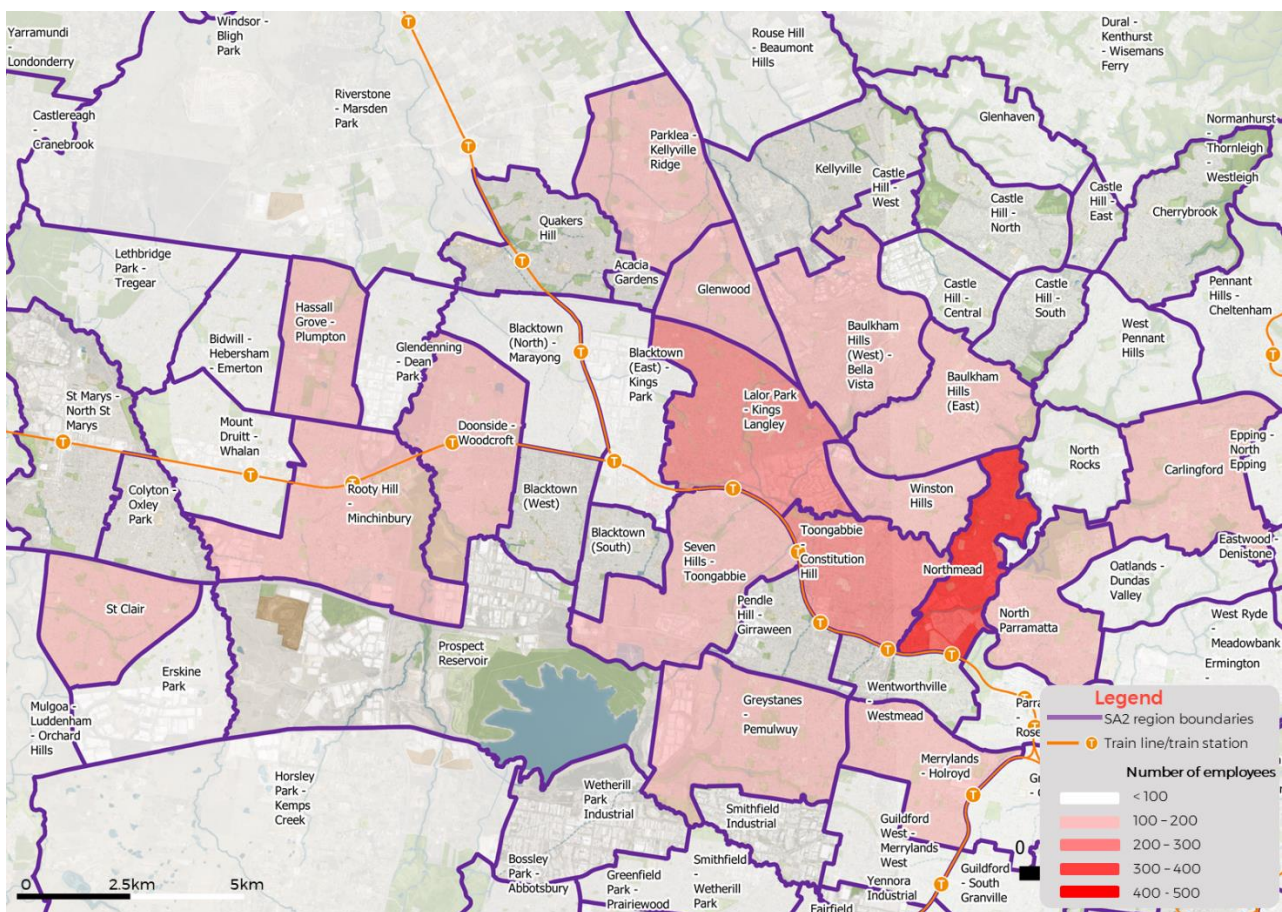


Figure 2.2 Journey to Work 2016 employee place of origin

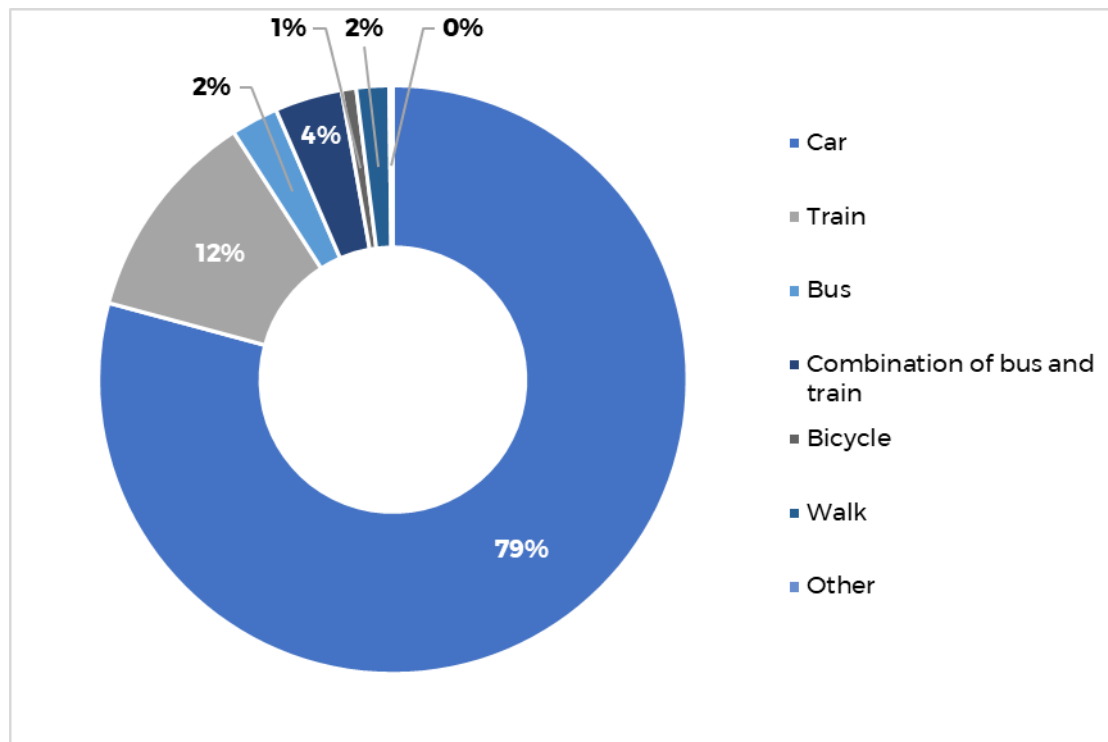
2.2 TRAVEL SURVEYS

2.2.1 STAFF TRAVEL PATTERNS

CHW staff surveys were completed in July 2019 by GTA Consultants as part of the CHW Stage 2 Car Park Demand Study. The surveys had 864 responses and identified the mode share splits summarised in Figure 2.3.

The staff travel survey results reflected similar results to the JtW data, including nearly 80 per cent of staff travel to/from CHW via private vehicle.

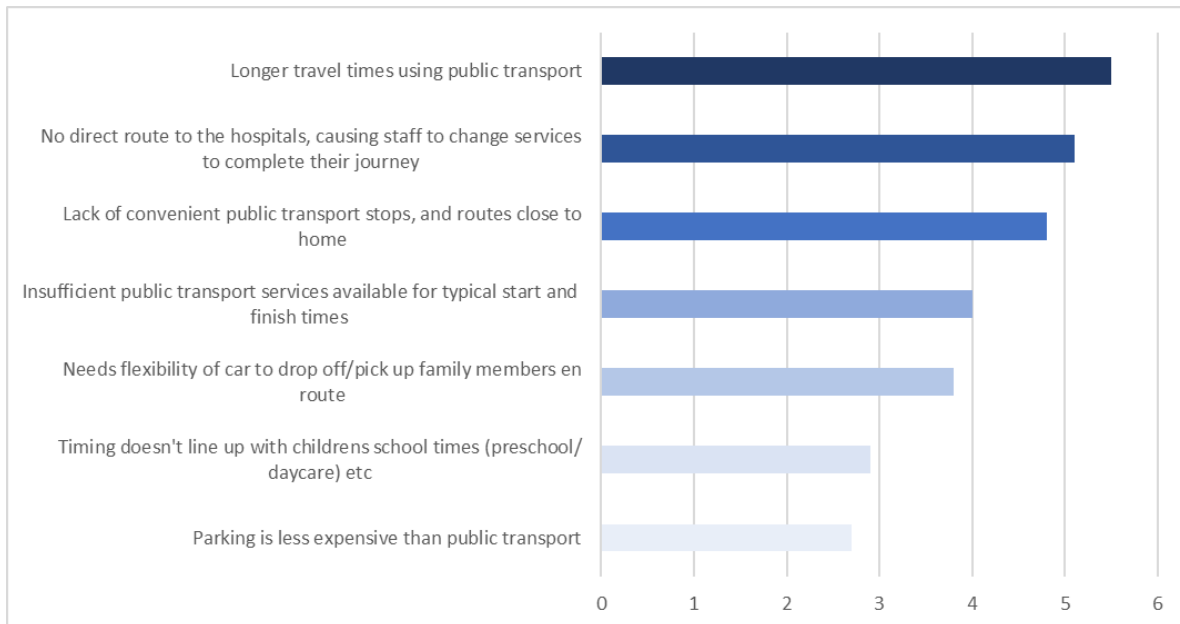
The staff travel surveys also noted that the average private vehicle occupancy was 1.1 persons per vehicle, demonstrating a lack of carpooling from staff.



Source: *GTA CHW Stage 2 Parking Demand Study 2019*

Figure 2.3 Mode share of staff respondents

CHW Staff provided responses to why they did not travel via public transport by ranking the factors they did not choose public transport – 6 being the most important and 1 being the least. The factors and ranks can be viewed in Figure 2.4.



Source: *GTA CHW Stage 2 Parking Demand Study 2019*

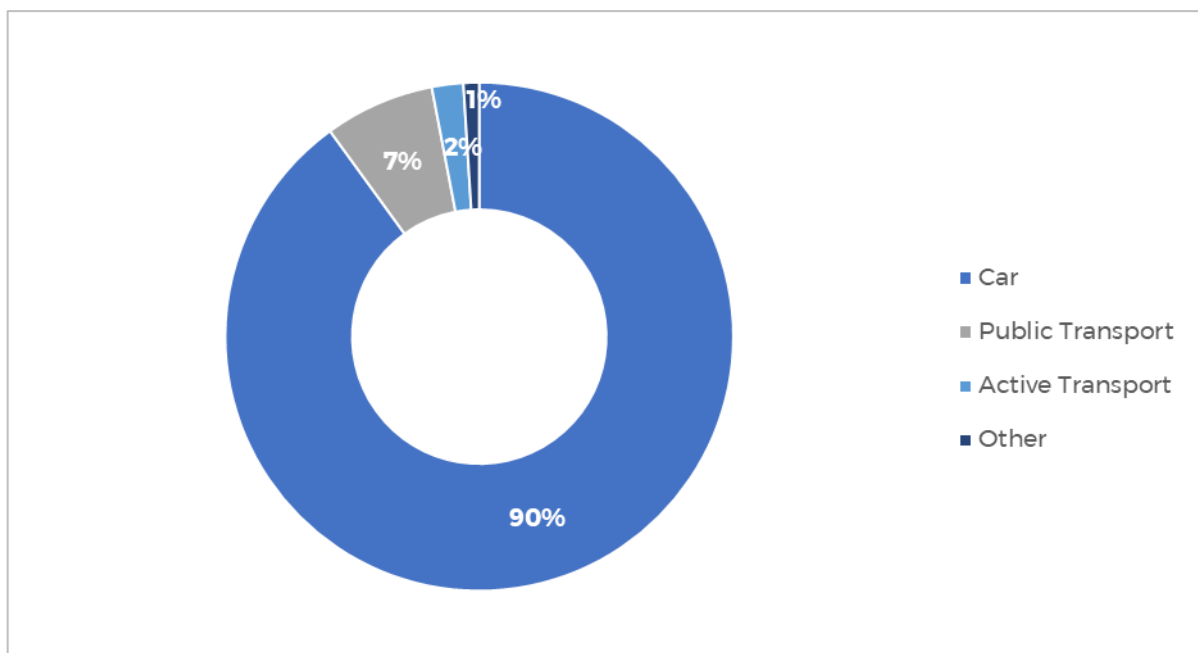
Figure 2.4 Why CHW staff do not use public transport

Similar travel surveys were completed in 2016, as part of the STP. The 2016 staff survey was completed by staff from all hospitals in the precinct. Out of 984 responses, nearly half of them were completed by CHW staff (477 of 984). From the responses, it was found that majority of the staff travelling to the Precinct began their journey in either Constitution Hill, Girraween, Greystanes, Mays Hill, Pemulwuy, Pendle Hill, South Wentworthville, Westmead. This is reflective of the place of origin in the Journey to Work 2016 data.

2.2.2 VISITORS TRAVEL PATTERNS AND BEHAVIOUR

CHW visitor surveys were also completed in July 2019 by GTA Consultants as part of the CHW Stage 2 Car Park Demand Study. 250 responses being collected across two days, with the visitor mode share analysis shown in Figure 2.5. The 2019 visitor travel surveys showed:

- 90 per cent of visitors arrived via car with the other 10 per cent arriving through a combination of public transport or walking
- Of the visitors who drove, 91 per cent were cars occupied with one or more passengers being picked up or dropped off. The remaining nine per cent of visitors were solo drivers.
- Outpatients had a higher private vehicle mode share of 94 per cent. Visitors to inpatients recorded a mode share of only 79 per cent.



Source: GTA CHW Stage 2 Parking Demand Study 2019

Figure 2.5 Visitor mode share

2.3 WHERE DO CHW STAFF LIVE

The CHW's current staff origins by postcode are shown in Figure 2.6. The postcode data includes 5,196 employees and indicates that nearly 10 per cent (450 employees) live in the nearby Westmead and surrounding postcode. A further 10 per cent live in the three postcode to the north-west of the precinct (2147, 2153 and 2155).

