



11 Harp Street, Campsie

Transport Assessment

Campsie Health Precinct Planning Proposal

21/01/2025

P2519r02



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1 Introduction

1.1 Overview

This transport impact assessment has been prepared by Ason Group to support a planning proposal for a proposed integrated health precinct at 11 Harp Street, Campsie. The proposal incorporates a unique health related precinct incorporating six mixed-use buildings covering a total gross floor area (GFA) of about 65,000m².

The site is within the City of Canterbury Bankstown Council Local Government Area (LGA) and is therefore assessed in accordance with Canterbury-Bankstown Development Control Plan 2023 (DCP 2023) and Canterbury-Bankstown Local Environmental Plan 2023 (LEP 2023).

1.1 Purpose of this Report

This report sets out an assessment of the anticipated transport and pedestrian implications of the proposed development, including consideration of the following:

- existing traffic and parking conditions surrounding the site
- pedestrian and bicycle requirements
- the traffic generating characteristics of the proposed development
- suitability of the proposed access arrangements and pedestrian facility for the site
- implications of construction activities on the existing pedestrian movements
- the transport impact of the development proposal on the surrounding road network.

1.2 Site Description

The subject site, situated at 11 Harp Street and 11A Elizabeth Street, currently serves as a car storage facility associated with local car auctioneer businesses and light industrial uses. The neighbouring properties include a mix of residential and industrial land uses. To the east lies Clemton Park Shopping Village, while Canterbury Hospital and Campsie town centre are further north.

The location of the subject site and its surroundings is shown in **Figure 1** and **Figure 2**. This includes the site location in the context of proximity to Canterbury Hospital to the north and other key surrounding land uses, including Clemton Park Shopping Village. Campsie and Belmore train stations are further to the north-east and north-west, respectively.

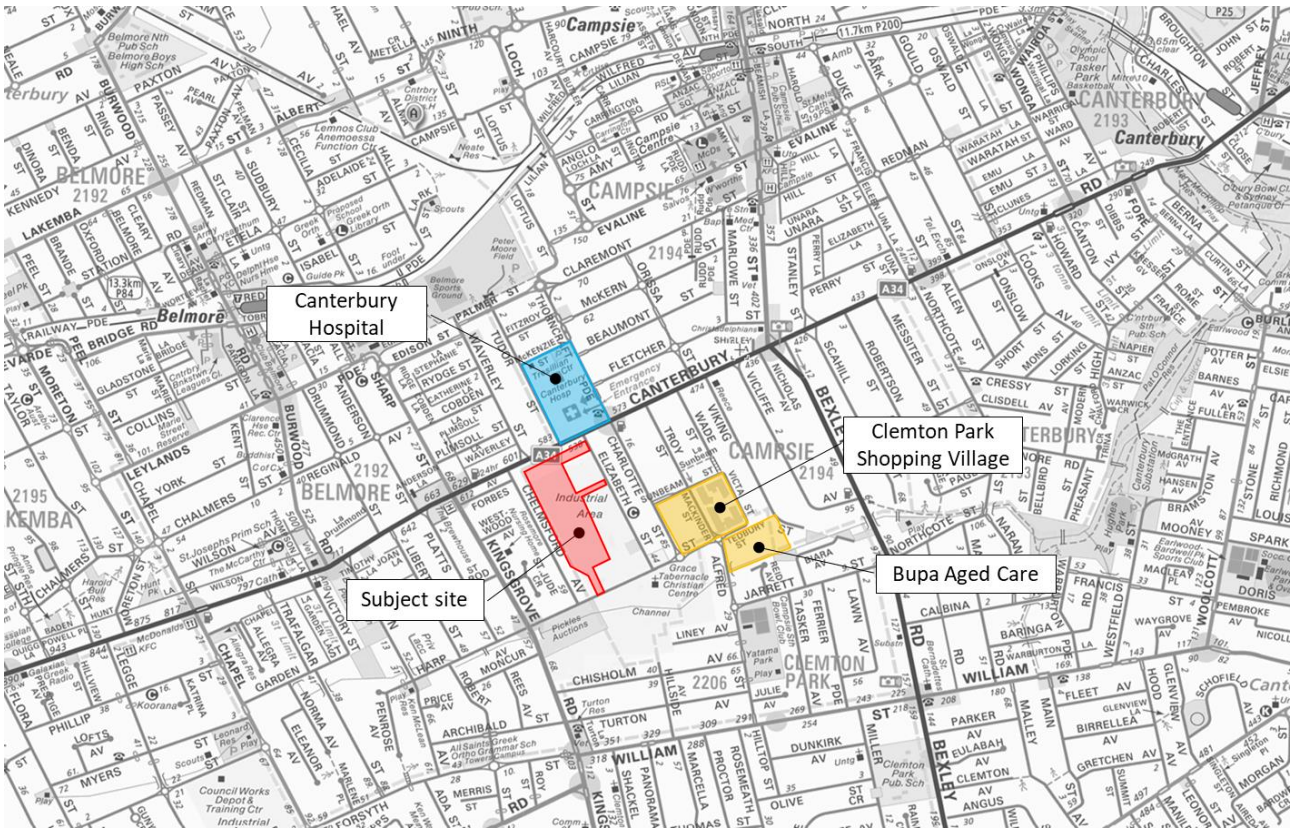


Figure 1: Site Location and Local Context (source: street-directory)



Figure 2: Aerial View (source: Nearthmap)

1.2 Project History

The planning proposal was initially submitted in 2020 for the mixed-use health precinct incorporating 69,000m² of gross floor area across six separate buildings and on-site parking for 700 vehicles in select consolidated car parks across the site and along the main north-south internal road. Vehicle and pedestrian access were initially proposed via a two-way access on Harp Street to the south.

A transport assessment was prepared by GTA Consultants¹ in mid-2020 (GTA report) to detail the anticipated transport implications of the proposal, including consideration of the existing traffic and parking conditions surrounding the site, traffic generating characteristics of the proposal, access arrangements, parking impacts and necessary quantum to service the proposed land uses across the day and week, pedestrian amenity, and public and active transport facilities.

The GTA report was included as part of the overall submission, with stakeholder engagement ongoing post-lodgement. Formal comments were received from Council and Transport for NSW (TfNSW) together with Bitzios Consulting also completing a peer review of the GTA report in late 2020².

1.3 Gateway Determination

Since lodgement, the planning proposal has undergone modifications as part of active and ongoing engagement with stakeholders. With three design scenarios ultimately considered as part of realising an optimum planning outcome, Scenario 3 was the agreed preferred concept scheme with a revised planning proposal submitted in September 2023. Stakeholder and peer review comments and recommendations have also been incorporated as part of the revised planning proposal. ASON Group prepared an Addendum Transport Assessment (ASON addendum report) dated 18 January 2024 (reference: P2519r01v02) to accompany the submission which detailed all stakeholder comments and responses.

Gateway determination has since been received from the Department of Planning Housing and Infrastructure (DPHI) for the revised planning proposal (RZ-3/2019) which recommended the planning proposal proceed to public exhibition.

The revised planning proposal, as determined under the Gateway determination, comprises a diverse mixed-use health precinct incorporating some 64,734m² across six separate buildings with car parking for about 700 vehicles in select consolidated car parks. More specifically, the following land uses make up the planning proposal:

- Integrated ambulatory health hub.
- 100-room medi hotel.
- 200 bed private hospital.
- Rehabilitation and respite facilities.
- 150 place hospital staff and patients' childcare centre.
- Medical centre.
- Medical research centre.
- Day procedure centre.
- Clinical teaching and learning centre.
- Clinical support service.

¹ 11 Harp Street, Campsie, Planning Proposal, Transport Impact Assessment, Issue C, dated 03 August 2020.

² Peer Review – Planning Proposal – 11 Harp Street, Campsie, Bitzios Consulting, dated 18 December 2020.

With respect to transport and traffic matters, the modifications are relatively minor and mostly limited to site modified access arrangements. This includes an additional two-way access driveway at 5 Elizabeth Street and conversion of the access driveway at 11A Elizabeth Street from a two-way access to a one-way exit. No other modifications are proposed, including overall GFA and mix of land uses. The main Harp Street access driveway similarly remains unchanged.

1.4 Key References

Several key strategic, design and planning documents have been referenced to inform the overall transport assessment of the proposed development. These include:

- NSW Government Future Transport Strategy.
- Greater Sydney Region Plan: A Metropolis of Three Cities 2018, Greater Sydney Commission.
- Canterbury Bankstown Active Transport Action Plan 2020-2030.
- Canterbury-Bankstown Development Control Plan 2023.
- Canterbury-Bankstown Local Environmental Plan 2023.
- Transport for New South Wales, Guide to Traffic Generating Developments 2002.
- Transport for New South Wales Guide to Traffic Generation Developments Updated Traffic Surveys 2013/04a 2013.
- Integrated Public Transport Service Planning Guidelines, Sydney Metropolitan Area, 2013.
- Australian Standard AS 2890.1:2004: Parking Facilities – Off-Street Car Parking.
- Australian Standard AS 2890.2:2018: Parking Facilities – Off-Street Commercial Vehicle Facilities.
- Australian Standard AS 2890.6:2022: Parking Facilities – Off-Street Parking for People with Disabilities.
- GTA Consultants: Harp Street, Campsie, Planning Proposal, Transport Impact Assessment, Issue C, dated 03 August 2020.
- Campsie Health Precinct, Urban Design Report, Kann Finch.

2 Strategic Context

1.3 Overview

The following key strategies and plans have influenced development opportunities in Campsie and broader Eastern Harbour City, together with meaningful effects on future staff travel demand and travel mode choice.

The introduction of Sydney Metro City and Southwest services will be a catalyst for meaningful change in how people travel to and from Campsie. Sydney Metro remains Australia's largest public transport project with Stage 2 services to run along the existing heavy rail network through Campsie and Belmore to Bankstown. Sydney Metro will significantly improve the 30-minute travel coverage from Campsie and will improve travel times, reliability and reduce costs compared a range of other travel modes. It will also reinforce the link to key employment areas, including Sydney CBD.

1.4 Canterbury Hospital Redevelopment

The NSW Government is investing \$350 million in the redevelopment of Canterbury Hospital to expand the facility and deliver upgrades to existing infrastructure. The investment recognises the absence of any works over the past 25 years and comes as the Canterbury-Bankstown LGA is expected to accommodate a noticeable increase in population to 443,000 people over the next 12 years.

The redevelopment will provide local jobs in health, technology and clinical support services as forms part of the NSW Government commitment to \$3 billion of new and upgraded hospitals across greater western Sydney. The project is currently in planning with staff, stakeholder and community engagement ongoing.

