Bankstown and Campsie Parking, Loading and Servicing Study

City of Canterbury Bankstown
Final Draft

Prepared by: Stantec Australia Pty Ltd for City of Canterbury Bankstown
on 23/08/2021
Reference: N195590
Issue #: C-Dr

GTAconsultants now Stantec

Bankstown and Campsie Parking, Loading and Servicing Study

City of Canterbury Bankstown
Final Draft

Client: City of Canterbury Bankstown

on 23/08/2021

Reference: N195590

Issue #: C-Dr

Quality Record

Issue	Date	Description	Prepared By	Checked By	Approved By	Signed
A-Dr	22/12/2020	Draft	Andrew Zhou and Anthony Leung	Volker Buhl	Chris Coath	
A-Dr2	14/01/2021	Draft - amended	Andrew Zhou and Anthony Leung	Volker Buhl	Chris Coath	
A-Dr3	16/03/2021	Draft for Public Exhibition	Andrew Zhou and Anthony Leung	Volker Buhl	Chris Coath	
A	16/07/2021	Final	Anthony Leung	Volker Buhl	Chris Coath	Chris Coath
B	16/08/2021	Final	Anthony Leung	Volker Buhl	Chris Coath	Chris Coath
C-Dr	23/08/2021	Final Draft	Anthony Leung	Volker Buhl	Chris Coath	

GTAconsultants now Stantec

Melbourne | Sydney | Brisbane
Adelaide | Perth

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

GTA, now Stantec (GTA) has been commissioned by the City of Canterbury Bankstown (CBC) to prepare an Integrated Parking, Loading and Servicing Study ('the study) for the Bankstown and Campsie city centres. The Bankstown City Centre and the Campsie Town Centre are the two main urban centres in the LGA. The current Local Strategic Planning Statement (LSPS) envisages strong growth in both centres for both residential and commercial development. This will be supported by the transformation of the Bankstown train line to Sydney Metro City & Southwest, meaning both centres will have fast and regular metro service connections into the Sydney CBD from 2024.

The future transport and land use vision for Bankstown and Campsie prioritises movement by foot, public transport and bicycle to access a high density of residential, commercial, mixed-use, recreational, educational and civic land uses. Notwithstanding this prioritisation, there will still be car movements in Bankstown and Campsie but the vision seeks to repurpose space for cars in the private and public domains, for example, parking space and road space, for other more productive purposes in line with the vision.

This study has provided a comprehensive discussion on how CBC is able to reform various aspects of the transport network, including general car parking for private developments, alternative parking frameworks, electric vehicles, bicycle parking and end-of-trip facilities, car share, loading and waste collection, to realise the future vision for Bankstown and Campsie. This discussion has compared various options available to CBC for implementation and explained the trade-offs and consequences of each, with a supporting evidence base through benchmarking with comparable cities, technical guidance or academic literature. Based on this discussion, the study provides recommendations that would change its current management approach. In summary, the recommendations involve:

- Introduction of maximum parking rates and reduced minimum parking rates to minimise negative externalities related to traffic congestion and poor urban amenity.
- Ability to separate private parking spaces from the associated land use, which would enable the efficient allocation of parking resources to those who have a genuine need and a willingness to pay through private sale or lease arrangements.
- Greater clarity on bicycle parking and end-of-trip facility rates to enable active transport access
- Development controls to increase the supply of EV parking and charging infrastructure in Bankstown and Campsie, recognising the expected increased uptake of EVs but also avoiding excessive upfront costs for developers.
- A framework to allow CBC to be in a strong position to welcome the establishment of more car share spaces not only in Bankstown and Campsie but throughout the LGA, by setting out the key parameters that car share operators should follow that benefit both CBC and the operators.
- A shift towards more on-site loading and waste collection for most new developments but retaining exceptions and discretion for smaller scale activities or locations that are physically incapable of providing on-site facilities.

As CBC updates its DCP provisions for Bankstown and Campsie, the study's recommendations related to parking, EVs, loading and waste collection can be brought into this update process. Other recommendations such as the comprehensive parking management strategy and a car share policy can be implemented through new strategic policies outside the statutory planning framework.

CONTENTS

Figures

Tables

1. INTRODUCTION

01

1.1. Introduction and Background

GTA, now Stantec (GTA) has been commissioned by the City of Canterbury Bankstown (CBC) to prepare an Integrated Parking, Loading and Servicing Study for the Bankstown and Campsie city centres.