All of these postcodes are within suitable distances to either walk, cycle or take public transport to CHW. As these areas have the highest proportion of residing staff, they should be a focus area for reducing the number of private vehicle trips made by staff of these areas.

The remainder of staff are generally more evenly spread out. Although a higher proportion of staff live to the west than the east.

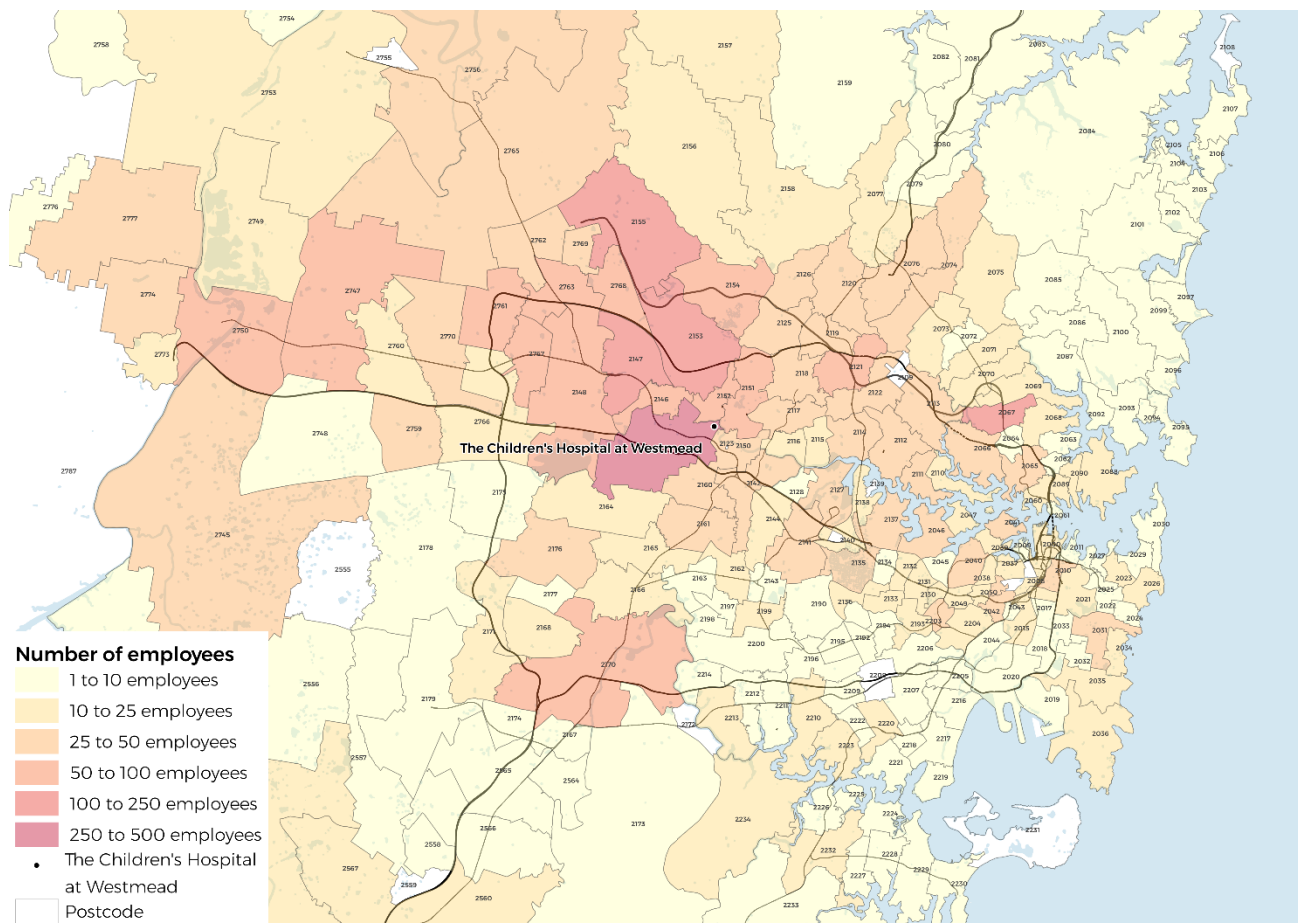


Figure 2.6 CHW staff origins by postcode

3 EXISTING ACTIVE AND PUBLIC TRANSPORT INFRASTRUCTURE

3.1 PUBLIC TRANSPORT

3.1.1 TRAIN NETWORK

The T1 Western, T5 Cumberland and Blue Mountains lines stop at Westmead station, which is about a 12 minute walk from the CHW.

The T1 Western Line operates in the east-west direction via the City Circle in the east and Emu Plains or Richmond in the west and north west respectively. It interchanges with the T9 Northern Line at Strathfield, the T7 Olympic Park Line and the T3 Bankstown Line at Lidcombe and the T2 Inner West and Leppington line at Parramatta, Lidcombe or Strathfield.

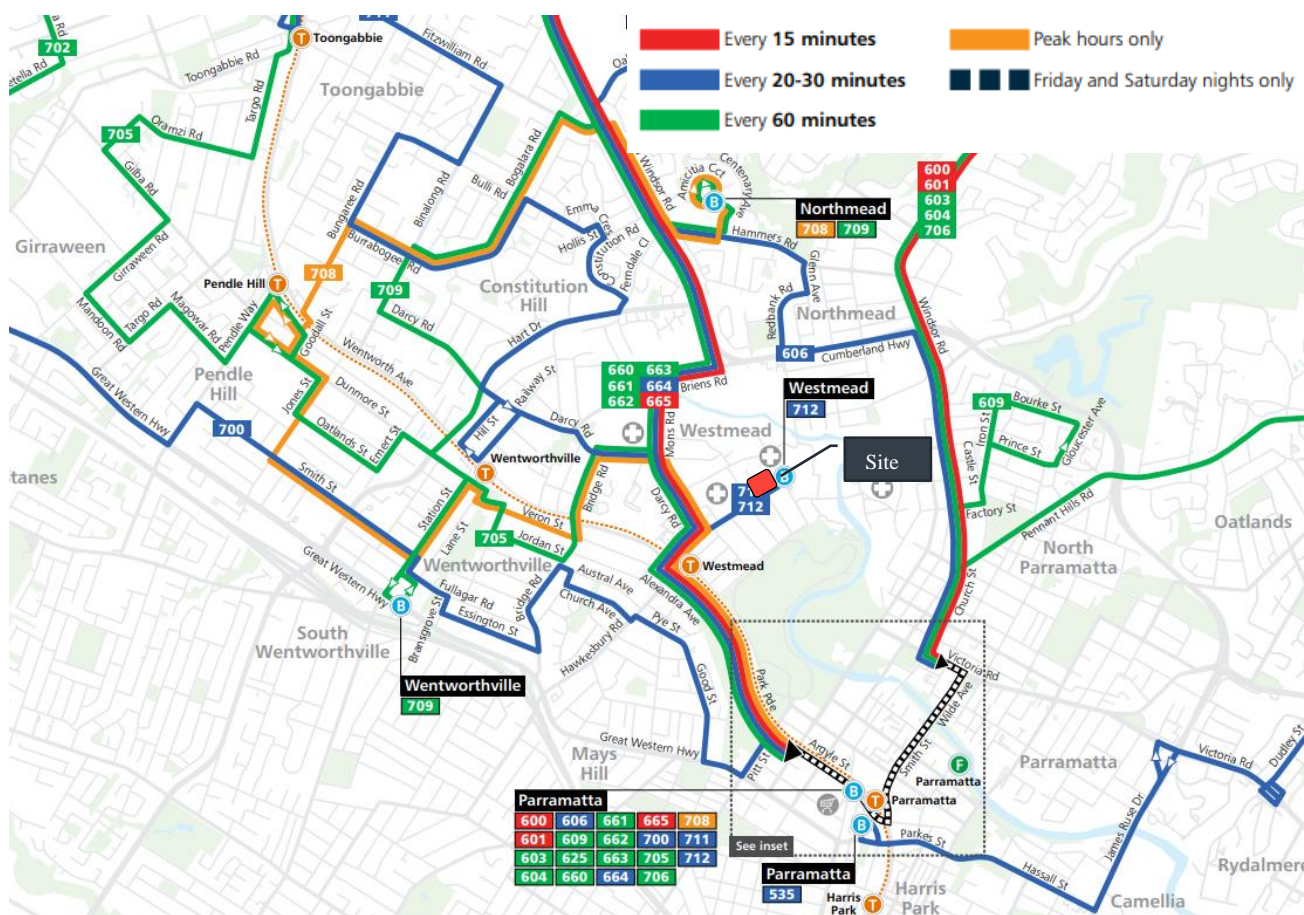
The T5 Cumberland Line provides a north-south line servicing western Sydney from Richmond to Leppington. The line interchanges with the T1 Western and T2 Inner West and Leppington lines at Parramatta, the T3 Bankstown Line at Cabramatta and Liverpool, and the T8 Airport and South Line at Glenfield.

The T1 Western Line and the T5 Cumberland Line operate with a peak weekday frequency of 5-10 minutes and 30 minutes, respectively. The Blue Mountains train stops at Westmead station four times per weekday in each direction.

3.1.2 BUS NETWORK

The surrounding bus network including its routes and frequencies are shown in Figure 3.1. Several routes, with a range of frequencies, use the T-way along Mons Road and Darcy Road, connecting to north-west Sydney. This includes route 665 which operates between Rouse Hill and Parramatta on a 15 minute frequency. In addition, the following routes service the site:

- 705 (Blacktown to Parramatta via Seven Hills) stops on Darcy Road and operates hourly throughout the day, with some 30 minute services during the weekday peak periods
- 708 (Constitutional Hill to Parramatta via Pendle Hill) stops on Darcy Road but operates with one afternoon service and one AM peak service
- 711 (Blacktown to Parramatta via Wentworthville) and route 712 (CHW to Parramatta) stop on Hawkesbury Road and have a 20-30 minute frequency during the weekday peaks
- 818 (Westmead to Merrylands) stops on Hawkesbury Road and operates hourly throughout the day.



Source: Hills District Bus Guide, http://www.cdcbus.com.au/images/files/maps/hillsbus/Region_4_Network_Map.pdf, accessed 27 February 2020

Figure 3.1 Surrounding bus network (excluding route 818)

3.1.3 PUBLIC TRANSPORT CONNECTIVITY

When considering postcode data, analysis (using WSP's Customer Connectivity Tool) shows that less than half of the CHW's employees live within 60 minutes of CHW via public transport. The CHW's existing public transport accessibility catchments are shown in Figure 3.2. With a strong public transport network, supported by the nearby T-way and rail services from Westmead, this 60 minute catchment stretches as far as postcode areas which include Norwest, Mount Druitt and Yennora as well as stations along the T1 line to the east.

Whilst this public transport connectivity is strong, large number of staff employed at CHW live outside of these areas, particularly to the north of the site.

In addition, Census 2016 data shows that CHW is within one hour by public transport for over 1.3 million of the general population, as summarised in Table 3.1.

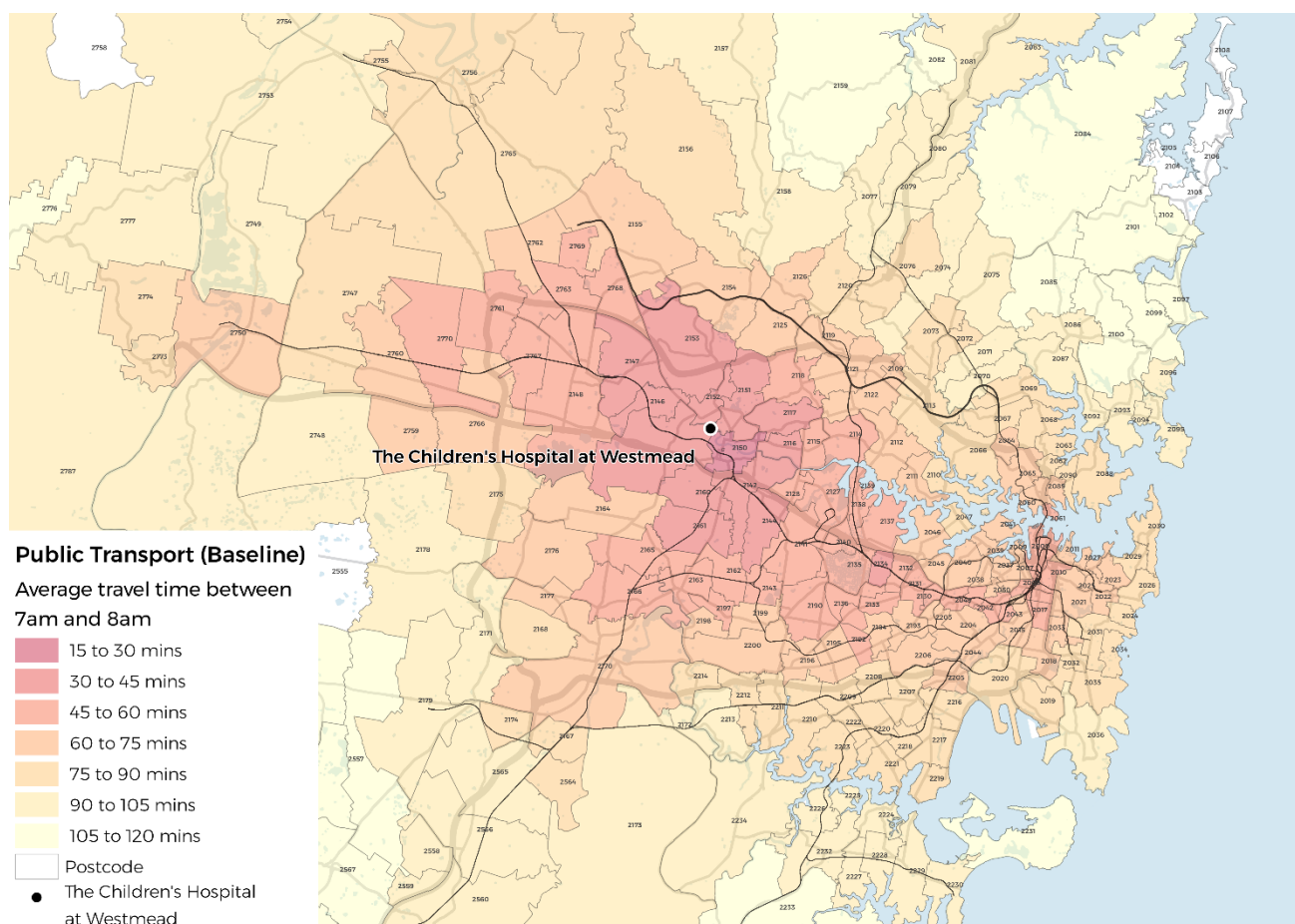


Figure 3.2 Public transport customer connectivity (baseline analysis)

Table 3.1 2016 census population within 30,45 and 60 minutes by public transport

Catchment (minutes)	Number of Employee	General population
0-30	47	31,500
30-45	1,163	359,757
45-60	1,151	959,941
Total	2,361	1,351,198

3.2 WALKING AND CYCLING NETWORK

3.2.1 INFRASTRUCTURE

Westmead currently lacks a comprehensive network of safe, complete and connected cycling routes. Some sections of cycling infrastructure, where present, are short and isolated, with poor links both within, and to and from the Precinct. The existing infrastructure and some key network gaps are shown in Figure 3.3.