In this context, development of the site to establish a state-of-the-art health precinct in south-west Sydney to ensure expanded health services for the growing population is critical to achieving desired outcomes. The site is well positioned to complement the expansion of services at Canterbury Hospital with the proposed supporting health services to further justifying the NSW Government investment. In this regard, active connections between the two sites will be key to realising the potential of the precinct and appropriately servicing future demands.

2.1 NSW State Policies

2.1.1 Future Transport Strategy 2056

Future Transport Strategy 2056 was released in March 2018 and represents an update of the 2012 Long Term Transport Master Plan for NSW. Future Transport 2056 is supported by a suite of plans for Greater Sydney and regional NSW. As shown in **Figure 3**, the Strategy identifies that planning and investment for Greater Sydney will focus around the three cities concept – the Western Parkland City, the Central River City and the Eastern Harbour City, where people can access the majority of jobs and services within 30-minutes. It will require a sustained and staged investment program to protect corridors and then develop an integrated transport system that includes:

- 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 10km 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.

- Freight network: Significant corridors that support the movement of goods.

The site is within the Eastern Harbour City with ongoing development of the region reliant on improving the 30-minute public and active transport access to key centres. To support this, the focus will be on new city-shaping connections, particularly from the north and south.

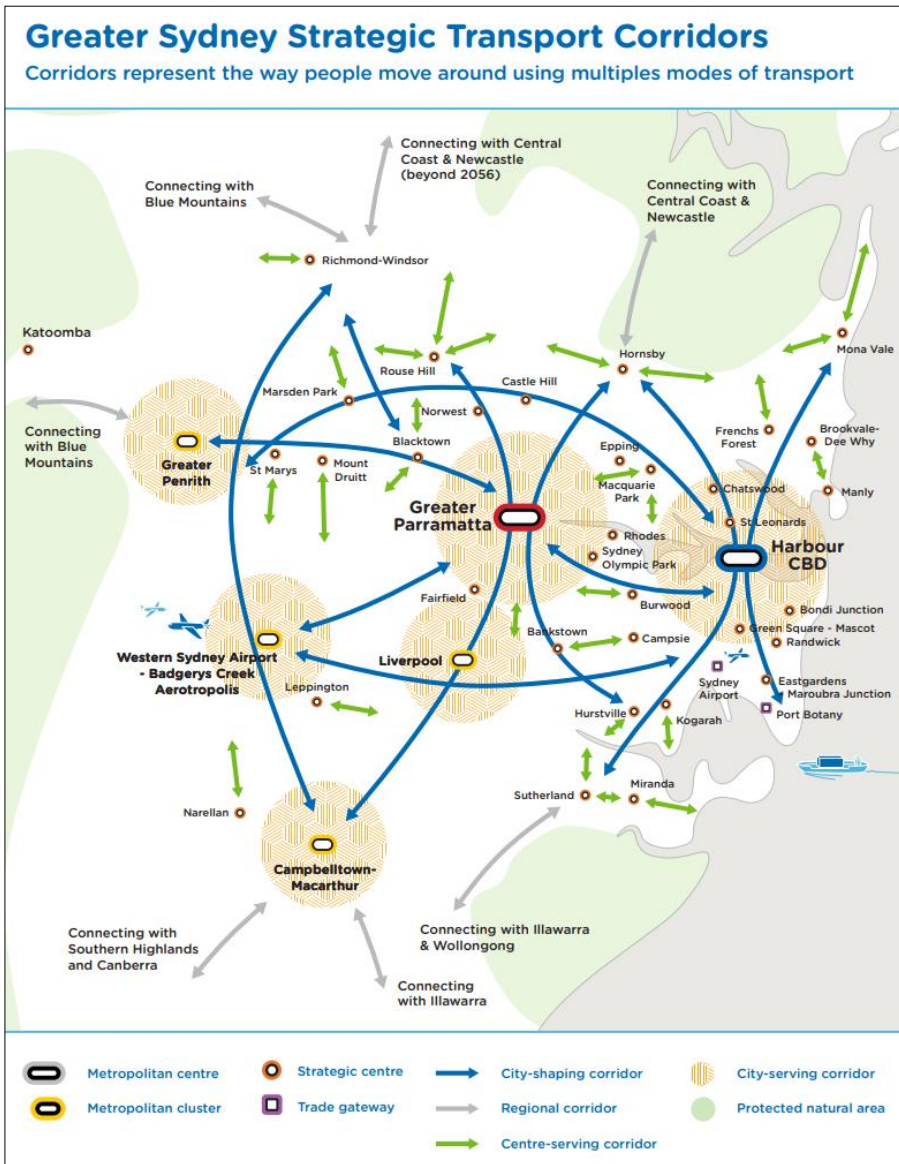


Figure 3: Greater Sydney Strategic Corridors (source: opengov.nsw.gov.au)

2.1.2 Greater Sydney Regional Plan: A Metropolis of Three Cities (2018)

The Greater Sydney Region Plan, *A Metropolis of Three Cities (the regional plan)* is built on a vision of three cities where most residents live within 30 minutes of their jobs, education and health facilities, services and great places. It is also set to rebalance growth and deliver its benefits more equally and equitably to residents across Greater Sydney.

Based on a vision of three connected cities – the Eastern Harbour City, the Central River City and the Western Parklands City – the Region Plan is structured around strategies for infrastructure, collaboration, liveability, productivity, sustainability and implementation across Greater Sydney. **Figure 4** identifies the key strategies to achieve the outcomes for the Eastern Harbour City.

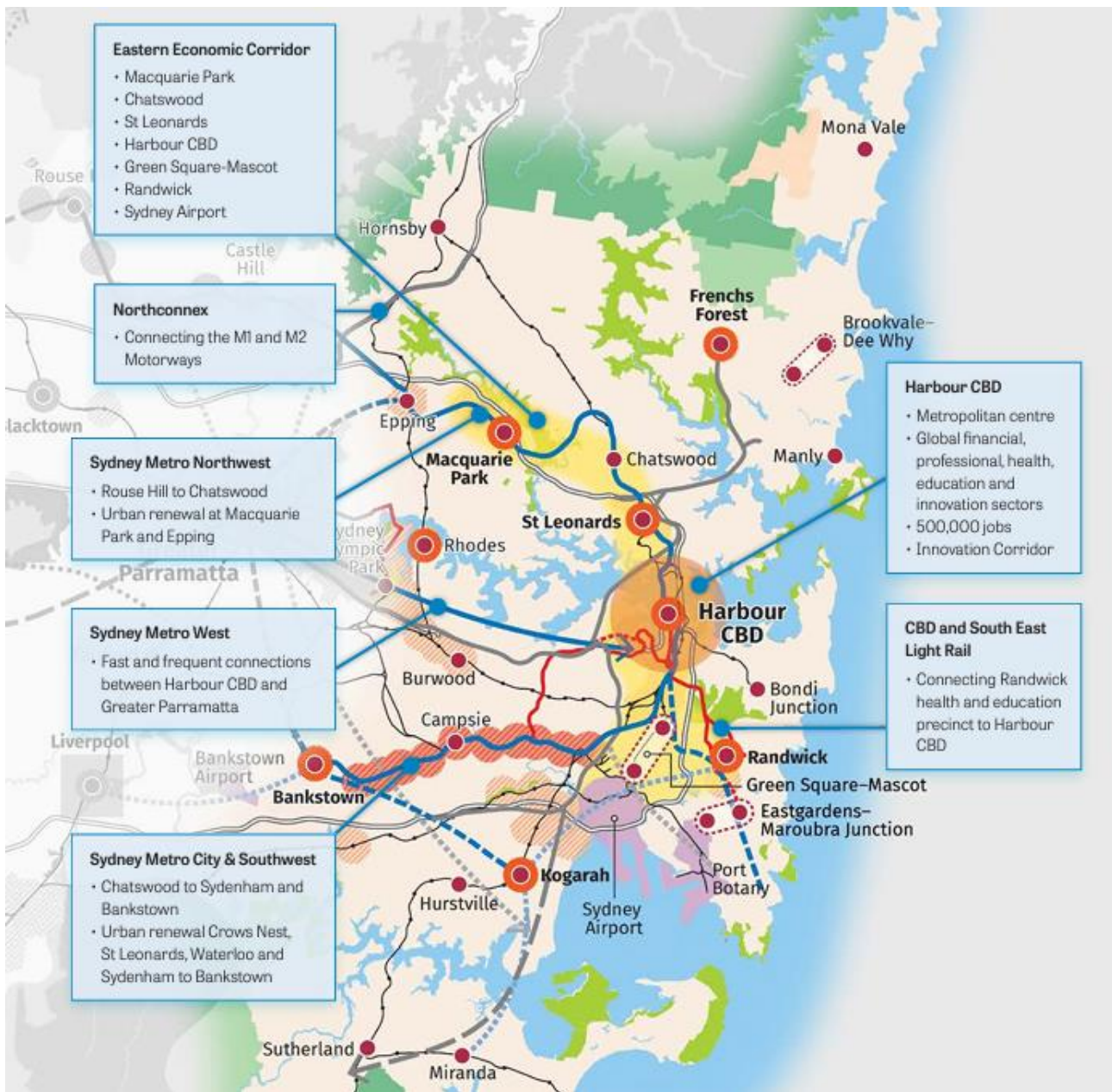


Figure 4: Eastern Harbour City – Key Strategies (source: greatercities.au)

The Plan puts emphasis on liveability and designing, building and managing to encourage people of all ages and abilities to walk or cycle for leisure, transport or exercise. It promotes a place-based and collaborative approach to maintain and enhance the liveability of the South District by implementing services and social infrastructure, housing supply, choice and affordability with access to jobs, services and public transport, and creating and renewing places and local centres.

The proposal enhances the 30-minute city by increasing density close to the Campsie centre, increasing access to jobs, facilitating ground floor commercial opportunities, improving access to public transport and delivers public open space.

2.1.3 Plan for Connective City 2036

A consolidated vision for Canterbury-Bankstown that guides growth and balances what makes a city complete. Connective City 2036 creates opportunities for living, working, access and movement. It protects

environmental qualities, celebrates precious waterways, and knits together the cultural fabric of this vibrant new city within a quality urban setting.

Connective City 2036 sets a clear vision, establishes land use directions, and sets priorities – including responsibilities and timeframes - to demonstrate why and how infrastructure can be arranged and how the City relates to neighbouring local government areas and to Greater Sydney as a whole.