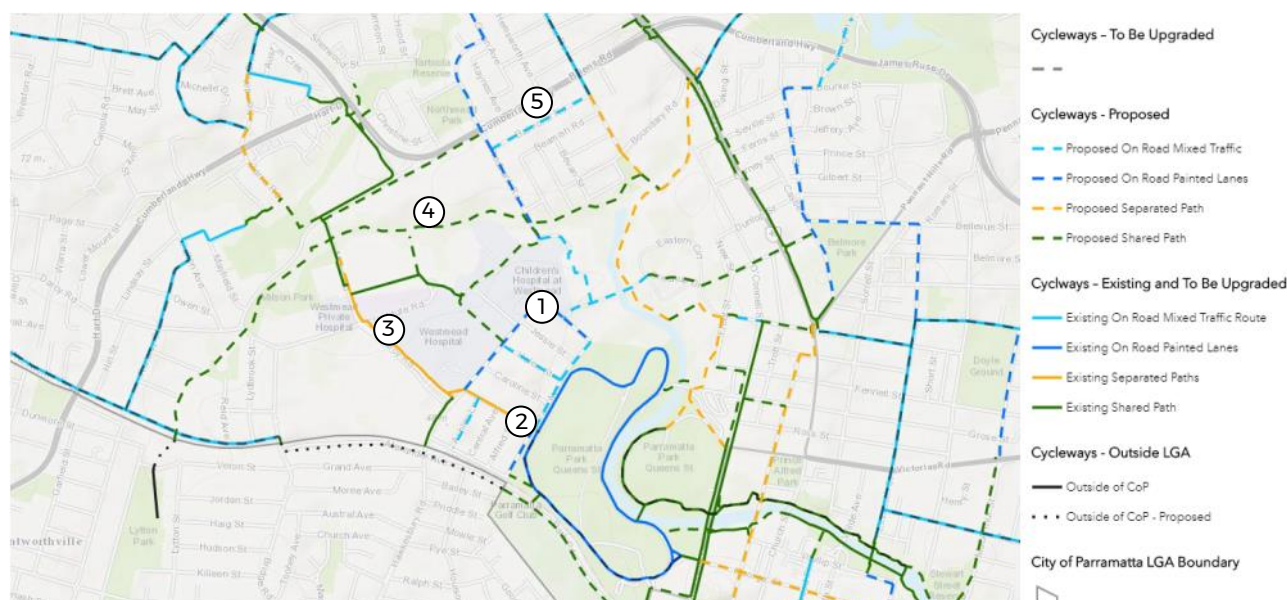
Source: Basemap source: NSW Department of Lands Spatial Information Exchange

Figure 3.3 Existing active transport infrastructure and network gaps

The *Parramatta Bike Plan 2017* was released in May 2017 in support of Parramatta City Council's vision to become more sustainable, liveable and productive as Sydney's Central City. The plan aspires to encourage safe and healthy lifestyles by increasing cycling mode share to 5 per cent of all trips to work (commute) in the City of Parramatta LGA and 10 per cent of all trips ending in the CBD. The Plan outlines several "network design principles" to be used in the development of the Parramatta bicycle network including safety, connecting centres, strengthening the existing network, directness and coverage.

The proposed Parramatta Cycling Network identifies several corridors within the study area of varying typology (Figure 3.4). Corridors that may be beneficial to the CHW's staff and visitors include:

- 1 Proposed painted bicycle lanes on Park Avenue, Hainsworth Street and Hawkesbury Road in Westmead
- 2 Existing physically separated bicycle lanes from Westmead to Parramatta CBD (Queens Road and Parramatta Park)
- 3 Existing off-road separated bicycle lanes along Darcy Road and Mons Road (North-West T-way)
- 4 Proposed Toongabbie Creek shared path
- 5 Proposed on-road facilities on Redbank Road, Balmoral Road and Kleins Road.



Source: *Parramatta Bike Plan, Parramatta City Council, (2018)*

Figure 3.4 Existing and planned cycling network within the Westmead region

Parramatta Light Rail will also include an active transport link along its alignment which will also strengthen cycling connections to Parramatta CBD and the wider region.

Bicycle storage facilities are provided across the precinct, including a mixture of secure bicycle cages and bike hoops at strategic entry points for visitors. The CHW staff currently use a bicycle parking facility located in the P17 car park. In addition, new bicycle parking was provided as part of the CASB.

The existing bicycle parking facility in the P17 is planned to be demolished to facilitate the PSB. The existing bike parking would be relocated to an unused undercroft area located in Kid's Research Institute (KRI) building, adjacent to the proposed PSB. The facility could be accessed via Redbank Road and Hawkesbury Road via Kids Research Lane.

For pedestrians accessing CHW via train, the walking distance between Westmead station and CHW is approximately 850m or a 10-15 minute walk, via Hawkesbury Road. The Hawkesbury Road footpath in front of the CASB has been upgraded to be 4-5m wide. Further footpath widening works along Hawkesbury Road are also under construction as part of PLR works.

3.2.2 CATCHMENTS

The existing walking and cycling catchments are indicatively shown in Figure 3.5 and Figure 3.6. the catchment maps show the extent of a 10, 20 and 30 minute walk and cycle to/from CHW.



Note: the catchment within the precinct isn't captured accurately, due to the software allocating internal roads, as private roads

Figure 3.5 Existing walking catchments

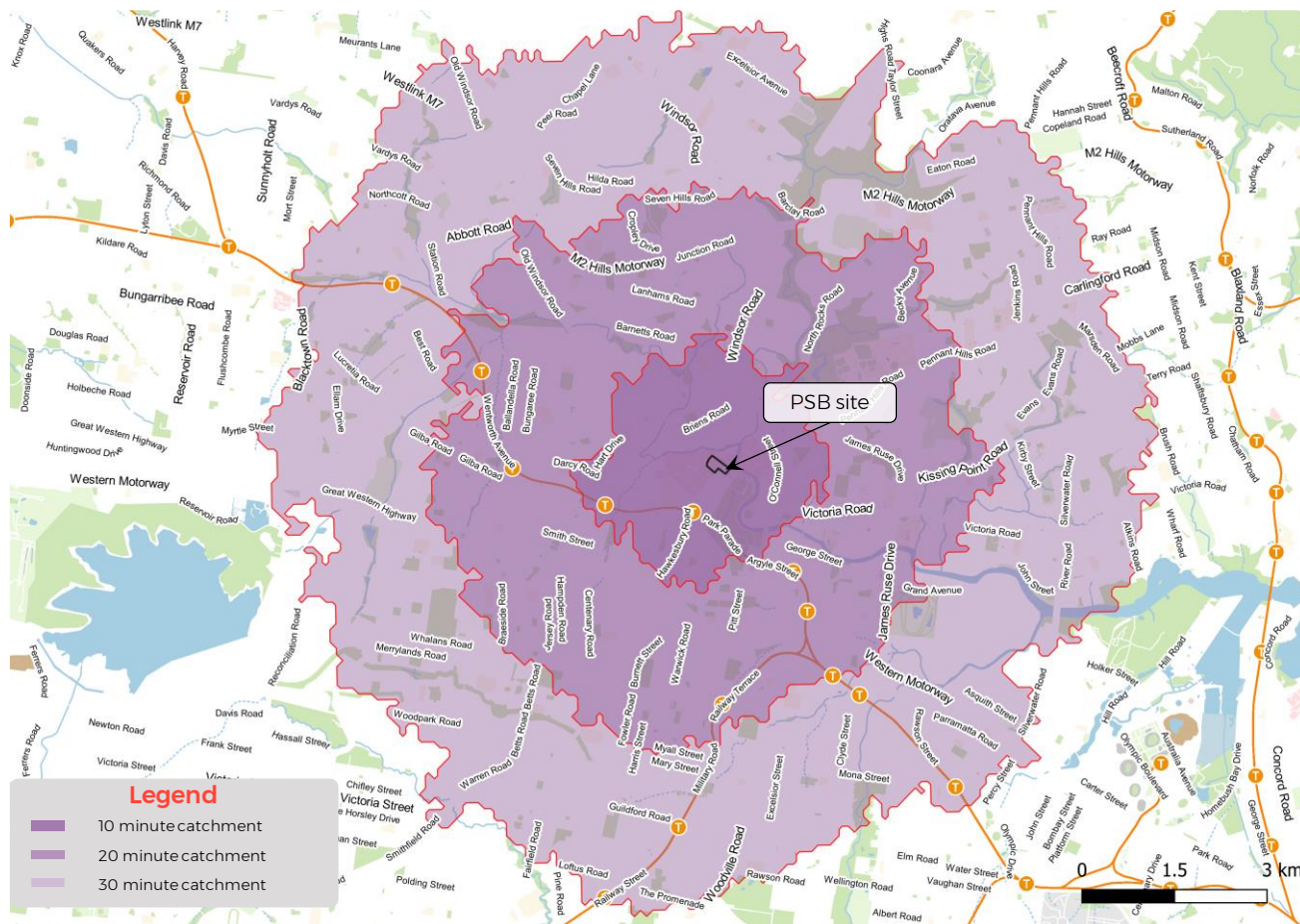


Figure 3.6 Existing cycling catchments

3.3 DRIVING ACCESSIBILITY

When considering postcode data, analysis (using WSP's Customer Connectivity Tool) shows that most of the CHW's employees live within a 60 minute drive of CHW (subject to traffic congestion), as shown in Figure 3.7. However, the surrounding road network is constrained and is likely to experience increased levels of congestion and therefore travel time delays, as the area and its surrounds grow.

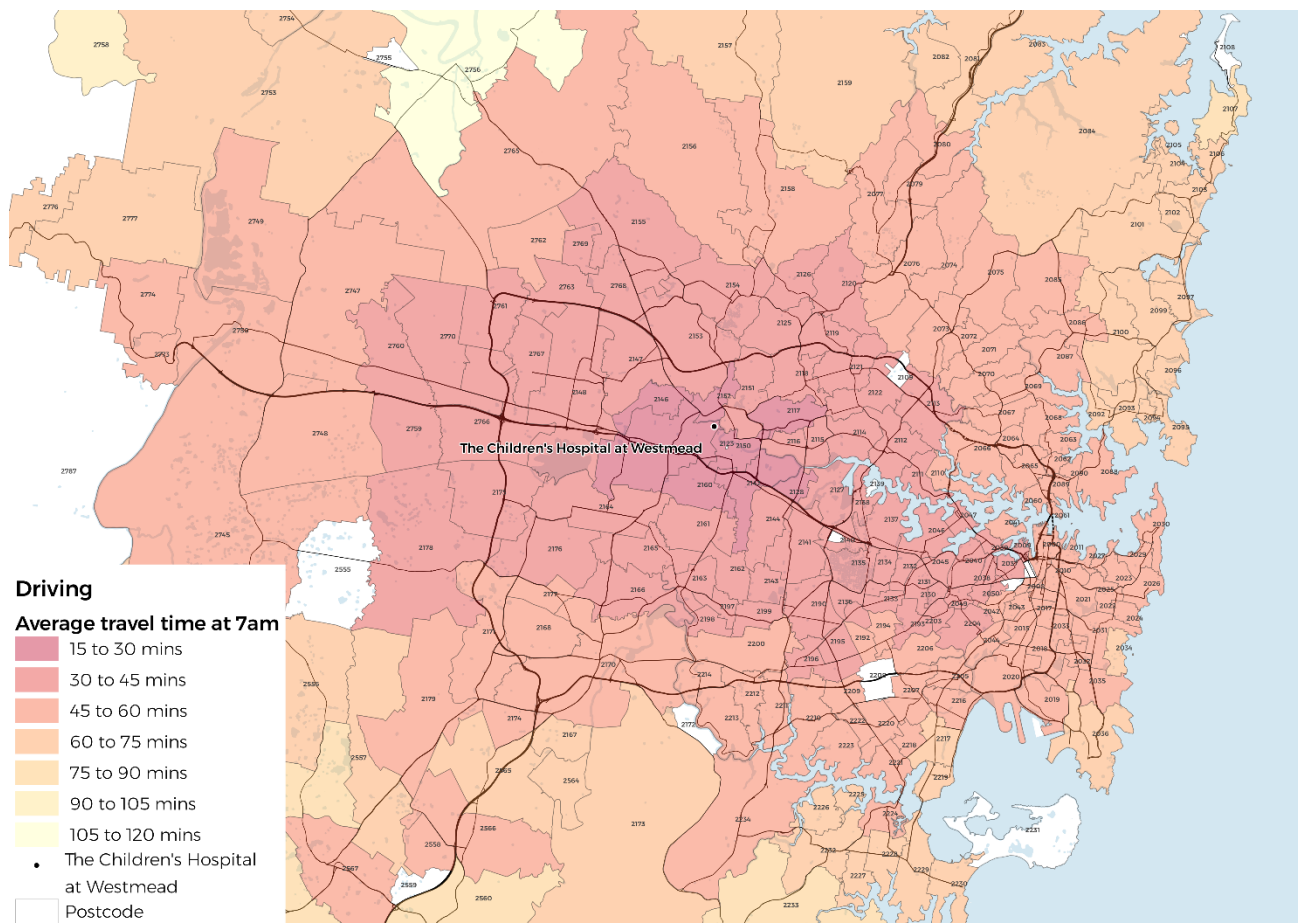


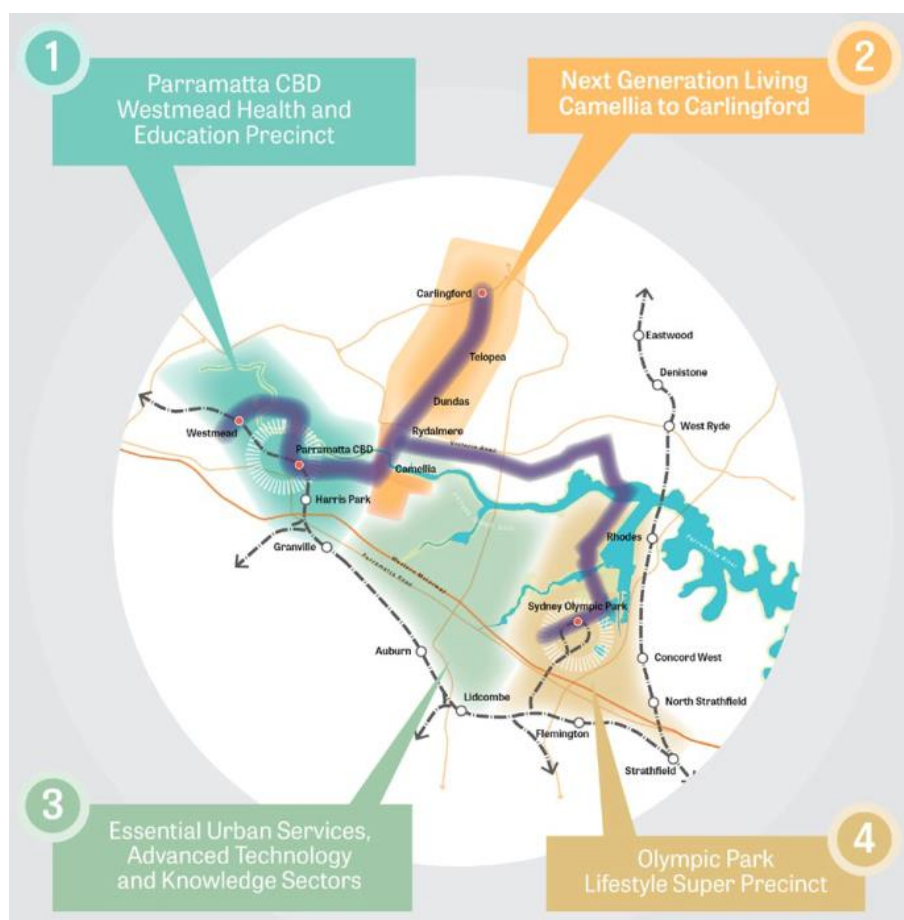
Figure 3.7 Driving connectivity (baseline analysis)

4 THE CHANGING CONTEXT OF WESTMEAD

4.1 FUTURE DEVELOPMENT PLANS

4.1.1 GREATER SYDNEY REGION PLAN, A METROPOLIS OF THREE CITIES

The Greater Sydney Region Plan, A Metropolis of Three Cities was released by the NSW Government in March 2018 to guide land use planning decisions over the next 40 years. It identifies the location of future urban development, strategic transport corridors and major centres, including a vision to support the growth of the Greater Parramatta and the Olympic Peninsula (GPOP) as a key part of the Central River City. The Westmead Health and Education precinct is identified as a key growth area and is located at the western extent of the GPOP Economic Corridor as shown in Figure 4.1. The Parramatta CBD and the Westmead precinct are at the centre of the Central River City.



Source: Greater Sydney Region Plan, A Metropolis of Three Cities, Greater Sydney Commission, (March 2018)

Figure 4.1 Greater Parramatta and the Olympic Peninsula area

Parramatta Light Rail (PLR) and Sydney Metro West are identified as key projects to link an economic activity area with up to 370,000 jobs¹ by 10 to 15-minute travel on public transport. The Plan also identifies the potential new train link between the Western Sydney Airport – Badgerys Creek Aerotropolis and Greater Parramatta. Also mentioned are infrastructure investments which enhance walkability and cycling. The walking and cycling improvements would be focused on access to the transport network, the quality of links along the Parramatta River and within 10 kilometres of Greater Parramatta.

The Plan identifies the development of a “growth infrastructure compact” to outline the order, priority and funding of local and regional infrastructure aligned to growth.

Place-based Infrastructure Compact Pilot for GPOP

The Place-based Infrastructure Compact Pilot for GPOP identified several transport infrastructure proposals that may be required for the growth of the Westmead Precinct, including:

- Transport interchange upgrades at Westmead Station and Parramatta CBD station
- Cycleway improvements between Westmead and Parramatta North and on approach to Parramatta CBD
- Travel demand management including technology solutions like on-demand travel
- Future road and transport upgrades including:
 - On approach to Parramatta CBD along Church Street, Cumberland Highway, Great Western Highway and Windsor Road
 - Parramatta Road and James Ruse Drive
 - Parramatta Outer Ring Road upgrade investigations.

4.1.2 CENTRAL CITY DISTRICT PLAN

The NSW Government released five District Plans to determine how the *Greater Sydney Region Plan, A Metropolis of Three Cities* will be applied to local areas. They are also designed to assist the coordination of integrated planning for land use, transport and infrastructure. The Central City District Plan (Greater Sydney Commission, March 2018) covers the Greater Parramatta area as well as areas of Blacktown, Cumberland and The Hills local government area’s (LGAs).

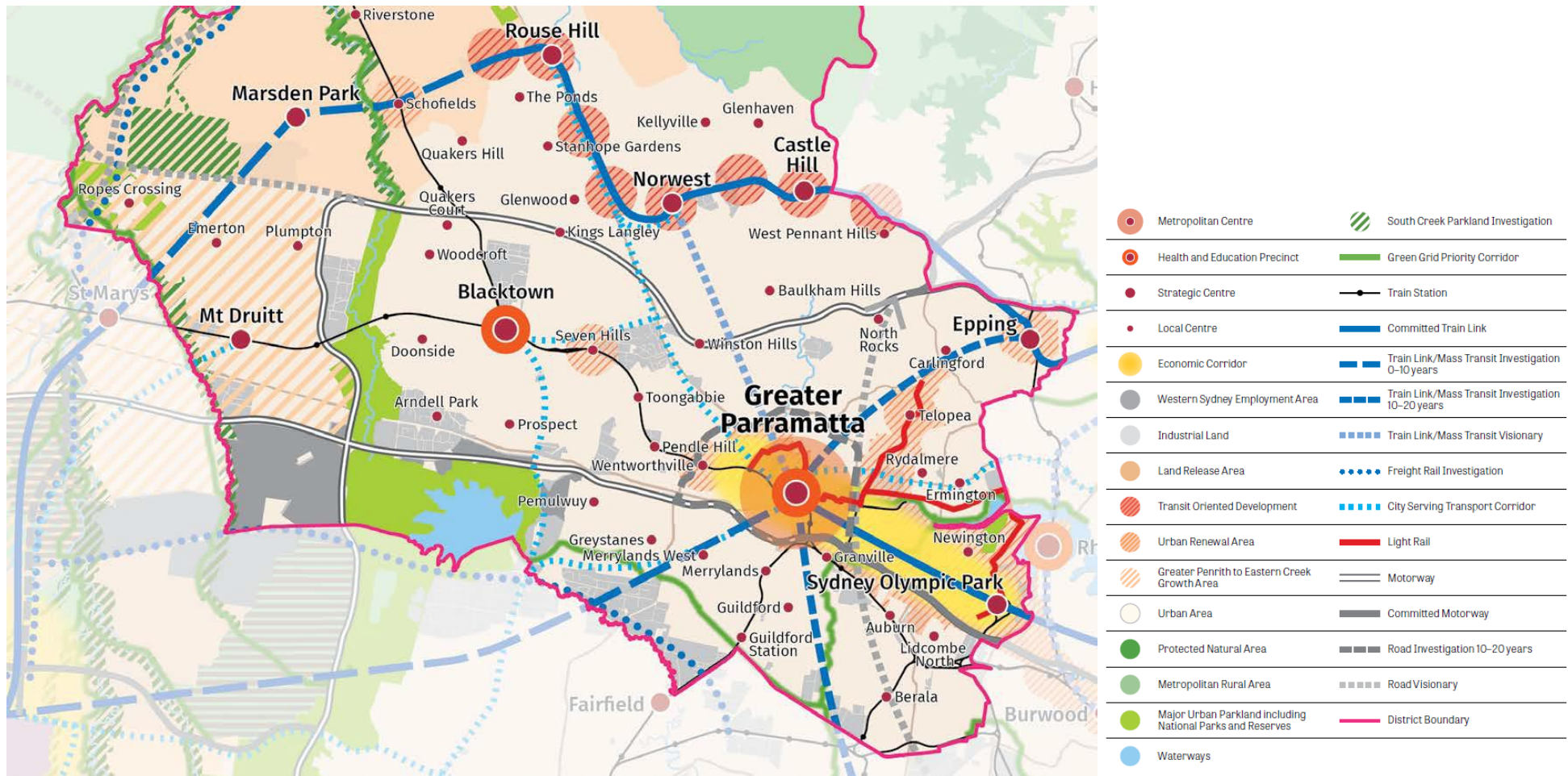
The Westmead area is identified as an Urban Renewal Area due to its proximity to the Parramatta CBD and role as a major employment hub and economic generator. Westmead is also strategically located between Western Sydney Airport and the Parramatta and Sydney CBDs, and therefore has the potential to benefit from improved transport links between these major destinations.

In terms of transport, the District Plan and GPOP supporting documents focus on improving access to jobs and the efficiency of freight movement. Traffic congestion and parking provision are identified as key local issues, and strategies are provided to increase the use of walking, cycling and public transport to combat these issues. Several projects are identified, as shown in Figure 4.2.

From an active transport perspective, priority projects are identified on the Green Grid Priority Corridor, including the Parramatta River corridor. The Parramatta River corridor is planned to provide a continuous east-west connection on both sides of the river from Westmead to Sydney Olympic Park and Rhodes.

Westmead is identified as the largest integrated health, research, education and training precinct in Australia and a key source of employment in the Central River City, is currently attracting private sector investment and is to be supported by improved public transport infrastructure including Sydney Metro West and PLR.

¹ *Greater Sydney Region Plan, A Metropolis of Three Cities, NSW Government, March 2018*



Source: Central City District Plan, Greater Sydney Commission, (March 2018)

Figure 4.2 Central City District plan

4.1.3 FUTURE TRANSPORT 2056

The *Future Transport 2056* was released in March 2018 superseding the *Long-Term Transport Master Plan* (2012). The Strategy contains a wide range of planning visions, directions and outcomes to guide the progression of transport in Sydney over the next 40 years. The Strategy builds upon the “Metropolis of Three Cities” set out in the *Greater Sydney Region Plan* and aims to create a transport network that allows people to access their nearest city centre within 30 minutes of where they live by public or active transport, enabling better access to jobs, education and essential services.

The Strategy envisions an integrated network with a hierarchy of corridors to support the efficient movement of people and goods throughout Greater Sydney, including:

- City-shaping corridors – major trunk road and public transport corridors providing higher speed and volume connections between our cities and centres that shape locational decisions of residents and businesses
- City-serving corridors – higher density corridors within 10 km of metropolitan centres providing high frequency access to metropolitan cities/centres with more frequent stopping patterns
- Centre-serving corridors – local corridors that support buses, walking and cycling, to connect people with their nearest centre and transport interchange.

The Strategy forecasts that by 2056, two thirds of people will live within 2 km of a centre. This places a greater emphasis on the use of modes other than private car for short journeys requiring trip information through devices such as smart phones and the potential to reduce single occupant car usage for first and last mile trips. Emerging technologies such as e-bikes and motorised scooters are identified, however the Strategy also emphasises the importance of delivering complete and connected cycling networks, pedestrian spaces and interchanges with public transport. For Westmead, an opportunity exists to decrease private car use for local trips within the area and potentially longer trips to/from the Parramatta CBD through investment in the public transport, pedestrian and cycle networks.

Positioned in Greater Parramatta and at the centre of the Central River City, Westmead will benefit from radial mass transit initiatives designed to achieve a 30-minute access journey from surrounding suburbs. These initiatives will further strengthen the connection between Westmead and the Parramatta CBD and assist in reducing car use. PLR including any future extensions will also support local access and urban renewal along its alignment, potentially resulting in more staff living along the alignment in the future. These links will also make Greater Parramatta more attractive to surrounding suburbs and help to reduce car dependency in areas further west.