Bankstown and Campsie are expected to grow as strategic centres, with up to 16,000 new workers and 12,500 new dwellings anticipated in the Bankstown CBD and 7,500 workers and 5,600 new dwellings in Campsie over the next 20 years. In this regard, Connective City 2036 identifies the development of an Active Transport Action Plan as a city shaping project. **Figure 5** identifies the key transport related milestones as specified in the Connective City 2036.

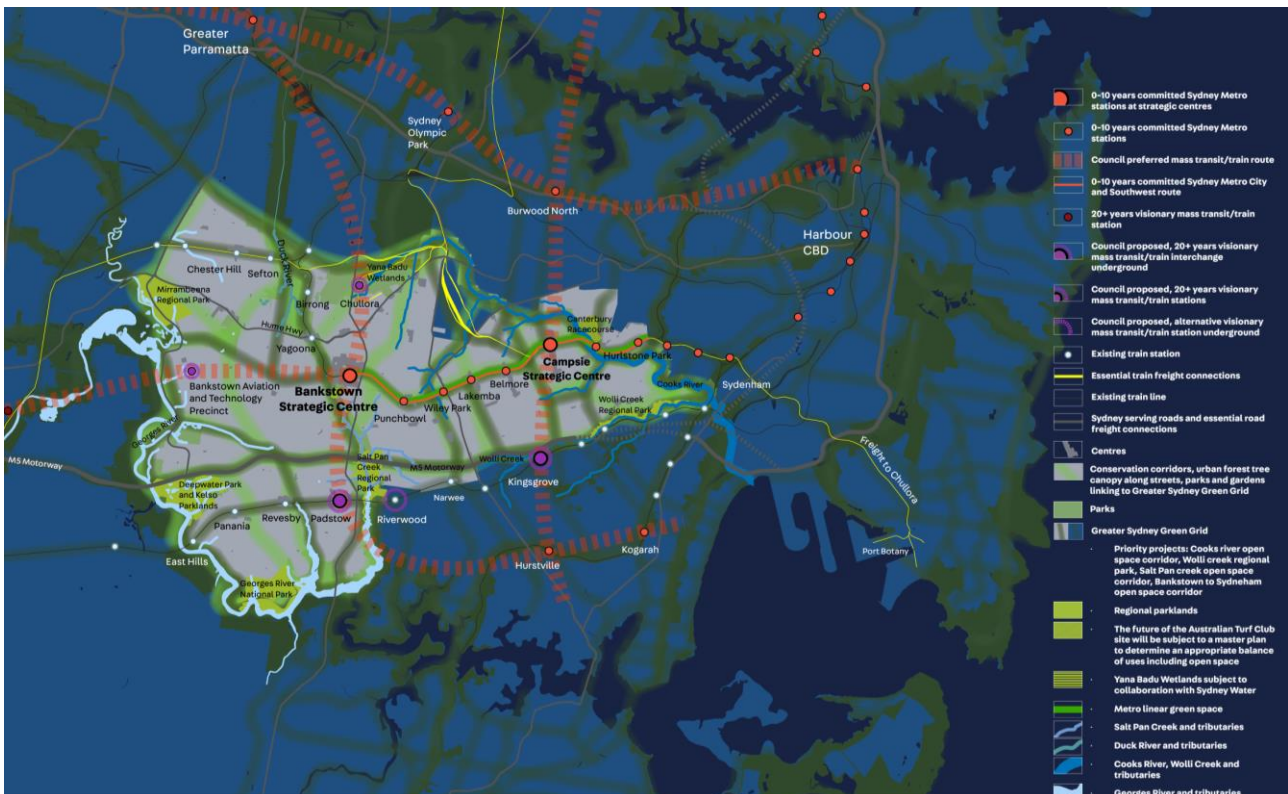


Figure 5: Connective City 2036 (source: cbcity.nsw.gov.au)

2.1.4 Canterbury Bankstown Active Transport Action Plan

The Canterbury Bankstown Active Transport Action Plan is a comprehensive strategy aimed at promoting and enhancing active modes of transport such as walking, cycling and public transport within the Canterbury Bankstown area. It includes initiatives such as building new bike lanes and pedestrian pathways, improving infrastructure for cyclists and pedestrians, promoting active commuting through public awareness campaigns, and collaborating with local stakeholders to create a safer and more accessible environment for active transport. The ultimate goal is to reduce reliance on cars, improve public health, and create more sustainable and liveable communities.

A series of broad future bicycle routes have been identified based on connections into neighbouring LGA's, key destinations across the city, existing infrastructure and providing broad network coverage. The following bicycle routes are identified and relate to Campsie strategic centre and the site.

- Route 5 – Wiley Park to Narwee.
- Route 6 – Kingsgrove to Belfield Route.

- Route 7 – Earlwood to Croydon Park Route.
- Route12 – Cooks River Cycleway.

2.1.5 Sydney Metro City & Southwest

The most important public transport infrastructure that will be delivered to Campsie is Sydney Metro City & Southwest (Stage 2) with services expected to commence in mid-2024 to Sydenham Station and in 2025 through to Bankstown Station. These services will provide fast and direct connections between Sydney CBD and surrounding major centres including Sydenham, Waterloo, North Sydney, Crows Nest and Chatswood. Campsie will benefit from Stage 2 of the metro line with more frequent and reliable services. The proposed station in Campsie will revitalise the surrounding area and provide additional connectivity and accessibility, particularly to the CBD.

When complete, the new track will form part of a single 66km rail line on the Sydney Metro network. Together with planned improvements to the main western heavy rail line, the project is expected to increase capacity on the Sydney rail network by up to 60 per cent, and allow for the movement of over 100,000 extra commuters across the network every hour.

The site is right on the edge of Campsie District Centre within the South District and with use of regular bus services, is afforded access to Campsie station. In this regard, future staff and visitors to the site will have practical access to the Sydney Metro network, with such quality and frequent public transport services further incentivising staff and visitors to continue the increasing trend in uptake of public transport as the primary travel mode choice.

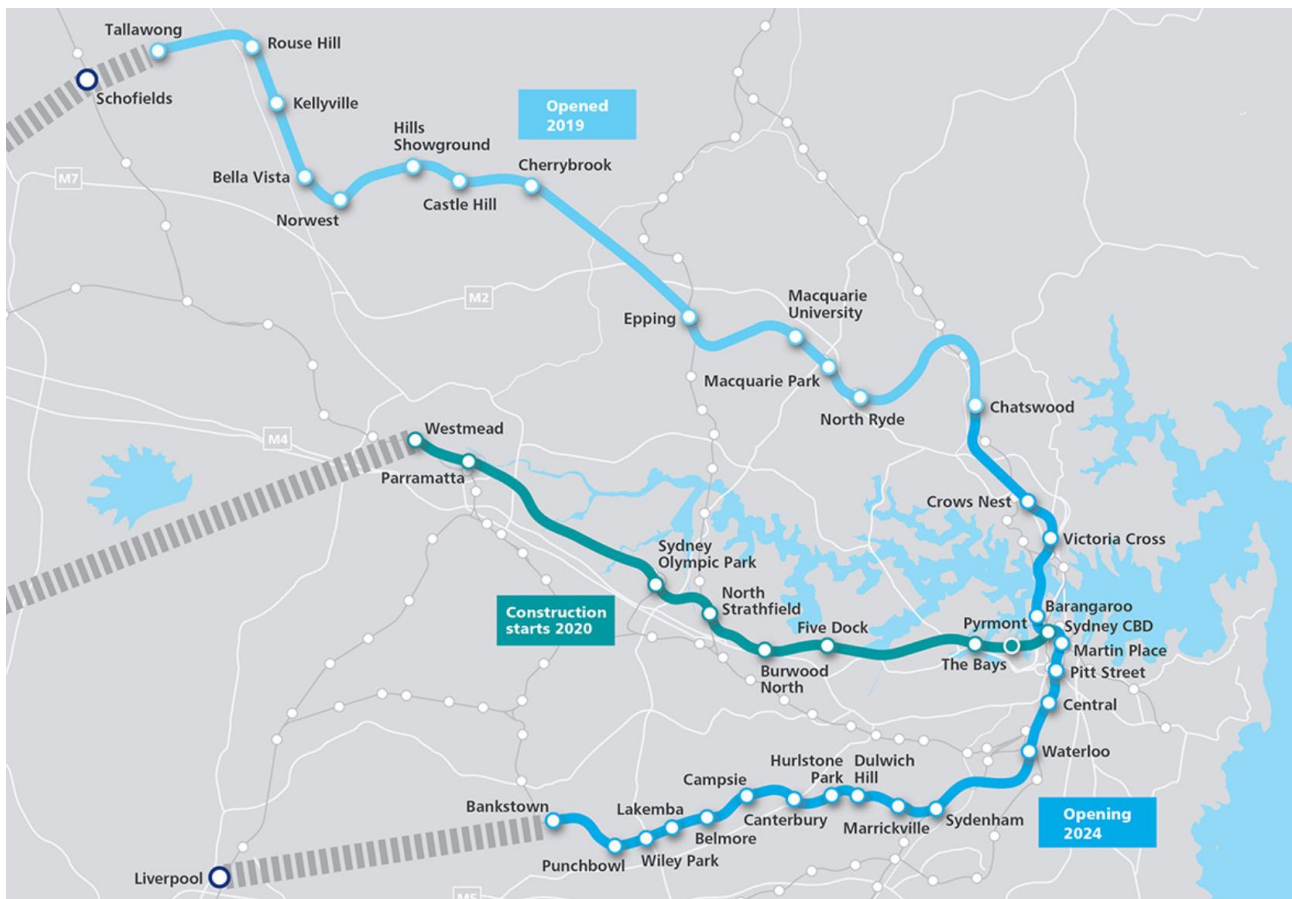


Figure 6: Sydney Metro Network alignment (source: [Planning NSW](#))

It is understood that Council has also completed an Integrated Land Use, Development and Transport Plan with a view set the parameters for development along the Canterbury Road corridor for the period to 2036. The corridor has become the subject of significant development in recent years and will likely continue to change in association with Stage 2 of Sydney Metro. Several policy plans and strategies have been prepared by Council and the NSW Government that set out a clear vision for the Canterbury Road Corridor. Council is focused on strengthening the north-south connections between the seven proposed urban centres on Canterbury Road and the rail corridor.

The Traffic Study identifies the role and performance of the traffic and transport facilities accounting for the growth (residential and employment) and the opportunities to mitigate the impacts of the forecast growth in demand. The Canterbury Road corridor is shown in Figure 7 with the main objective aiming to:

- improve bicycle and walking connections
- deliver a network of new local parks and connecting streets
- reduce congestion and improve the overall flow of traffic on Canterbury Road and the surrounding roads
- facilitate carriageway widening adjacent to the proposed urban centres.