4.2 FUTURE TRANSPORT PROJECTS

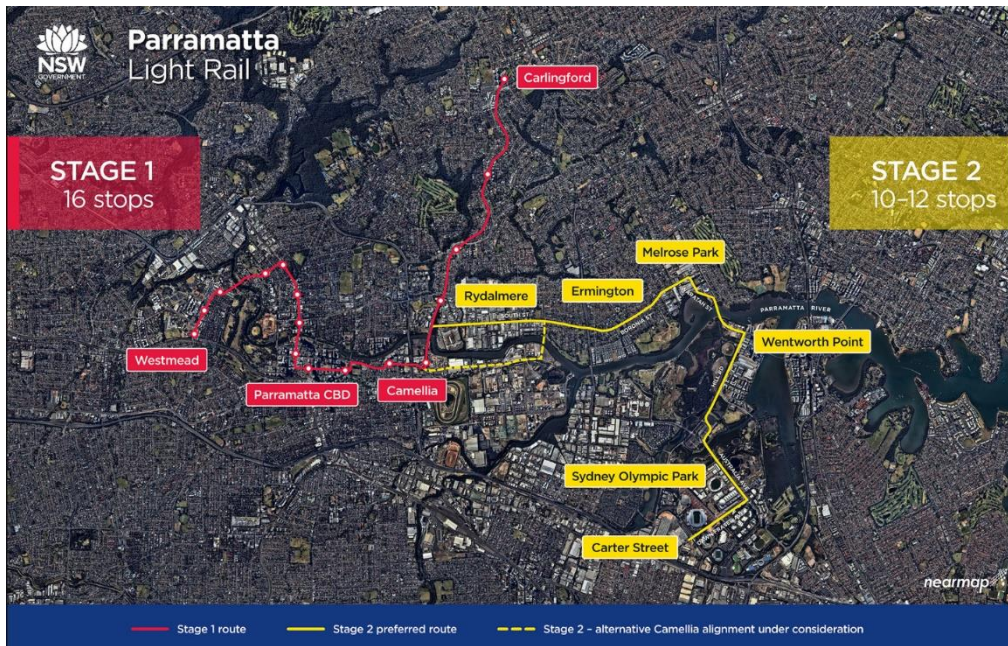
4.2.1 PARRAMATTA LIGHT RAIL

Parramatta Light Rail (PLR) is a major infrastructure project connecting Westmead with Parramatta, Camellia and Carlingford. Stage 1 was approved in 2018 and is currently under construction. It is expected that services will commence in 2023.

In Stage 1, there will be three stops within Westmead. The Westmead stop is located to the east side of Hawkesbury Road, on the opposite side of Railway Parade to the station. The Westmead Hospital stop is located in the centre of Hawkesbury Road and the CHW stop is to be located on Hainsworth Street. These three stops combine to significantly increase the public transport accessibility of Westmead.

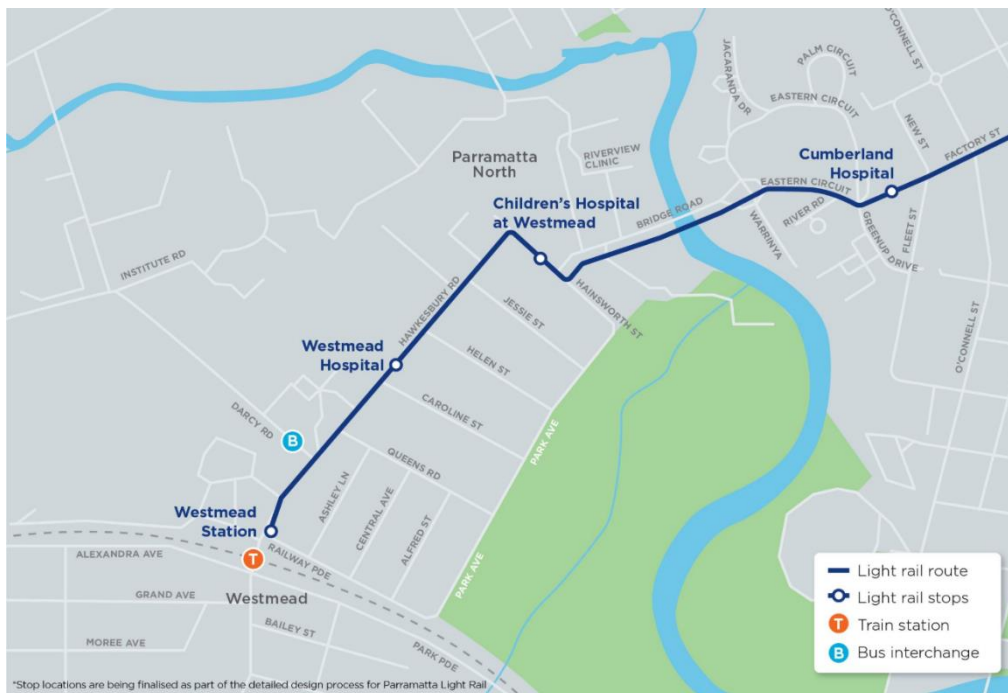
In October 2017, the NSW Government announced the preferred route for Stage 2 which will connect Stage 1 and the Parramatta CBD to Ermington, Melrose Park, Wentworth Point and Sydney Olympic Park along a nine-kilometre route. The Final Business Case has been completed and is currently being considered by Government.

The approved Stage 1 and the preferred Stage 2 network is shown in Figure 4.3 and Figure 4.4 shows the PLR Stage 1 alignment through Westmead.



Source: http://data.parramattalightrail.nsw.gov.au/s3fs-public/PLR_Stages1&2_Waratah2.jpg?PS.cK_UytTwCs3MztaQ08I9g6DwcnuZ3V, accessed 23 October 2020

Figure 4.3 Parramatta Light Rail preferred alignment for Stage 1 and Stage 2



Source: <http://www.parramattalightrail.nsw.gov.au/node/213/>, accessed 23 October 2020

Figure 4.4 Parramatta Light Rail preferred alignment through Westmead

4.2.2 SYDNEY METRO WEST

Sydney Metro West (SMW) will connect the Central and Eastern cities of Sydney to become the easiest and most reliable journey for customers travelling between the Sydney and Parramatta CBD's including Westmead. SMW is expected to be complete in the late 2020's and its alignment is indicatively shown Figure 4.5.



Source: Sydney Metro West Interactive Map Portal (2020)

Figure 4.5 Sydney Metro West alignment

SMW is expected to increase the rail capacity at Westmead, with a forecast 136 per cent increase in hourly services and nearly three times more rail capacity.

SMW would also improve the accessibility of Westmead by reducing travel times to/from locations along the SMW alignment including, Sydney CBD, Sydney Olympic Park and others which are planned to have significant residential and employment growth (on and off the alignment). The proposed Westmead Metro Station would be located on the eastern side of Hawkesbury Road, south of the existing Westmead Station (approximately 850m from CHW). The station would have one entrance on Hawkesbury Road.

New metro platforms would be located next to the existing Westmead Station providing an easy above-ground interchange with the T1 Western Line and T5 Cumberland Line. The new station would also provide customers with easy access to Parramatta Light Rail, T-Way buses and other bus services. As well as connecting customers to the Westmead Health Precinct, the new metro station would service residential areas experiencing growth and renewal in north and south Westmead.

The travel time savings for Westmead aren't specifically shown in the SMW Stage 1 Environmental Impact Statement. Therefore, Table 4.1 shows the travel times savings referred to for Parramatta CBD, which would be similar to those expected for Westmead.

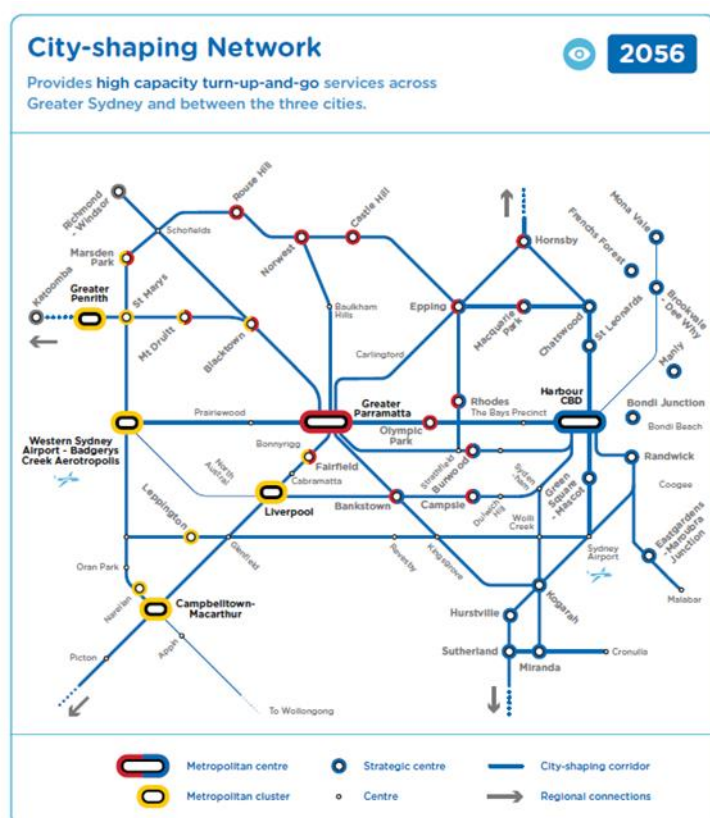
Table 4.1 SMW's indicative travel time savings

Direction	Travel time (minutes)		
	Existing	SMW	Saving
Parramatta to Sydney CBD	31	20 (target)	About 10
Sydney Olympic Park to Parramatta	23	4	19
Burwood North to Parramatta	24	9	15
Parramatta to Rhodes	29	21	9
Parramatta to Epping	30	21	9
Parramatta to Macquarie Park	49	39	10

Source: <https://ca-v2.s3-ap-southeast-2.amazonaws.com/tfnsw/syd-metro-west/EIS-Chapters/02+SMW+EIS+Ch2+Strategic+need+and+justification.pdf>, accessed 23 October 2020

4.2.3 SYDNEY METRO

As part of Future Transport 2056, two north-south city shaping corridors are shown to be delivered through the greater Parramatta region as depicted in Figure 4.6. No further detail of these corridors has been publicly released.



Source: Future Transport 2056

Figure 4.6 Greater Sydney transit network

4.2.4 EAST WEST RAIL LINK

The East West Rail Link is a proposed future mass transit rail line connecting Greater Parramatta and the Western Sydney Aerotropolis and International Airport. TfNSW along with stakeholders, have been progressing early planning and corridor preservation for this future transport link, indicatively shown in Figure 4.7.



Source: TfNSW Current projects

Figure 4.7 East West rail link corridor

5 MODE SHARE TARGETS

The following future mode share targets were set by the STP for the Precinct:

- Short-term (2021) vehicle mode share target of 75%
- Long-term (2026) vehicle mode share target of 65%
- Shift car drivers to walking, increase walking to 8.4%
- Shift car drivers to bicycle-riding, to reach an additional bicycle mode share of 3.9% from adjacent suburbs
- Shift car drivers to T-Way buses, to reach a bus passenger mode share of 4.6%
- Shift car drivers to reach 11.8% train mode share.

The STP identified that the 75% private vehicle mode share was achieved by 2016 and therefore the STP set out measures aimed at maintaining the 75% vehicle mode share, if not improving it.

The Children's Hospital Westmead Parking Demand Study (GTA Consultants, 2019) indicated that Westmead Hospital experienced a 23 per cent reduction in private vehicle mode share between 2015 and 2019. This dramatic reduction in private vehicle use was largely attributed to an increase in weekly staff parking fees from less than three dollars prior to the redevelopment to now be in line with the Ministry of Health guidelines (\$22.70). CHW had already increased parking fees hence their private vehicle mode share reduction was much less significant than Westmead Hospital.

As such, the CHW Redevelopment Stage 2 adopted a CHW specific mode share target that related to a reduction of 5% for private vehicle approximately every 5 years (between each study year), with a total in 10% reduction starting from 2019, as summarised in Table 5.1. The Children's Hospital Westmead Parking Demand Study adopted this mode share target when determining the future parking needs for CHW.

Table 5.1 CHW private vehicle mode share targets

year	Private vehicle mode share target
Reduction Assumption/ Targets provided	
2019	79%
2026/2027	74%
2031/2032	69%

Source: Children's Hospital Westmead Parking Demand Study (GTA Consultants, 2019)

6 GTP INITIATIVES AND ACTIONS

6.1 DEVELOPING A GREEN TRAVEL PLAN

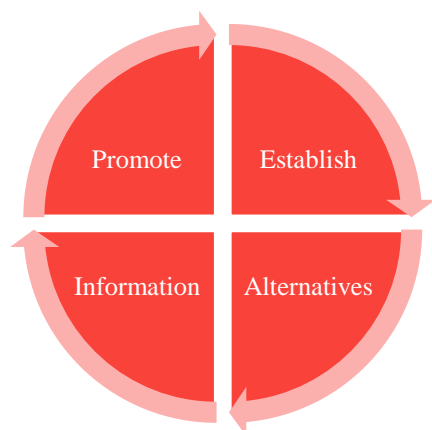
A Green Travel Plan (GTP) consists of a package of measure to support and encourage more sustainable travel choices for journeys to and from work. For the CHW site, actions will need to be cognitive of wider travel planning within the Westmead Health Precinct.

As noted in the STP, the reason for developing a travel plan is varied and includes pressures on existing land use, contribute to broader environmentally sustainable initiatives across the government sector and to help staff choose modes of transport which will make their commute to work easier and healthier. The GTP will build on these and identify new, specific or evolving actions based on data for the baseline travel data for CHW staff.

The focus of this GTP remains the same by seeking to increase the use of healthy and sustainable transport modes through:

- Policies, incentives and deterrents to reduce driving alone in single occupant vehicles, especially during the peak periods.
- Multi-modal transport infrastructure to support active transport (footpaths, Shared Use Paths, cycleways, way-finding) and public transport (heavy rail and light rail stations, bus stops and ferry stops).
- Sustainable transport services including public train, bus and ferry services and private ride-sharing including carpooling and car sharing.
- Promote active and public transport strategies.

An effective travel plan seeks to establish then change four components of travel choice:



- 1 **Establish** current situation
- 2 Provide attractive **alternatives** to private vehicles
- 3 Provide **information** on choices
- 4 **Promote** non-private vehicle modes.

The following sections include several initiatives that have been identified as part of the STP, the Precinct's Sustainable Travel Working Group and this Preliminary GTP. Those initiatives that have been completed or are ongoing or progressing have been noted.

6.1.1 ESTABLISH

To date, CHW has developed a robust set of metrics and surveys to understand staff's current travel to work. The actions in this section will look to build upon this and identify additional surveys, audits or automatic counting methods.

ID	Action	Timeframe	Source	Status
E1	Establish a parking booking system for staff and patients to book a car space when they need it.	Short	STP	TBC
E2	Identify and implement parking allocation for patients, staff, short stay and long stay visitors.	Short	STP	Completed
E3	Audit available car parking to establish a baseline parking occupancy and monitor regularly.	Short	STP	Completed in 2019 and ongoing
E4	Conduct staff travel questionnaire	2-yearly	STP	Ongoing
E5	Analyse staff home postcode data to identify potential target groups for mode shift or specific measures	Ongoing	STP	Ongoing
E6	Audit formal and informal bicycle parking to confirm the short- and medium-term program of works	Short	STP	TBC
E7	Convene a quarterly collaborative working group to work with external transport stakeholders to request changes to create mode shift to active and public transport	Ongoing	STP	Ongoing
E8	Audit capacity and location of existing active transport infrastructure	Short	-	TBC

6.1.2 ALTERNATIVES

The provision of alternative sustainable modes for travellers to/from CHW would allow staff and patients to vary their travel modes. Whilst some may choose to drive on certain days or for certain reasons, having a large pool of available modes will encourage diversification. This is particularly relevant for the short trips (less than 5km) which covers nearly 10 per cent of the current CHW staff population, as discussed in 2.3. This shorter distance opens up both active and public transport options if the right provision, price and infrastructure elements are put in place.

ID	Action	Timeframe	Source	Status
A1	Identify funding and delivery responsibilities	Short	STP	TBC
A2	Work with precinct retailers to install OPAL top up machines on-site, market OPAL availability	Medium	STP	TBC
A3	Install lighting on footpath approaches to station, bus stops and install crunch gravel to create 'audible footpaths' for security	Medium	STP, new	TBC
A4	Upgrade car parks to include space for bicycles and motorcycles (or provide in new car parks)	Medium	STP	Ongoing
A5	Install end-of-trip facilities (male and female) change rooms, showers and lockers (for 5% of employees)	Long	STP	Ongoing

ID	Action	Timeframe	Source	Status
A6	Provide and encourage staff to trial the utilisation of bicycle share schemes (internal or external providers), and to use these for cross-precinct trips	Short/Medium	STP	In progress
A7	Undertake a review of deficiency and barriers to cycling for staff via travel surveys	Short	-	Ongoing
A8	Encourage car sharing for meetings offsite (for example through increased mileage rate for trips)	Medium	-	TBC
A9	Discuss with TfNSW, the need for alternative bus routes that meet the needs of CHW staff or on demand bus services (opportunities discussed further in section 6.2)	Medium	-	Not commenced

6.1.3 INFORMATION

Whilst a number of actions seek to provide new and changed physical infrastructure, the provision of updated, consistent and readily available transport information can also support mode shift. A commonly identified to travel is lack of information or not knowing where to go for information. CHW should work closely with partners to identify information and promote sustainable travel modes.

ID	Action	Timeframe	Source	Status
I1	Develop multi-modal transport promotion and marketing campaign	Ongoing	STP	Commenced and ongoing
I2	Develop a new starter kit with public transport information, recommend maps and applications	Short	STP	Completed
I3	Provide transport updates in quarterly staff forums	Short	STP	TBC
I4	Prepare a Travel Access Guide (for both staff and patients) and provide on all “how to get here” websites with precinct partners	Short	STP	In progress
I5	Prepare travel information (this may include the Travel Access Guide) to be supplied to patients and visitors with any appointment booking information	Medium	STP	Commenced
I6	Provide dynamic signage to indicate parking availability across the precinct and reduce circulation.	Medium	STP	TBC

6.1.4 PROMOTE

As with information, providing infrastructure in itself is not always enough to encourage modal shift. Through the provision of actions designed to reduce the costs and barriers to alternate modes and discouraging car usage it is possible to promote sustainable modes. These actions look to change street arrangements, identify lobbying opportunities and increase exposure to sustainable modes.

ID	Action	Timeframe	Source	Status
P1	Establish an internal travel plan steering committee to assist with implementation.	Ongoing	STP	Commenced and ongoing

ID	Action	Timeframe	Source	Status
P2	Consider removing car parking from new starter remuneration packages	Medium	STP	TBC
P3	Implement a High Pedestrian Activity Area for Hawkesbury Road	Short	STP	Completed
P4	Manage on-street parking in residential areas using pricing or 2P controls	Medium	STP	Ongoing
P5	Work with Parramatta Council to promote, support and deliver transport infrastructure (opportunities discussed further in section 6.3).	Ongoing	STP	TBC
P6	Work with TfNSW to deliver improved interchange and service provision with public transport particularly rail services from Westmead.	Ongoing	STP	TBC
P7	Engage, advertise and sponsor national and local travel demand management or walking and cycling campaigns, including Walk to Work Day, Ride2Work Day, September, Walktober, and Find Your 30	Ongoing	-	Commenced and ongoing
P8	Subsidise purchase of cycles or work with local cycle stores to provide discounts.	Short/Medium	-	TBC
P9	Provide a pool of bikes or e-scooters at key points for movement within the site (discussed further in section 6.3).	Short	-	Commenced and ongoing
P10	Work closely with TfNSW to create a “Transport Hub” for CHW. Seek to increase integration with rail, bus and light rail.	Long	-	Ongoing, with PLR integration works
P11	Promote car sharing by prioritising space allocation for these users in preferred car parks and support car sharing applications.	Medium	-	TBC
P12	Discuss with TfNSW, the ability to provide free or reduced travel rates for staff on future Light Rail between Westmead station and CHW.	Medium/Long	-	Not commenced

6.1.5 MONITORING PROGRESS

The success of the initiatives outlined will be monitored throughout the lifecycle of this plan and the STP. Momentum and buy-in to the plan can be maintained, through the ongoing monitoring of progress of individual initiatives.

Given the development plans for the CHW and the wider Westmead Health Precinct, the travel plan should be reviewed and adapted over time. These should be guided by new opportunities that exist as development plans are realised.

Changes in travel behaviour are also unlikely to be noted immediately, with a 5 year period usually needed for plans to be fully established and benefits observed. It is therefore proposed that monitoring should be taken on an annual basis to identify trends, with full surveys completed every two years and supplemented with small snapshot surveys in the intermediate years. Alterations to initiatives can be made to reflect levels of success, as trends are identified.

In addition to surveys, other measures should be used to understand travel behaviour changes including:

- Establish online tools to provide feedback on travel. This could be public facing to allow visitors to contribute.
- Continue to review demand for end of trip facilities and respond appropriately.
- Continue review of usage across different modes and car park utilisation rates.
- Seek feedback on initiatives and policies from users.

6.2 PUBLIC TRANSPORT OPPORTUNITIES

6.2.1 OVERVIEW

To understand the possible improvement in journey time for users, three bus routes improvements were analysed using the WSP Customer Connectivity Tool. The tool measures public and active transport networks against accessibility indicators such as access to employment, education and medical care. In this case, access to CHW was measured. The tool determines how far a person can travel by public transport or active travel within a given travel time, including transfers between services and walking time to and from stops or stations.

To understand how changes to bus services and routing could increase connectivity, three route options were assessed against the baseline (discussed in section 3.1). The tested options mainly focused on increasing connectivity in postcodes 2147 (Lalor Park, Seven Hills), 2153 (Baulkham Hills, Norwest) and 2155 (Beaumont Hills, Rouse Hill) where the staff surveys show that between 80 to 250 employees live in each. Therefore, these postcodes are the most populous, outside of Westmead itself (as discussed in section 2.3). The three additional routes assessed are shown in Figure 6.1 and include:

- Option 1 travels north from the Parramatta via the T-way to Rouse Hills via Beaumont Hills and also has spur via Hawkesbury Road to stop at the Children's Hospital stop (ID: 214515).
- Option 2 travels from Parramatta to Seven Hills via local streets within Toongabbie. This option seeks to provide alternative options for those within postcode 2147.
- Option 3 follows a hybrid route of services 705 and 711 via Lalor Park and the Windsor Road T-Way. This option seeks to provide quicker and more direct access from postcode 2147.

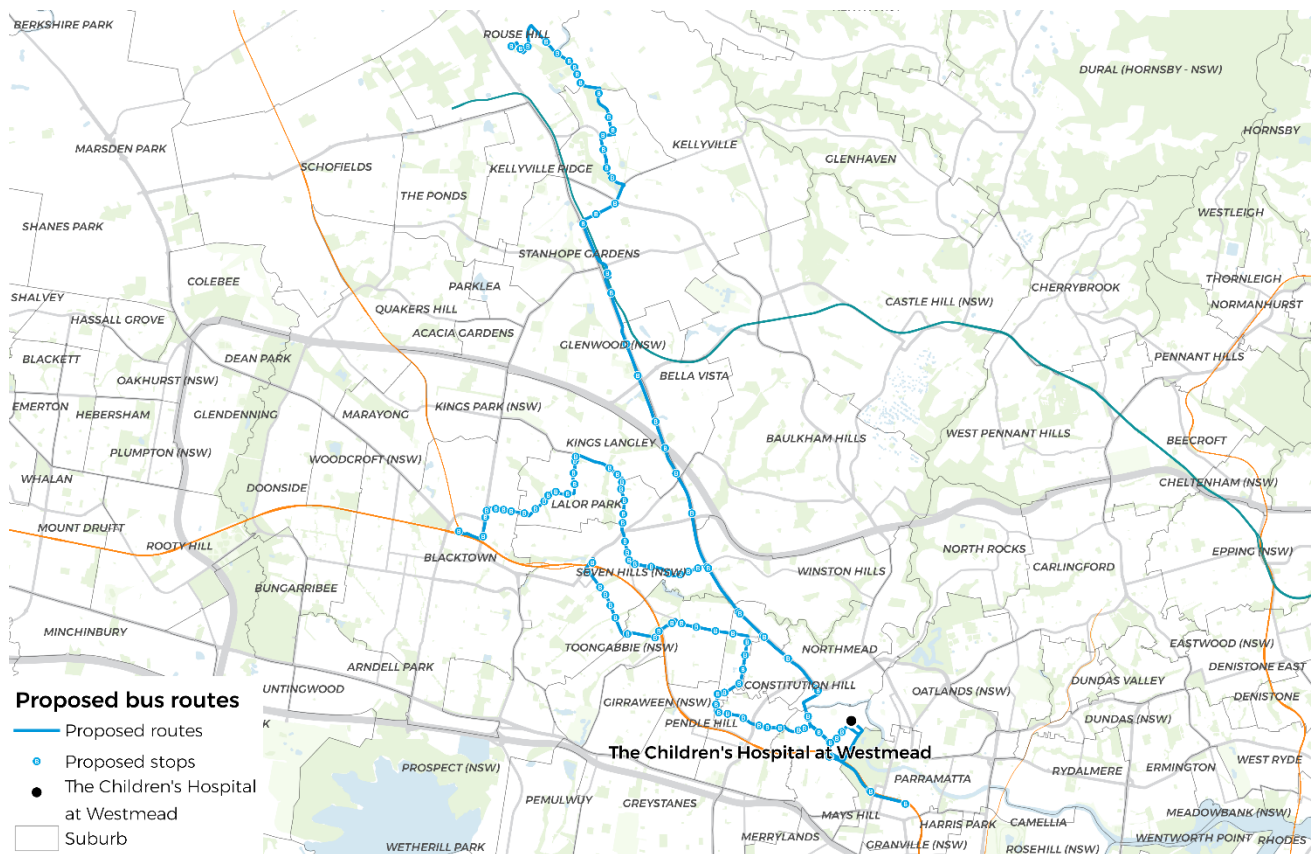


Figure 6.1 Three bus routes that were tested

6.2.2 OPTION 1 – TO ROUSE HILL

Option 1 travels north from the Parramatta via the T-way to Rouse Hills via Beaumont Hills. The route will also spur via Hawkesbury Road to stop at the Children's Hospital stop (ID: 214515). Figure 6.2 shows that this service provides additional sub-60 minute connection to postcode 2155 as well as sub-45 minute connection to postcodes 2147 and 2153.

Time saving is also achieved across most postcodes north of CHW, with up to 6 minutes travel time saving in postcode 2155 and 8 minutes from postcode 2156, as shown in Figure 6.3. Based on a travel time saving per hour of \$16.13 per person (TfNSW Values of Time, 2015) this equates to a net saving of approximately \$13,500 per year² from postcodes 2155 and 2156 alone.

² Based on 10% bus mode share at a 46 working weeks per year.