Figure 7: Canterbury Road Corridor (source: [Canterbury Road Review \(nsw.gov.au\)](https://www.nsw.gov.au/canterbury-road-review))

3 Existing Conditions

3.1 Site Context

The site is at 11 Harp Street, Campsie and incorporates two separate lots at 5 and 11A Elizabeth Street. 11 Harp Street, Campsie and is legally described as Lot 3 in DP270114, Lot 1051 in DP 789344 and Lot 14 in DP 262535. The site has a total area of approximately 3.5 hectares.

The surrounding area includes a mix of high- and low-density residential dwellings with industrial land uses further to the south. Clemton Park Shopping Village and high-density residential development are to the east and Canterbury Hospital close to the site on the northern side of Canterbury Road. Campsie Town Centre is further to the north. The irregular shaped site is understood to be currently used for the purposes of car storage and light industrial uses with all access via Harp Street at the southern boundary via the southern 'handle'.

The site location in the context of surrounding key centres and Campsie town centre is shown in **Figure 8**.

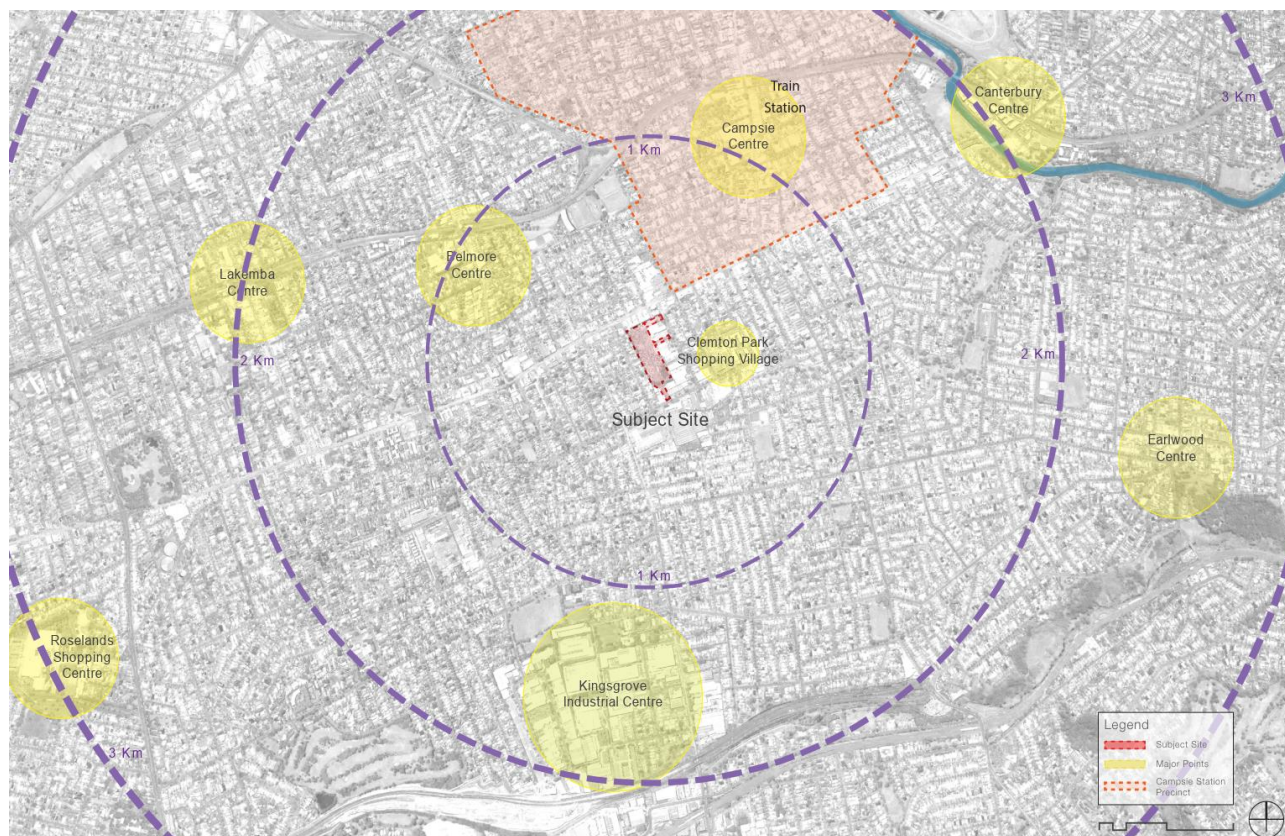


Figure 8: Surrounding environment and key centres (source: Kann Finch)

3.2 Transport Network

Road infrastructure has typically dominated the local and regional area and alongside the historical development of industrial and commercial properties, private vehicle travel has tended to typically dominate daily travel habits. Some change in these travel habits has been influenced by the opening of Clemton Park Shopping Village and adjacent high density residential dwellings, together with similar high density residential developments along the Canterbury Road corridor in recent years. This demographic shift is placing greater demand on public and active travel options, necessitating the development of associated

facilities to better promote their use. In this regard, the following sections discuss existing transport services and facilities in the area.

3.2.1 Public Transport Services

Several local area and regional bus services operate near the site. With bus stops provided within a 400-metre walking distance located on Charlotte Street and Harp Street, the site is also provided with convenient public transport access to Campsie and Belmore stations each within 1.3km to 1.5km of the site.

Figure 9 indicatively shows the network of bus services surrounding the site, with a summary of routes and their respective frequencies included in **Table 1**. **Figure 10** also identifies the surrounding bus and rail facilities proximate to the site, noting that the closest bus stops are within 250-300m and an estimated 13 stops within a practical 600m walk of the site.

TABLE 1: BUS SERVICES

Route No.	Route Description	Frequency on/ off-peak
410	Macquarie Park to Hurstville	10 mins/ 30 mins
412	Campsie to City Martin Place via Earlwood	10 mins/ 15 mins
415	Campsie to Chiswick	15-30 during peaks
420	Eastgardens to Burwood via Sydney Airport and Rockdale	10 mins/ 20mins
420N	Eastgardens to Burwood via Sydney Airport and Rockdale (night service)	60 mins
445	Campsie to Balmain via Leichhardt Marketplace	15 mins/ 30 mins
473	Rockdale to Campsie	15 mins/ 30 mins
415	Campsie to Chiswick	15 mins/ 30 mins
487	Bankstown Central to Canterbury	20 mins/ 30 mins
492	Drummoyne to Rockdale	30 mins/ 60 mins
490	Drummoyne to Hurstville	30 mins/ 60 mins

Campsie and Belmore stations are part of 11 stations on the Bankstown Line that will be upgraded as part of the expanding Sydney Metro. Metro services will run at least every four minutes in peak periods with Stage 2 services on the section of line between Sydenham and Bankstown stations expected to commence in 2025.

The site is afforded access to Campsie and Belmore stations via several active and public transport modes, including bus, bicycle and walking) and accordingly future staff and visitors will have access to the Sydney Metro network in the near future. Future metro services will further incentivise staff and visitors to regularly use such quality public transport services, further fuelling the increasing uptake of public transport as the primary travel mode to and from the site.

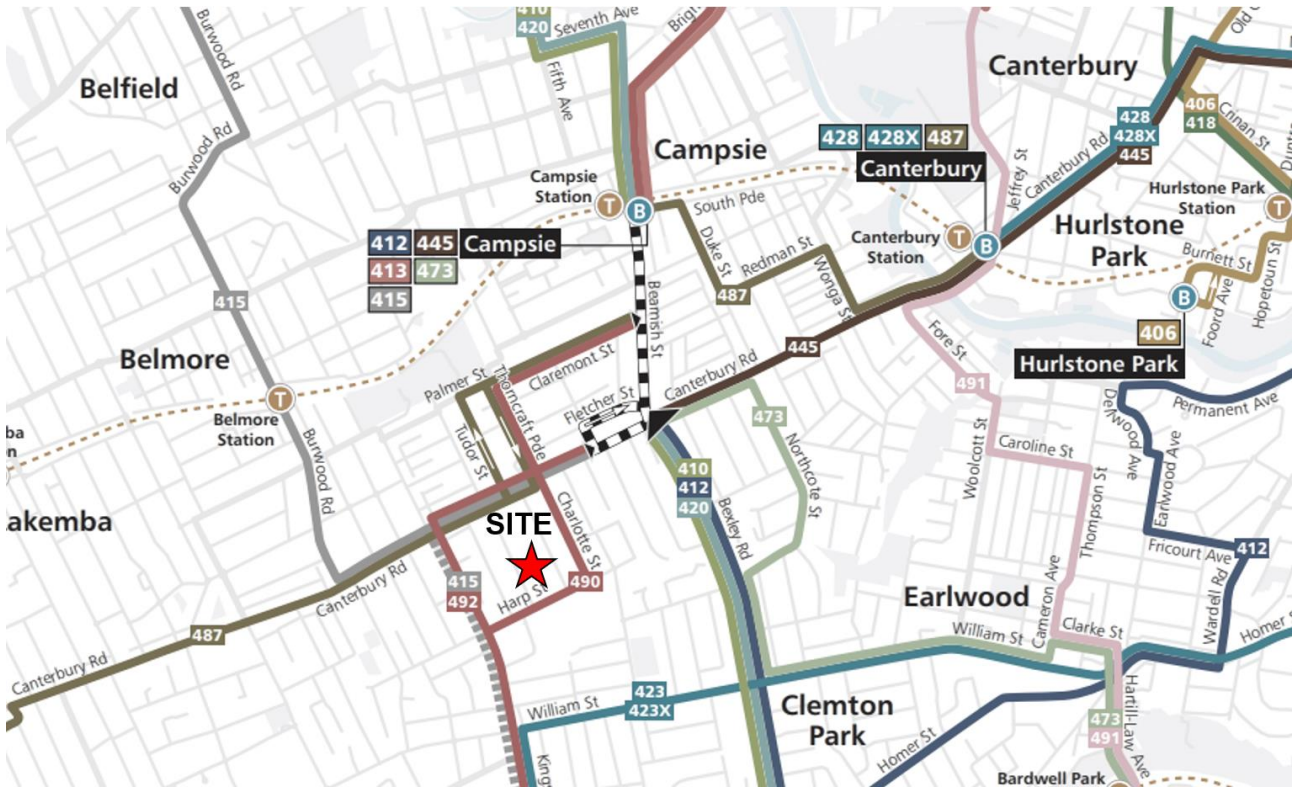


Figure 9: Existing bus services

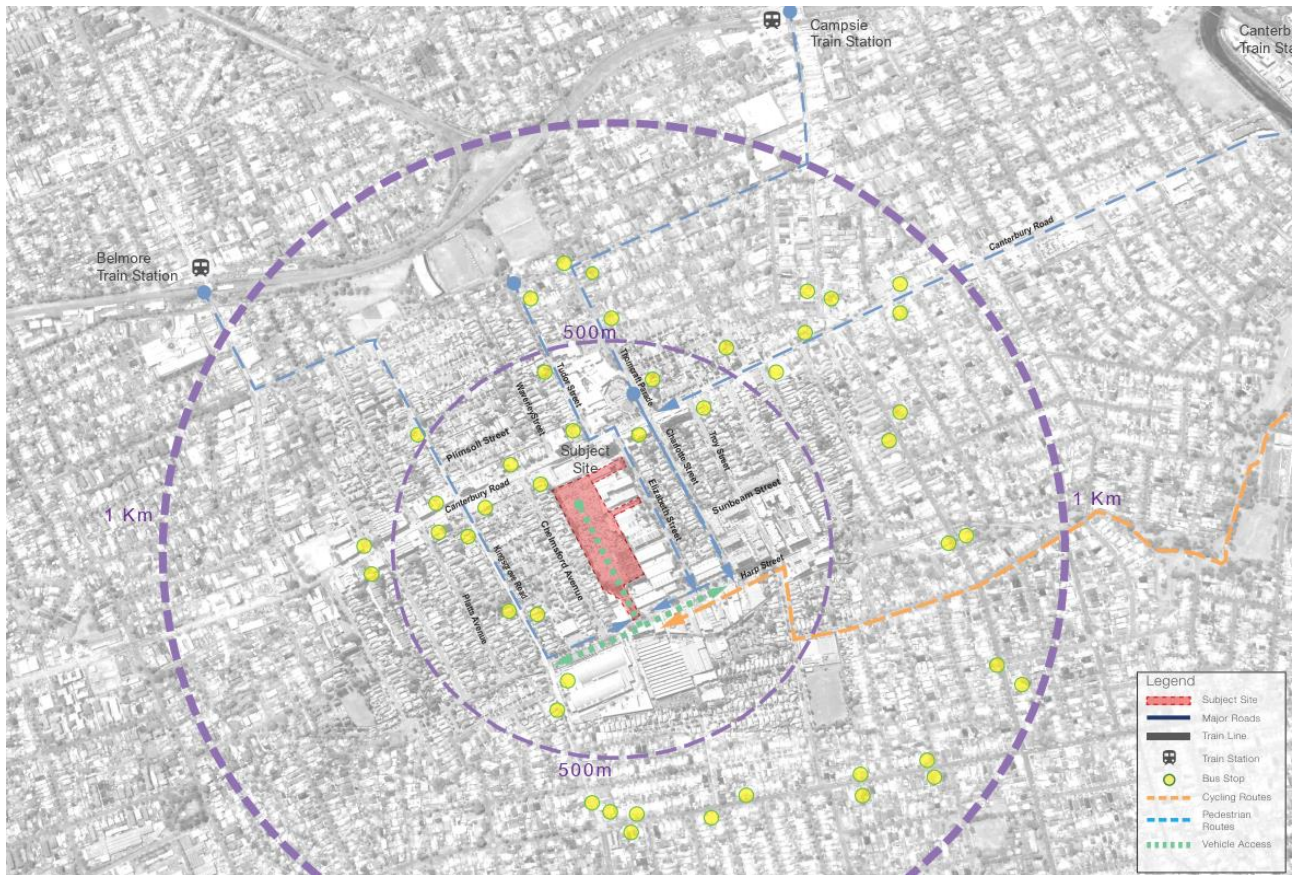


Figure 10: Access to public transport services

3.2.2 Walking and Cycling Infrastructure

Well established pedestrian footpaths are provided on both sides of most of the surrounding roads with all study area signalised intersections facilitating the safe movement of pedestrians throughout the local area. Clemton Park Shopping Village is located to the east of the site in close proximity, with high quality pedestrian amenity throughout, including raised pedestrian crossings on Charlotte Street and Harp Street.

There is somewhat limited established cycling infrastructure near the site, with Charlotte Street to the east considered a safe cycle route in the Canterbury City cycleway plan. There is a proposed cycle route along Harp Street with the surrounding cycling infrastructure shown in Figure 11.



Figure 11: Campsie cycling map (source: City of Canterbury Bankstown Council)

3.3 Road Network

The road network surrounding the site includes a mix of state, regional and local roads. The key roads and intersections within the vicinity of the site are described below:

- **Harp Street**

A local road that runs in an east-west alignment south of the site. It has a posted 50 km/h speed limit near the site and provides one traffic lane and one parking lane in each direction within a 12-metre-wide undivided carriageway. Unrestricted kerbside parking is permitted near the site.

- **Canterbury Road**

A classified state road that generally runs in an east-west direction north of the site. It has a posted 60 km/h speed limit and provides two traffic lanes in each direction within a 13-metre-wide undivided carriageway. Kerbside parking is not permitted on Canterbury Road.

- **Kingsgrove Road**

A classified regional road that runs in a north-south direction west of the site. Near the site, it includes a posted 50 km/h speed limit and provides one traffic lane and one parking lane in each direction within a 12-metre-wide undivided carriageway. Unrestricted kerbside parking is generally permitted on both sides, outside clearway periods.

- **Chelmsford Avenue, Charlotte Street and Alfred Street**

Local roads primarily facilitating local resident access with some through traffic demand. All are two-way roads configured with one traffic lane and one parking lane in each direction with a posted 50 km/h speed limit.

3.4 On-Street Parking Conditions

Unrestricted kerbside parking is provided along most surrounding roads with parking demand on Harp Street generally close to capacity throughout the day. This is generally associated with the surrounding industrial land uses. Other local streets, including Elizabeth Street have moderate demand for parking and mostly associated with existing residential dwellings and industrial sites in the local area. Kerbside parking is not permitted on Canterbury Road.

3.5 Traffic Assessment

The GTA Report included detailed traffic-based analysis and SIDRA modelling across the key intersections in the precinct. The key study intersections including the following:

- Harp Street/ Kingsgrove Road (signalised)
- Harp Street/ Charlotte Street (roundabout)
- Harp Street/ Alfred Street (roundabout)
- Canterbury Road/ Kingsgrove Road (signalised)
- Canterbury Road/ Chelmsford Avenue (unsignalised)
- Canterbury Road/ Charlotte Street (signalised).

The traffic modelling results indicated that the key intersections along Harp Street operate well and at Level of Service (LOS) C or better. There is some delay at the Kingsgrove Road traffic signals mostly on account of the single traffic lanes on the north and south approaches.

The priority-controlled intersection of Canterbury Road/ Chelmsford Avenue returns a LOS F for the worst movement. This is attributed to the delay for vehicles turning right onto Canterbury Road only and not indicative of the overall intersection operation. The Canterbury Road corridor also generally experiences varying levels of weekday peak period delay and mostly attributed to the volumes of through traffic along the arterial road corridor. Most of these corridor intersections operate at LOS C or better with the Canterbury Road/ Kingsgrove Road intersection operating at LOS C/D. The SIDRA modelling summary table is reproduced in **Figure 11**.

It is noted that given the changes in road network operation over recent years and the modified access arrangements now included as part of the planning proposal, updated traffic surveys and modelling will be completed as part of any future application on the site.

Intersection	Peak	Degree of Saturation (DOS)	Average Delay (sec)	Average Queue (m)	Level of Service (LOS)
Harp Street/ site access	AM	0.01	11	1	A
	PM	0.05	13	1	A
Harp Street/ Kingsgrove Road	AM	0.78	25	149	B
	PM	0.95	37	202	C
Harp Street/ Charlotte Street	AM	0.32	8	6	A
	PM	0.36	9	8	A
Harp Street/ Alfred Street	AM	0.06	9	1	A
	PM	0.04	8	1	A
Canterbury Road/ Kingsgrove Road	AM	0.94	54	341	D
	PM	0.82	34	198	C
Canterbury Road/ Chelmsford Avenue	AM	0.64	188	5	F
	PM	0.75	>200	7	F
Canterbury Road/ Charlotte Street	AM	0.91	39	226	C
	PM	0.88	38	155	C

Figure 12: GTA Consultants SIDRA modelling summary table (source: GTA Consultants)

4 Planning Proposal

4.1 Project Description

The planning proposal aims to deliver a diverse mixed-use health precinct incorporating some 69,000m² GFA across six separate buildings with car parking for about 700 cars in select consolidated car parks across the site. Access is proposed via three separate accesses on Harp Street to the south and Elizabeth Street to the east. The proposal also seeks to expand health related services in the area and definitively support the expansion of Canterbury Hospital immediately to the north.

The proposed land use breakdown is included in **Table 2** with an indicative site layout shown in **Figure 13**.

TABLE 2: DEVELOPMENT SCHEDULE

Land Use	Capacity/ staff	Size (GFA m ²)
integrated ambulatory health hub	80 staff	12,958
Medi hotel	100 rooms	5,792
private hospital	200 beds	21,132
rehabilitation facility	-	4,250
hospital staff and patients childcare centre	150 children	2,125
medical centre	-	1,594
medical research centre	-	4,463
day procedure centre	62 staff	5,695
clinical teaching and learning centre	15 staff	2,655
clinical support services	30 staff	8,343
Total		69,007m²