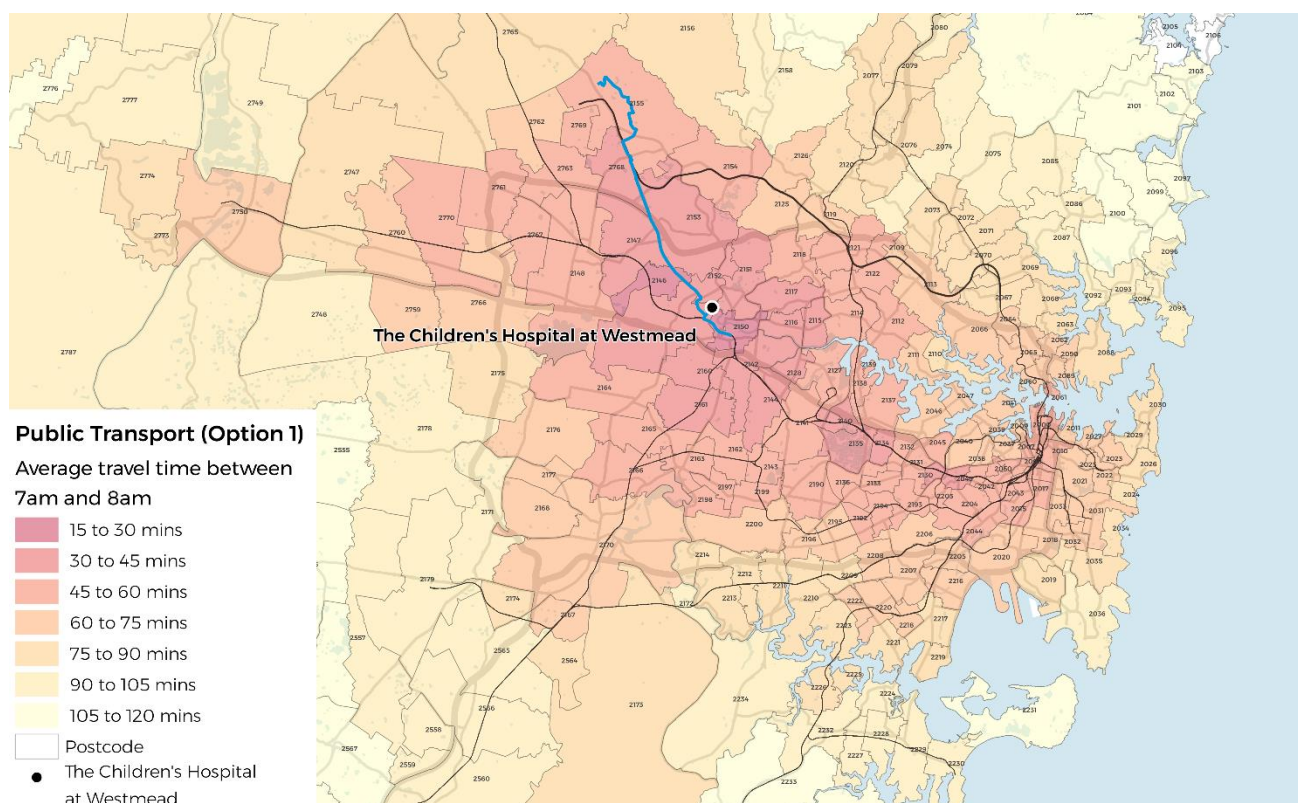


Figure 6.2 Option 1 average travel time catchments

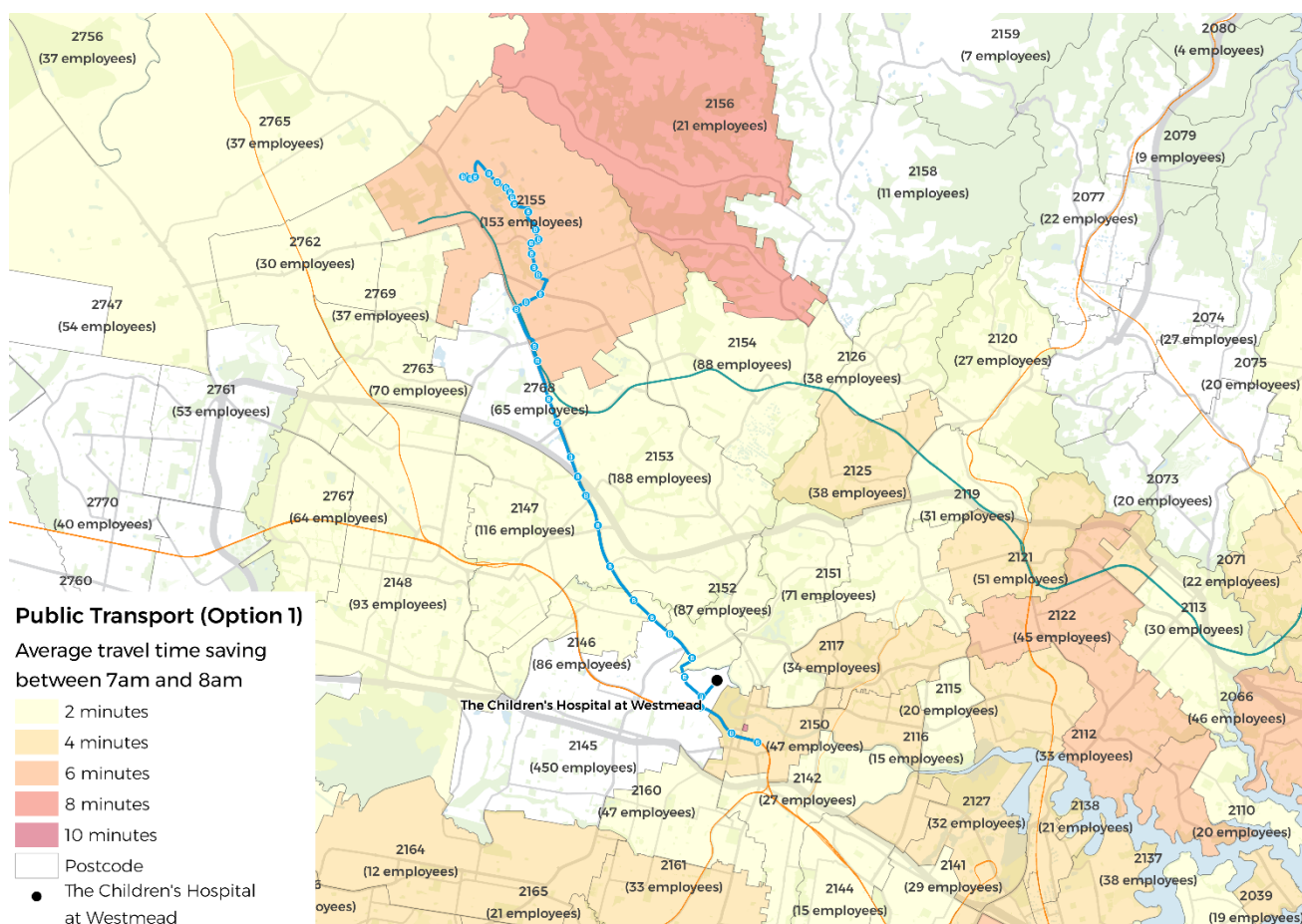


Figure 6.3 Average travel time saving (Option 1)

6.2.3 OPTION 2 – TO SEVEN HILLS

Option 2 travels from Parramatta to Seven Hills via local streets within Toongabbie. This option seeks to provide alternative options for those within postcode 2147, such that staff could access bus routes closer to their home and would not need to rely on accessing the T-Way (via car or feeder bus services).

Due to the indirect nature of this route, little time savings are achieved, as demonstrated in Figure 6.4 and Figure 6.5. Time saving is noted for postcodes within the Blue Mountains, where passengers are likely to interchange at Toongabbie station for services to CHW, but there are low staff numbers in this area.

The travel time savings per passenger is small, with an average saving of 4 minutes achieved in postcode 2146.

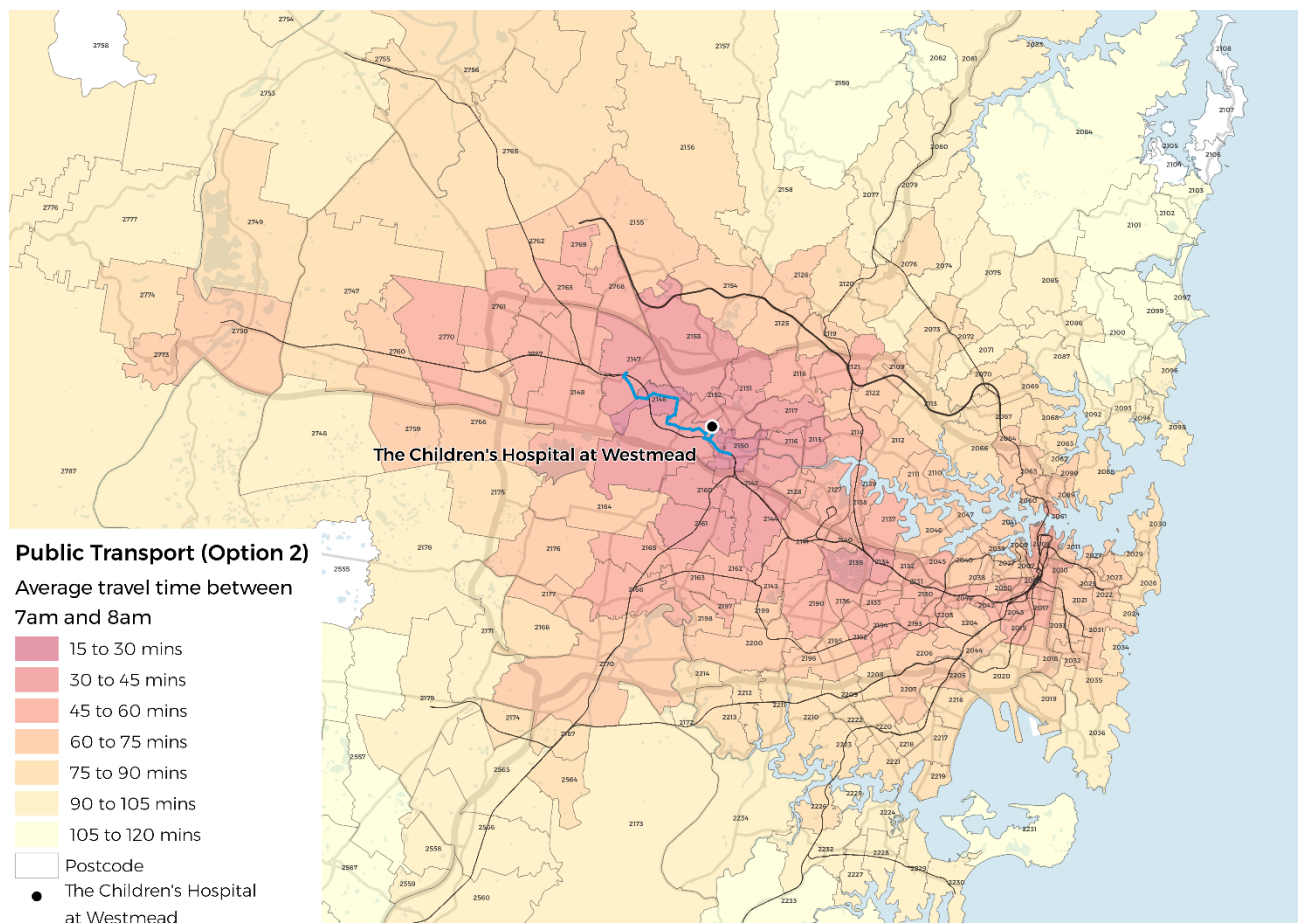


Figure 6.4 Option 2 average travel time catchments

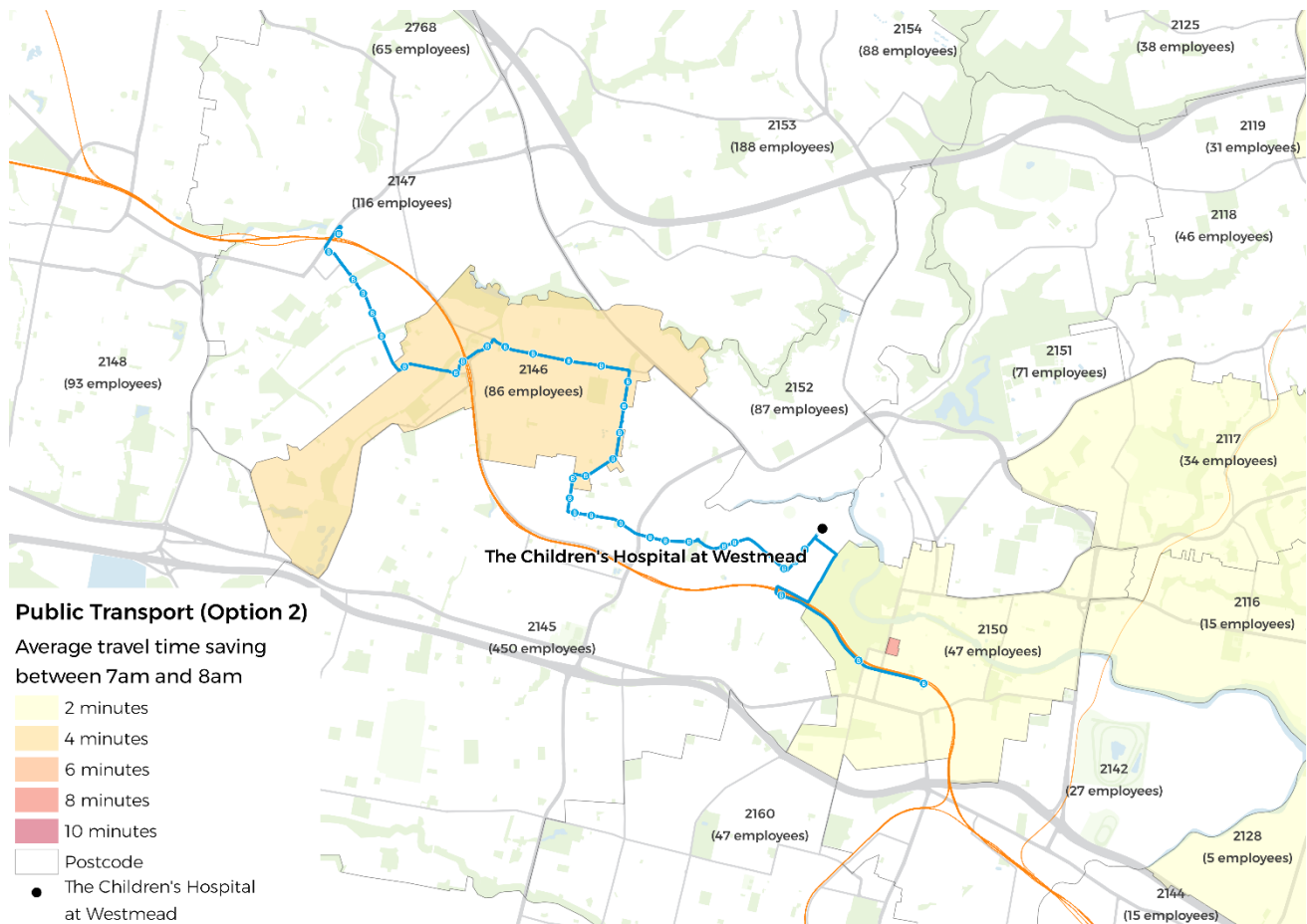


Figure 6.5 Average travel time saving (Option 2)

6.2.4 OPTION 3 - TO BLACKTOWN VIA LALOR PARK

Option 3 follows a hybrid route of services 705 and 711 via Lalor Park and the Windsor Road T-Way. This option seeks to provide quicker and more direct access from postcode 2147.