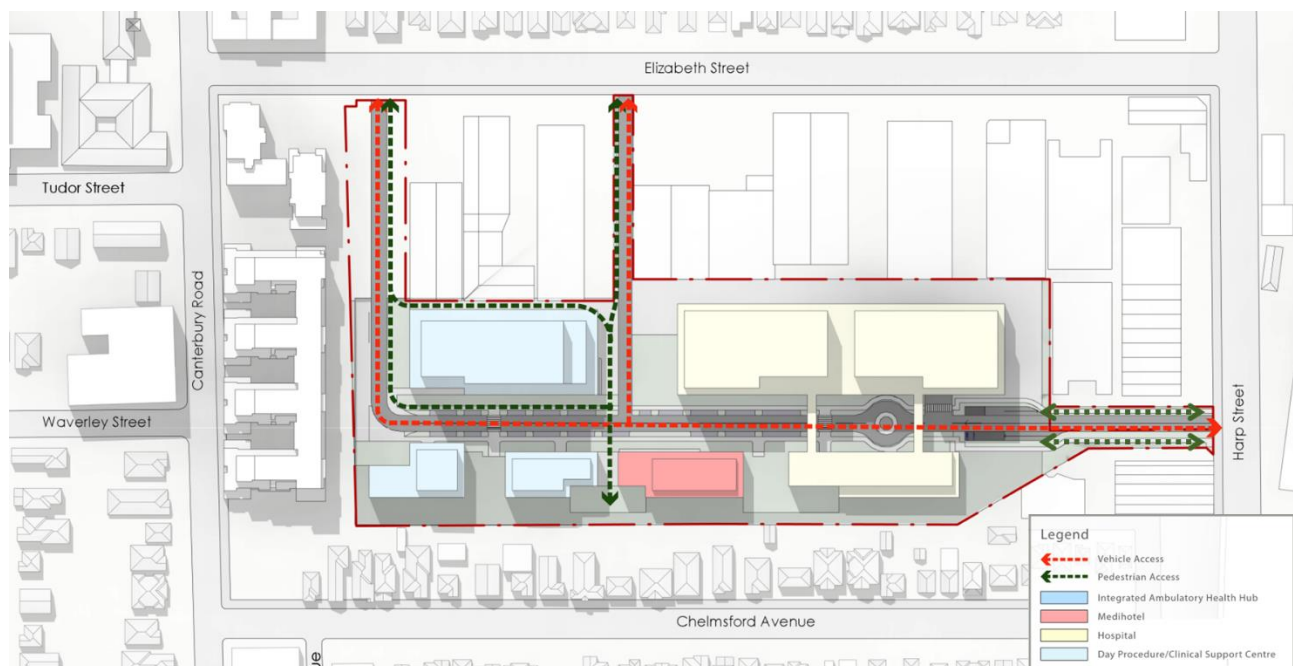


Figure 13: Indicative site layout and access strategy (source: Kann Finch, amended)

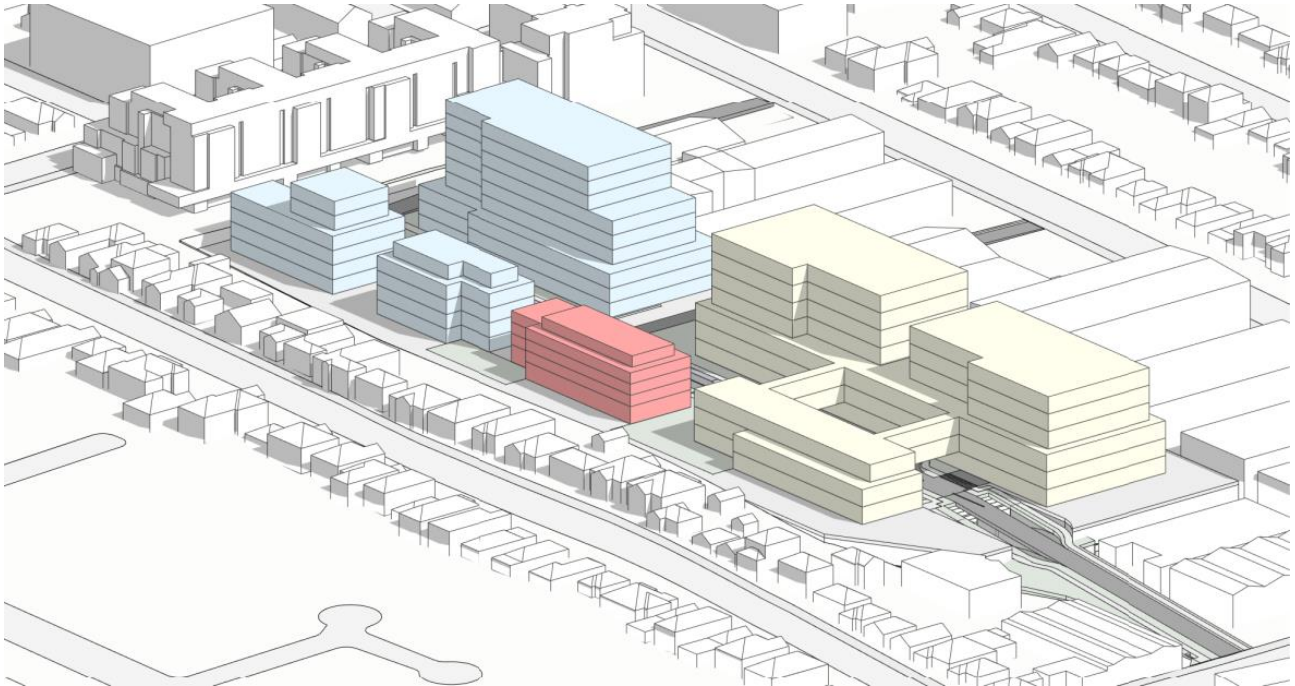


Figure 14: Site perspective (source: Kann Finch)

4.2 Access Strategy

The planning proposal includes a site access strategy to ensure good permeability for both vehicles and pedestrians. This incorporates the main site access on Harp Street at the southern end of the site and a secondary access on Elizabeth Street in the north-east corner. An egress only driveway is also proposed mid-block on Elizabeth Street along the eastern boundary. All locations include separate vehicle and pedestrian access arrangements with each expected to operate well with little delay for any movement.

All accesses will be designed to accommodate a range of vehicles, including emergency services (ambulance and fire appliance) and service vehicles. The northern Elizabeth Street access is well setback from Canterbury Road and expected to function well given the moderate existing through traffic volumes and anticipated development traffic, particularly noting the right turn restrictions at the Canterbury Road/ Elizabeth Street intersection. Some on-street parking will be lost to accommodate wider driveways at all locations, with additional setbacks necessary to ensure appropriate sightlines for exiting vehicles.

While the planning proposal is not expected to present any such noticeable impacts to on-street parking in the vicinity, a resident parking scheme could be considered for implementation. This would allow for no material impacts to existing residents. Given the estimated traffic volumes and approach and departure routes (and time of day demands), a well-considered signage and linemarking strategy would also be beneficial for implementation of across the site.

The main internal road runs north-south through the centre of the site with pedestrian and cycling facilities incorporated into the design. Undercroft and basement car park accesses would allow for the necessary separation of land uses and internal kerb space to facilitate set-down/ pick-up demand across the day.

Shuttle bus services would be key and intended to link the site with Canterbury Hospital. Details of a potential shuttle bus route and purpose would form part of a future application, including an assessment of anticipated demand and frequency. A regular route or on-demand service would be provided for staff and visitors and with obvious opportunity for direct connections with Canterbury Hospital would further strengthen the intent of establishing an integrated health precinct. Reliance on travel by private vehicle would similarly be reduced, especially for short trips.

4.3 Pedestrian and Bicycle Facilities

The planning proposal aims to strengthen the connections with Canterbury Hospital and to/ from key centres, public transport services. This includes further investigation of existing facilities, including those on Elizabeth Street close to the proposed site access to facilitate pedestrians generally. The details of specific measures/ upgrades can be confirmed in consultation with stakeholders. It is noted that footpaths on Canterbury Road and Elizabeth Street have recently been upgraded as part of recent developments in the immediate vicinity.

Given the expected extent of upgrades to Canterbury Hospital, there is opportunity to further enhance the pedestrian links to the site via grade separated pedestrian crossings of Canterbury Road. While the benefits of this are obvious and partially triggered by the proposal, such facilities are also key to catering for the planned Canterbury Hospital expansion. The proposal would complement the hospital and establish a health precinct capable of supporting a diverse range of services. In this regard, facilitating direct and safe pedestrian connections is key, with the applicant committed to contributing to any initial investigations and optioning of potential active transport infrastructure. Appropriate arrangements by way of a Voluntary Planning Agreement (VPA) with relevant authorities is possible.

The Clemton Park shopping precinct also includes several existing pedestrian facilities, including raised crossings on Harp Street and Charlotte Street and a marked crossing on Troy Lane. The existing roundabouts along Harp Street at Elizabeth Street and Charlotte Street also include pedestrian protection to ensure safe paths of travel. These facilities, at key locations and close to the proposed access on Harp Street could be improved and/ or widened. Pedestrians would also require quality connections with local bus services.

The site accesses will also include separate pedestrian facilities with gradients and provision to be considered to ensure appropriate accessible paths of travel and to avoid pedestrians walking on the access roads in each location. Sightlines and setbacks will also ensure appropriate amenity. A range of pedestrian infrastructure improvements would also need to be considered as part of ongoing planning, including potential for mid-block crossings close to the key accesses on Harp Street and Elizabeth Street to improve amenity and safety. While pedestrian volumes are expected to be highly manageable when considering capacity, it is important to recognise the need to improve amenity and ensure safe crossing points, where required. It is noted that the existing footpaths along Canterbury Road and the northern end of Elizabeth Street have been expanded in recent years associated with the delivery of several residential apartment developments in the precinct. The key pedestrian desire lines are shown in **Figure 15**.

Cycling facilities and contributions towards upgrades could similarly be further investigated in consultation with stakeholders. This includes the planned Harp Street cycleway and/ or other planned facilities in the vicinity.



Figure 15: Pedestrian Desire Lines

4.4 Car Parking and Service Vehicle Facilities

As discussed in Section 5, the planning proposal contemplates provision of about 700 parking spaces within select consolidated car parks across the site. More consolidation would bring greater opportunity to facilitate a practical level of shared parking arrangements given the complementary nature of several health-related and supporting land uses. Access to on-site parking is proposed via the main north-south internal road with an internal roundabout facilitating all movements, as required. All undercroft and/ or basement parking will include direct and convenient lift access to each building with footpaths/ shared paths allowing access across the site. Marked pedestrian crossings and indented parking along the main internal road for short-term parking, drop-off/ pick-up activity and select service vehicles would also ensure activation across the ground plane.

Dedicated loading docks within each building would ensure convenient access for all land uses. Service vehicle manoeuvring would be separated from general traffic with loading docks generally able to accommodate vehicles up to 8.8-metre-long medium rigid vehicles and, if required, 12.5-metre-long heavy rigid vehicles. Key locations would be designated to provide facilities for emergency vehicles, such as fire appliances, ensuring efficient access.

Waste collection facilities and designated areas for deliveries, including space for removalist trucks, would be integrated to meet the everyday service requirements of the diverse range of land uses on-site.

4.5 Travel Initiatives

Key influencers to realising travel behaviour change for future staff and visitors is implementing a suite of measures to promote broader travel use. Some of these initiatives are discussed below.

4.5.1 Green Travel Plan

A Green Travel Plan (GTP) is a package of measures aimed at promoting sustainable travel and reducing reliance on private vehicles. It is not designed to be 'anti-car', however aims to encourage and support people's aspirations for carrying out their daily business in a more sustainable way. Travel plans can provide measures to restrict car use (disincentives or 'sticks')

encourage or support sustainable travel, reduce the need to travel or make travelling more efficient (incentives or 'carrots'). A site specific GTP would promote more sustainable and environmentally friendly travel choices for staff and visitors. The key objectives of GTPs are to:

- encourage walking and cycling
- encourage public transport use (including provision of a shuttle service to link with Canterbury Hospital)
- reduce car use, particularly single occupant vehicles
- encourage more efficient and equitable car use, where practical.

It is the intention therefore, that GTPs deliver the following benefits:

- enable higher public and active travel mode share targets to be achieved
- contribute to greenhouse gas emission reductions and carbon footprint minimisation
- contribute to healthy living for all
- contribute to social equity and reduction in social exclusion
- improve knowledge and contribute to learning.

With the successful implementation of a GTP, there is a real opportunity to realise travel mode share targets and potentially exceed targets for non-car-based trips. This specifically includes single occupancy car trips. A detailed GTP will include details around anticipated future pedestrian volumes along the key routes to ensure any such infrastructure improvements are appropriate.

While such facilities are encouraged and promoted as part of a detailed GTP, such details should be included as part of ongoing applications and in consultation with key stakeholders to ensure appropriate provision and in recognition of existing and anticipated future demand profiles and along known desire lines.

4.5.2 Car Share Opportunities

There is opportunity to negotiate with car share providers, such as GoGet, to provide car share vehicles internal to the site or in close vicinity to further encourage lower car usage rates generally. Dedicated car share spaces could be provided within the on-site car parks and along the internal road to maximise visibility and ensure accessibility to the general public.

Car share is now common in many areas of Sydney with DCPs acknowledging them as a proactive method to better balance the provision of car parking across a range of development sites. Further, health related services inherently make use of carpool and fleet vehicles and limit peak period travel. Other providers such as Ohmio offer electric vehicle pool vehicles under lease/ operational arrangements that can also be of distinct benefit to multi-use precincts and operators to facilitate improved green travel outcomes.

5 Parking and Loading Assessment

5.1 Car Parking

The car parking requirements have been assessed with reference to a combination of Canterbury Development Control Plan 2023 and TfNSW Guidelines. No parking rates are provided for several land uses including the Integrated Ambulatory Health Hub, Day Procedure Centre, Clinical Teaching and Learning Centre or Clinical Support Services. As such, an empirical assessment is warranted to consider the actual estimated parking demands of the precinct more accurately. DCP 2023 and TfNSW Guide parking requirements are summarised in **Table 3** and **Table 4**.

With the added flexibility afforded by way of the proposed access driveway at 5 Elizabeth Street, there would be a minor loss of on-street parking along the western side of Elizabeth Street to ensure appropriate sightlines and setbacks. This is minor and when considered in light of existing moderate demand for on-street parking, is not expected to result in a material change to parking in the immediate vicinity. Notwithstanding, a resident parking scheme could be considered for implementation, if necessary to maintain current parking arrangements. This would ensure no impacts to existing residents.

TABLE 3: DCP 2023 AND EMPIRICAL CAR PARKING REQUIREMENTS

Land Use	Description	Size	Parking rate	Parking requirement
integrated ambulatory health hub	staff	80 staff	1 space per 2 staff + 1 space per visitor	120
Medi hotel	rooms	100 rooms	1 space per room	100
	staff	29	1 space per 2 staff	15
private hospital (based on TfNSW Guide private hospital rate)	staff	200 beds	Calculated rate (= -26.52 + 1.18 beds)	209
hospital staff and patients childcare centre	children	150 children	1 space per 4 children	38
medical centre	GFA	1,594	1 space per 25m ²	64
medical research centre (based on office rate)	GFA	4,463	1 space per 40m ²	112
day procedure centre	staff	62 staff	1 space per 2 staff + 1 space per visitor	93
clinical teaching and learning centre	staff	15 staff, 30 students	1 space per staff + 1 space per 2 students	30
clinical support services	staff	30 staff	1 space per 2 staff + 1 space per visitor	45
Total				826 spaces

TABLE 4: TfNSW CAR PARKING REQUIREMENTS

Land Use	Description	Size	Parking rate	Parking requirement
integrated ambulatory health hub	staff	80 staff	1 space per 2 staff + 1 space per visitor	120
Medi hotel	rooms	100 rooms	1 space per 4 rooms	25
	staff	29	1 space per 2 staff	15
private hospital (based on TfNSW Guide private hospital rate)	staff	200 beds	Calculated rate (= -26.52 + 1.18 beds)	209
hospital staff and patients childcare centre	children/ staff	150 children, 29 staff	1 space per 4 children	38
medical centre	GFA	1,594	1 space per 25m ²	64
medical research centre (based on office rate)	GFA	4,463	1 space per 40m ²	112
day procedure centre	staff	62 staff	1 space per 2 staff + 1 space per visitor	93
clinical teaching and learning centre	staff	15 staff, 30 children	1 space per staff + 1 space per 2 students	30
clinical support services	staff	30 staff	1 space per 2 staff + 1 space per visitor	45
Total				751 spaces

Based on the above, the planning proposal would need to provide up to 751 parking spaces when based on TfNSW guidelines.

Given the range of proposed complementary land uses, combined with consolidated car parks and access arrangements, an overlap of demand associated with several land uses is expected. This includes for example, those visiting the private hospital could also stay at the Medi hotel as part of the same visit, and staff making use of the childcare centre as part of their typical working day. Many of those visiting services such as clinical support services, day procedure centre and integrated ambulatory health hub will also likely be linked with use of the private hospital.

On this basis, parking demand should not be considered in isolation for each proposed land use assuming standalone demand without regard for the complementary nature of such health precincts. Ultimately, an on-site provision of around 700 parking spaces is considered suitable in accommodating the various health related land uses and recognises the complementary nature of future day to day operations.

Accessible parking requirements are also key to future overall parking provision. The number of accessible parking spaces is estimated to be around 36 spaces when assessed against TfNSW requirements and about 46 spaces when considering DCP 2023. These are also based on a mix of Building Code of Australia Class 3, 5 and 9a-b buildings and would be spread across the site and close to accessible travel paths and lifts for the various land uses. Further details on accessible parking provision will be detailed as part of future development applications on the site.

5.2 Bicycle Parking

A review of the DCP 2023 has been completed to understand the bicycle parking rates required across the proposed land uses. Overall, a total of 168 spaces would be required across the site with these to be conveniently located in well-lit areas with a portion to maintain weather protection to encourage use and safety.

Bicycle parking for staff would be provided in secure locations and/ or within enclosures, with provision of individual lockers as part of overall end of trip facilities. All bicycle racks and provision must be designed in accordance with AS2890.3:2015 (bicycle parking facilities).

The minimum bicycle parking requirements are detailed in **Table 5**.

TABLE 5: MINIMUM DCP BICYCLE PARKING REQUIREMENTS

Land Use	Description	Bicycle Parking rate	Bicycle parking requirement
integrated ambulatory health hub	80 staff	1 space per 2 staff	40
Medi hotel	100 rooms	1 space per 20 rooms	5
private hospital (TfNSW private hospital rate)	200 beds	1 per 30 beds (visitors)	7
		1 per 15 beds (staff)	14
hospital staff and patients childcare centre	29 staff	1 space per 4 staff	7
medical centre (health consulting room rate)	50 staff	1 space per 2 staff	25
medical research centre (office premises rate)	4,463m ² GFA	1 per 500m ² over 1,000m ² (visitors)	7
		1 per 300m ² (staff)	15
day procedure centre (health consulting room rate)	62 staff	1 space per 2 staff	31
clinical teaching and learning centre (educational establishment rate)	15 staff	1 space per 10 staff	2
clinical support services (health consulting room rate)	30 staff	1 space per 2 staff	15
Total			168 spaces

5.3 Loading and Servicing

With the proposal including provision for about 700 on-site parking spaces within select consolidated car parking areas, it is important to ensure loading facilities are well located, varied according to their demand characteristics and separated (as much as practical) from the general public. Access via the central internal road would be facilitated via three separate driveways with direct lift access to each building. Some at-grade kerbside parking along the internal road would also accommodate informal loading, short-term parking and set-down/ pick-up activity.

Dedicated at-grade loading docks would also facilitate convenient access to the proposed land uses. Service vehicle manoeuvring is typically separated from general traffic with the proposal aiming to accommodate service vehicles up to 8.8m medium rigid vehicles and 12.5m large rigid vehicles. Facilities for use by emergency vehicles (including ambulance and fire appliance) will be provided in key locations close to

destinations to ensure practical use. Waste collection facilities and space for deliveries would accommodate the day-to-day servicing demands of the various land uses. The need or otherwise for any form of dock management system can be considered as part of any future application.

5.4 Internal Site Layout Review

With the proposal expected to accommodate about 700 parking spaces within select consolidated car parks across the site, an access strategy via the internal north-south road will be key to achieving positive design outcomes. A well-considered signage and linemarking strategy to aid the efficient movement of vehicles across the site will also be key together with efficient and safe pedestrian connections to/ from each building with a view to achieving quality activation across the ground plane. Internal pedestrian footpaths and crossing facilities will be fully compliant with relevant standards with all to be detailed as part of any future DA. The internal site layout is shown in **Figure 16**.

All on-site car parking will be designed as User Class 2 facilities with minimum 2.5m wide and 5.4m long spaces and adjacent 5.8m wide circulation aisles, in accordance with relevant Australian Standards. Headroom clearances will be a minimum 2.2m to structure and services, with 2.5m above all accessible spaces (and adjacent shared area). Greater headroom clearances will be provided in any circulation aisles and areas where service vehicles require access.

All visitor parking will be shared across all land uses to ensure equitable use across the day and while the buildings are somewhat clustered into specific services across the site, efficiency of use can be achieved through provision of parking to cater for a variety of land uses. Where necessary, individual spaces can be linemarked and signposted for specific user purposes, as is common in health-related precincts. Parking for the Medi hotel and private hospital can also include a shared component, if required given their respective demand profiles and overnight stay demand.

Provision of motorcycle parking is also important across the site. While DCP 2023 does not include specific requirements for motorcycle parking, it is recommended that it be provided at a rate of at least one space for every 50 car spaces. Based on 700 car spaces, this equates to at least 14 motorcycle spaces.

Overall, and based on the indicative car park layout, it is expected that full compliance can be achieved with respect to relevant Australian Standards and DCP requirements, with detailed design assessments to form part of any future DA.