The travel time savings for this option is modest. Whilst there is little change in the postcodes that achieve sub-60 minute journey times, small savings are achieved locally which equate to an average of 4 minutes for postcode 2147 and 2 minutes for neighbouring postcode areas, as shown in Figure 6.6 and Figure 6.7. This route does however provide a quicker and more coherent route from Lalor Park compared to services 705 and 711.

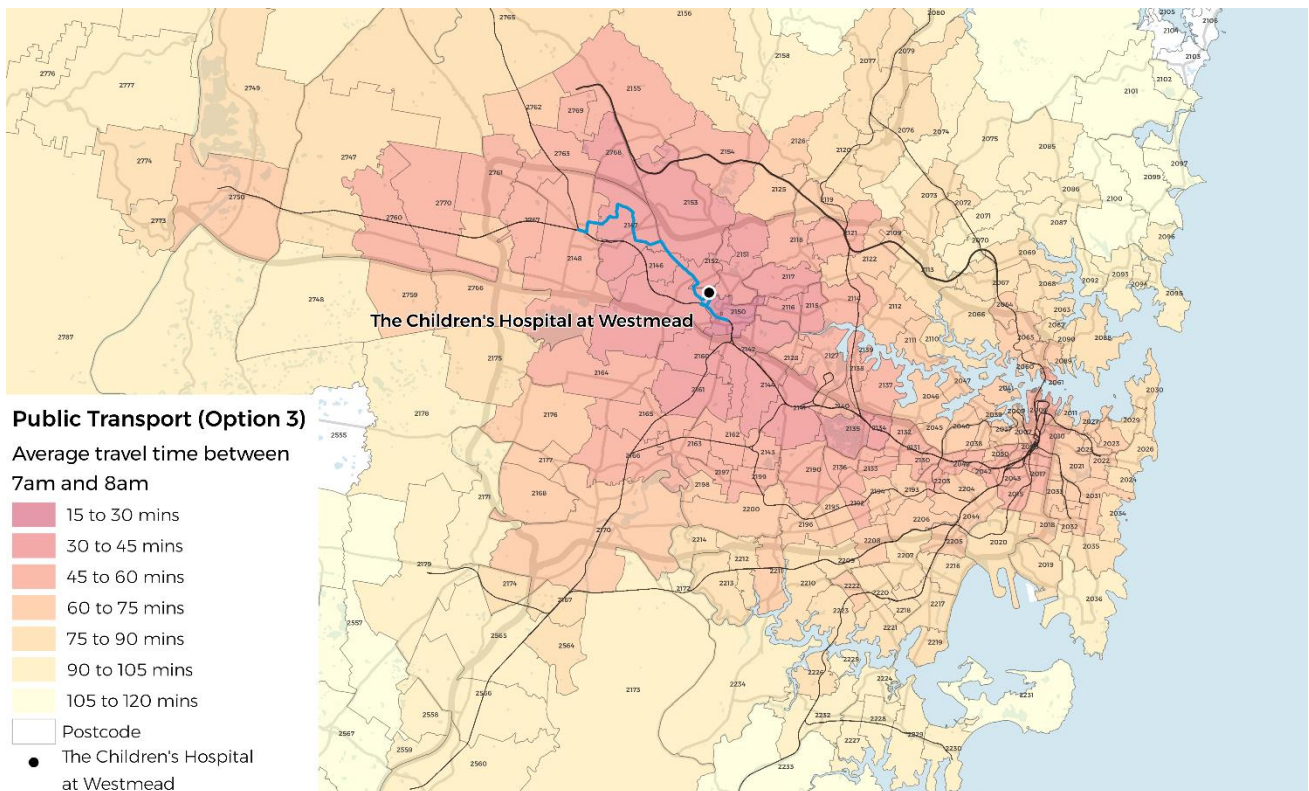


Figure 6.6 Option 3 average travel time catchments

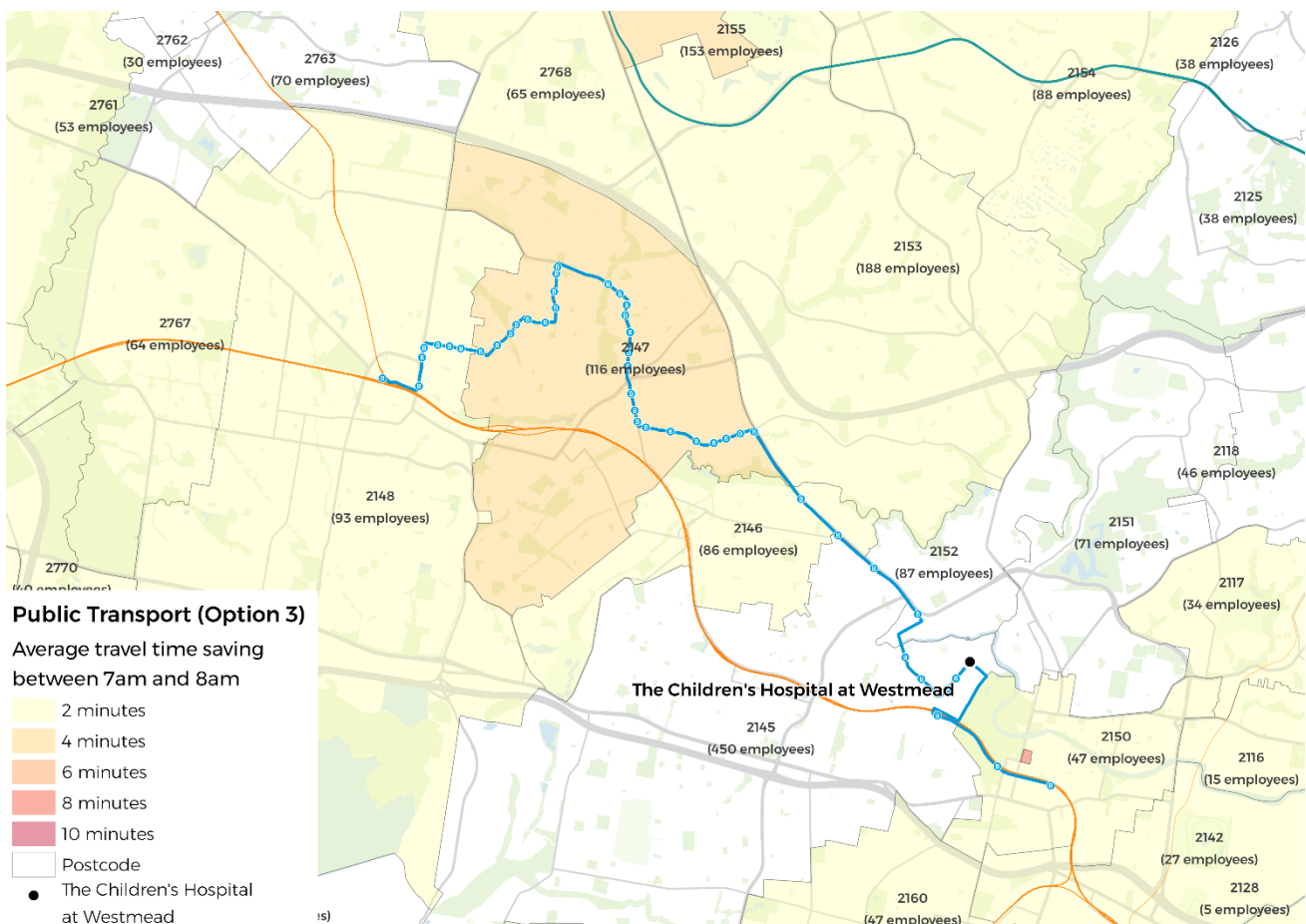


Figure 6.7 Average travel time saving (Option 3)

6.2.5 SUMMARY

Increasing the directness of services and utilising the T-way provides opportunity to reduce the journey time and thus increase the attractiveness of public transport as a viable option. When considering the three options, Option 1 (to Rouse Hill) provides the greatest benefits. It provides the greatest time saving for a large proportion of staff. Furthermore, Option 3, whilst having a smaller impact on time saving, does provide a clear, more coherent and direct service from Lalor Park. These outputs should be used in discussions with TfNSW to identify the future bus service needs of CHW and in particular, improving the service provisions between CHW and the main areas that staff live.

In addition, opportunity for on demand bus services to travel between the north-west and the Westmead health Precinct or between the north-west suburbs and the existing T-Way is demonstrated. This could help staff to access the existing bus routes, easier and faster than using the current feeder bus routes. TfNSW are actively investigating on demand services as part of the wider transport provision and the nature of travel to the hospital site gears itself for this type of provision.

More generally, the analysis shows that providing more services along Hawkesbury Road towards CHW would reduce walking transfer time and increase its attractiveness for those staff that live south of the site. Whilst demand is unlikely throughout the day, peak period services should be investigated.

6.3 KEY LOCAL TRANSPORT OPPORTUNITIES

Whilst the actions above provide high-level actions, some key local opportunities have been identified. As shown in Figure 6.8, these opportunities look to mitigate some of the physical, environmental and psychological barriers.

IMPROVE CYCLING NETWORK

CHW is located close to Parramatta CBD and a number of key residential areas. Whilst the existing cycling network is extensive, key gaps exist within the network (as discussed in section 3.2). This includes a lack of network directly north of the Parramatta River, south across the railway line and west along the rail line towards Wentworthville. In addition, sections of the existing network is of poor quality and legibility. CHW (and the Westmead Health Precinct as a whole) should seek to lobby partners including City of Parramatta and TfNSW to improve or fast track the upgrades and proposed links identified in Parramatta Bike Plan, such as those shown in Figure 3.4 and Figure 6.8.

FREE TRAVEL FOR STAFF ON FUTURE LIGHT RAIL

Surveys have identified that the distance between the Westmead rail station and CHW is discouraging staff from using public transport. Currently, with limited bus services, a 15-minute walk is required from CHW to the station. With future light rail services proposed from 2023, SCHN could enter into an agreement with TfNSW to subsidise travel on the Hawkesbury Road section of the future light rail between CHW and Westmead station. The Star has successfully adopted this arrangement to encourage their staff to use public transport to access their site in Pyrmont.

PROVISION OF SECURE WALKING AND CYCLING

As a 24-hour operation, the provision of secure walking and cycling connections is key. Currently Parramatta Park, in particular, presents a barrier between the CBD and CHW. SCHN should work with partners to identify key and well used routes from CHW and provide lighting, surveillance opportunities and legibility to these.

E-SCOOTERS OR E-BIKES FOR INTERNAL TRAVEL

Due to the size of the Westmead Health Precinct, bookable e-scooters or bikes could provide staff with a quick and convenient means to traverse the site. They could also be used to provide transport between key transport nodes or for staff trips during lunch breaks.

BUS SERVICE IMPROVEMENTS ON HAWKESBURY ROAD

Whilst the majority of staff at CHW travel to/from the north of the site (see section 2.3), connections to/from the south via Hawkesbury Road are limited in number and frequency. Providing additional bus priority (combined with increase

service provision utilising the Liverpool to Parramatta T-Way) could provide significant travel time savings and direct services.

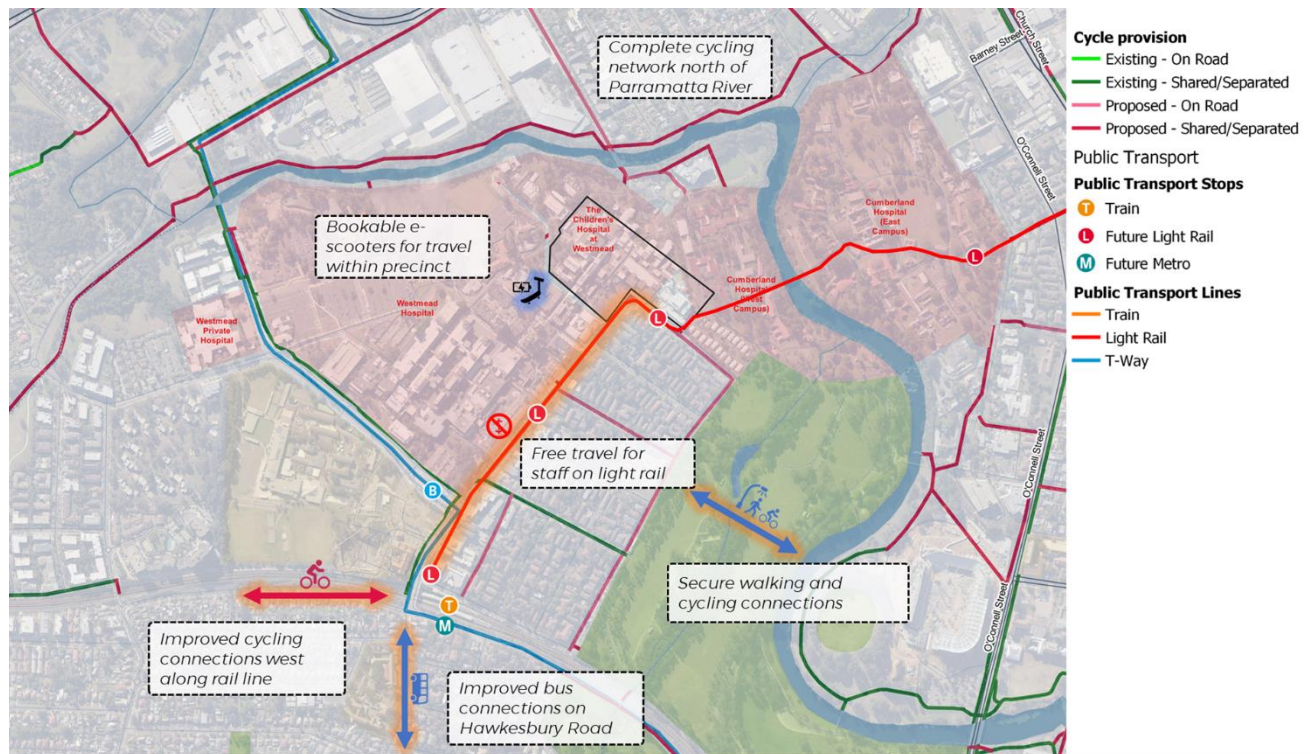


Figure 6.8 Key local transport opportunities