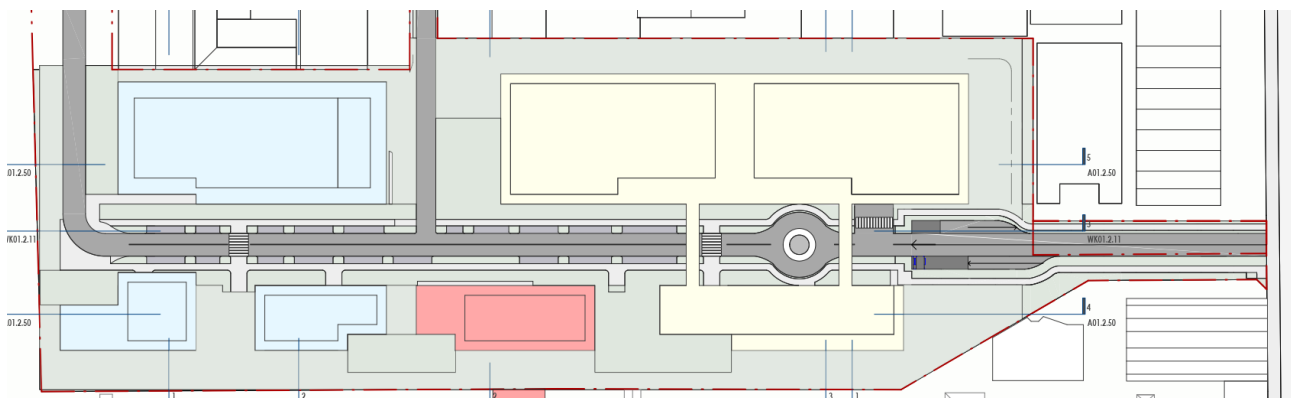


Figure 16: Proposed Site Layout

6 Traffic Assessment

6.1 Traffic Generation

Traffic generation estimates have been derived from the TfNSW Guide and TDT 2013/04a. A first-principles assessment based on the expected daily operational characteristics and staff/ visitor demand have also been included for select land uses.

Given the often-unique daily operational characteristics of health-related precincts, the proposal is similarly expected to experience its peak outside the broader road network peak. The major trip generation is mainly associated with staff shift changeover during the early morning period (between 5:30am and 7:00am) and early afternoon (between 1:30pm and 3:30pm). The site's peak traffic generation is therefore not expected to have a significant impact on the operation of the surrounding road network with future applications to further detail traffic related impacts, as necessary to ensure a robust approach.

With the site also currently occupied by a car storage facility associated with local car auctioneer businesses and light industrial uses, it is understood that it generates about 15 to 30 vehicle trips during any peak hour.

6.1.1 Land-use Traffic Generation Assumptions

With a range of health-related serviced proposed across the site, understanding any such individual land use characteristics and time of day demand profiles is important in better estimating peak traffic generation. For example, estimating traffic generation associated with the private hospital, medical centre, research and Medi hotel has relied on reference to similar projects for the patient and staff data, with activity occurring throughout the day and hence impacting both broader road network peaks and site generation peaks. Overall though, these profiles remain broadly consistent with the other proposed land uses noting adoption of a conservatively high average 1.1 car occupancy for staff.

The integrated ambulatory health hub, day procedure centre, clinical support services would act as largely ancillary to the other land uses, with many users expected to be referred from the private hospital. It is estimated that around half of the visitors to these uses will already be on-site using other facilities. For the purposes of this assessment, it has been estimated that around 60 per cent of staff/ visitors of these uses will travel to the site during the peak hours. Vehicle trip rates have been estimated based on the parking rates outlined in **Table 4**.

The childcare centre also adopts a conservative first-principles assessment, with 50 per cent of trip generation considered internal to the site given staff working in the precinct will likely make use of such facilities. In reality, this proportion is likely to be noticeably higher, with most use of the childcare facility being associated with other land uses on the site. This includes long-term (staff) use and short-term (visitor/ patient) use.

Ongoing training is also expected to be provided to staff of the private hospital in the clinical teaching and learning centre. This would likely include private hospital staff completing regular training, with only a minor proportion of external students expected to travel to the facility as a dedicated trip. Again, it has been estimated that 50 per cent of student trips will be internal trips and associated with other uses on the site.

In this regard, a summary of the estimated traffic generation for the planning proposal is presented in **Table 6**.

TABLE 6: TRAFFIC GENERATION ESTIMATE

Land Use	Staff during network peaks	Size (area schedule, first principles)	Trip rates	Trip generation	
				Network AM peak	Network PM peak
integrated ambulatory health hub	48 staff	48 visitors both peak hours	0.5 trip per staff, 1 trip per visitor (50% internal)	48	48
Medi hotel	-	100 daily guests	0.5 trips per guest (50% internal)	25	25
private hospital	20 admin. staff	74 patients AM 42 patients PM	1 trip per staff, 1 trip per patient	92	60
hospital staff and patients childcare centre	29 staff	150 children	0.5 trip per staff, 0.5 trip per children (50% internal)	52	52
medical centre and research	85 staff	68 patients AM 95 patients PM	1 trip per staff, 1 trip per patient (20% internal)	132	153
day procedure centre	37 staff	37 visitors both peaks	0.5 trip per staff, 1 trip per visitor (50% internal)	37	37
clinical teaching and learning centre	9 staff	37 students both peaks	0.5 trip per staff, 0.5 trip per student (50% internal)	12	12
clinical support services	18 staff	18 visitors both peaks	0.5 trip per staff, 1 trip per visitor (50% internal)	18	18
Total				416	405

Table 6 indicates that the proposal would generate about 405 to 420 vehicle trips during any weekday road network peak hour. This represents a net traffic generation increase of between about 370 and 400 vehicles per hour when accounting for existing traffic generation.

6.2 Traffic Impact

The traffic modelling results as included in the GTA report, indicates that the critical intersections near the site have capacity to accommodate the additional site generated traffic while maintaining a similar (or same) overall satisfactory level of service when compared with existing conditions.

The existing operation of all critical intersections is generally maintained post development, apart from the Harp Street/ Kingsgrove Road intersection in the PM peak hour which slightly declines, from LOS C to LOS D. This level of service is still considered satisfactory, while also noting the increase in average delay and queuing is minor and acceptable. Preliminary modelling also indicates that minor adjustments to existing phase times (by one to two seconds) would likely bring about positive operational outcomes. This would be subject to consultation with relevant stakeholders as part of any future submission. With consideration for the proposed three site accesses as part of the planning proposal, minor redistribution of site generated traffic can be expected however is not expected to have any material impact on the operation of the key intersections.

Harp Street will remain as the main site access and estimated to accommodate much of the site generated traffic. This access is expected to operate at LOS A with minimal delays during any peak period. The

Elizabeth Street accesses are also key though expected to be a secondary to the Harp Street access and are expected to function well. The traffic impacts and peak demand profiles can be mitigated by effective staff rostering/ shift period timing, operational hours and daily management practices, as is typical with health-related precincts.

Future year modelling is yet to be completed, noting that Canterbury Road currently has limited spare capacity to accommodate significant background traffic growth. Notwithstanding, developments have been planned and approved in the region and along the Canterbury Road corridor which have contributed to more vehicles on the surrounding road network. Additional detailed modelling is to be completed as part of any future application to ensure future traffic associated with any proposed development on the site can be accommodated on the surrounding road network. This will include new traffic surveys at all key intersections, and to be confirmed in consultation with stakeholders. The redevelopment of Canterbury Hospital would also need to be considered in this regard, together with any further approved or planned developments in the surrounding area.

6.3 Flood Evacuation

Given the site location and general topography, it is understood that areas of the site, notably those towards the southern end closer to Harp Street have been identified as being at risk to flooding.

In this regard, the proposal will incorporate a series of emergency procedures, to be advised by specialist consultants to ensure appropriate planning is in place for emergency access, as required. The Elizabeth Street access in the north-east corner of the site is free from flood impacts and would act as the flood evacuation route during any flood event.

7 Conclusion

Based on the analysis and discussions presented within this report, the following conclusions are made:

- The planning proposal comprises an integrated health precinct incorporating some 69,000 square metres across six separate buildings with car parking for approximately 700 vehicles in select consolidated car parks across the site.
- With such land uses proving essential to support the local and regional population, the proposal would improve the extent of health services long provided by Canterbury Hospital.
- The site and surrounding area are clearly capable of supporting the proposed land uses on transport grounds with staff and visitors able to travel to and from the site with moderate impacts on the surrounding local environment.
- The site access arrangements, including the additional access driveway at 5 Elizabeth Street, are appropriate and able to accommodate the anticipated peak traffic volumes. Traffic generation will mostly be moderate and consistent across the day, with short peak demands associated with staff shift changeover. These effects can be mitigated by effective rostering and day to day management.
- There are several existing bus services in the area, with opportunity for these to be further enhanced over time through NSW Government reviews as part of normal network planning. A shuttle bus service would also reinforce links between the site and an expanded Canterbury Hospital. The Elizabeth Street vehicles and active travel accesses would noticeably improve connectivity between the site and surrounding public transport network, Canterbury Hospital and Clenton Park shopping village.
- The provision of pedestrian and active travel facilities to better link site with the surrounding area is expected to be of benefit and provide for improved pedestrian amenity and connectivity throughout. Parking for 700 vehicles would ensure equitable use of all parking across the day and realises a balance between Transport for NSW rates and a first principles assessment that considers the complementary nature of the proposal.
- Secure parking for at least 168 bicycles would ensure active travel end-of-trip facilities are provided in accordance with DCP 2023 with green travel planning initiatives to further realise the benefits of active travel for a range of users.
- Dedicated emergency vehicle facilities are key to the design, including the access arrangements and internal roads to allow for access by ambulances and fire appliance vehicles. This includes an active strategy to deliver specific flood emergency evacuation procedures.
- Loading facilities are essential to adequately service the proposed land uses and would be subject to further assessment to confirm quantum and any such management practices as part of any future applications.
- The planning proposal is expected to generate a net increase of around 370 to 400 vehicle trips in any peak hour with future applications to ensure updated traffic survey data forms part of a current and robust assessment to identify any such traffic related impacts.
- The additional traffic is anticipated to have a moderate impact on the surrounding road network, with the study area intersections demonstrating sufficient capacity to accommodate development of the site.
- Canterbury Road experiences some congestion during peak periods and with moderate traffic expected during peak periods, the proposal in isolation is not expected to present a noticeable impact on the operation of this key arterial road corridor.

From a transport perspective, the planning proposal does not raise specific concerns with respect to impacts on the road network nor adversely affect existing land uses. It realises a definitive need for health services close to an expanding Canterbury Hospital in an increasingly changing demographic.