The Bankstown City Centre and the Campsie Town Centre are the two main urban centres in the LGA. The current Local Strategic Planning Statement (LSPS) envisages strong growth in both centres for both residential and commercial development. This will be supported by the transformation of the Bankstown train line to Sydney Metro City & Southwest, meaning both centres will have fast and regular metro service connections into the Sydney CBD from 2024.

The expected growth and development of the two centres comes with a range of challenges and opportunities, in particular on the transport side. More development means more trips and more traffic demand. In the past, the approach to the additional trip demand was often met by supplying more road space and more parking facilities. However, road space and space in urban centres in general is a finite resource and simply trying to add to it is not a sustainable way of urban and transport planning. Instead, a review of how urban centres should look and function means a shift away from a car-friendly environment to a human-focused place. The City of Canterbury Bankstown has made this step by adopting *Bankstown Complete Streets* in 2019 while a similar approach will be undertaken for Campsie under a new Complete Streets Master Plan. This means both Bankstown and Campsie should grow with a focus on non-car travel.

However, urban centres will not function without parking and carefully designed parking strategies are those that balance the need for parking on one hand and help to reduce the demand for parking (and car trips) on the other. This includes the management of on-street and public parking as well as the control of parking supply in private development.

The approach to this study is to understand the current and expected future travel patterns in the Bankstown and Campsie centres and integrate them with the desired urban planning strategies and outcomes. Based on that, a range of strategies and measures to manage the provision of parking space as part of the overall growth of these centres will be discussed and developed. The focus will be to strike a balance between enabling necessary trip end facilities for cars that support the growth and operation of Bankstown and Campsie without encouraging additional traffic volumes and a higher car mode share. It is important to see parking management as one tool for travel demand management and as an enabler for mode shift to non-car travel.

The key elements of the study are:

- Identify the constraints within the current framework for the areas of Bankstown and Campsie.
- Identify the opportunities and best practice of for private parking among comparable centres in Sydney and NSW.
- Identify the opportunities for alternative parking frameworks.
- Identify best practice for other parking requirements including:
    - electric vehicles
    - waste collection vehicles
    - loading and servicing vehicles.
- Provide recommendations on how best to implement the findings for Bankstown and Campsie including, if necessary, indicating if planning overlays would be required and how these can be introduced.

1.2. Study Area

The study areas for Bankstown and Campsie city centres are illustrated below.

Figure 1.1: Bankstown study area

The Bankstown city centre study area is generally bounded by Stacey Street (A6) to the east, Macaulay Avenue to the south, Oxford Avenue/Northam Avenue/ Brancourt Avenue to the west and Hume Highway (A22) to the north. The city centre is characterised by a major train station and bus interchange at its centre which is immediately surrounded by a dense cluster of commercial and civic activities, including main street shops along streets such as Bankstown City Plaza, a large shopping centre (Bankstown Central), council offices and Bankstown Library. Beyond this immediate commercial core, which is bounded by Rickard Road, Stanley Street, Stacey Street and Chapel Road, the underlying land use changes abruptly into a mixture of low storey attached dwellings or detached dwellings, local parks and local schools up to the edge of the study area. The railway line through the centre of Bankstown bisects the centre into two distinct areas while the key roads of Stacey Street and Hume Highway demarcate the centre from adjoining residential suburbs.

Figure 1.2: Campsie study area

The Campsie city centre study area is generally bounded by the Cooks River to the north and east, Canterbury Road to the south and Tudor Street/ Elizabeth Street to the west. The city centre is characterised by a train station at its centre with connecting bus stops next to the station along the main street of Beamish Street. Beamish Street also functions as Campsie's main street, which runs in a north to south direction and features street fronting shops offering retail and restaurant services. A small shopping centre (Campsie Centre) is situated off Campsie Street, between Amy Street and Evaline Street, which also hosts the local library. Immediately east and west of the main street, the land use changes to a largely residential setting, characterised by low storey attached and detached dwellings right up to the study area's edge. Other major land uses in the study area include Canterbury Hospital at the southwestern corner and a host of service-related businesses along Canterbury Road at the study area's southern boundary. The railway line through the centre of Campsie bisects the centre into two distinct areas while Cooks River creates a natural boundary with adjoining suburbs.

1.3. Report Structure

This report is structured in the following manner:

- **Sections 2 and 3:** Background and future growth of each town centre. This provides a short context to both city centres and the expected future growth of both areas.
- **Sections 4 and 5:** Establish a comprehensive understanding of the current parking approach as well as the opportunities and undertake research to evaluate best practice among similar centres to Bankstown and Campsie. Make recommendations on the management of private parking and the application of alternative parking management frameworks.
- **Sections 6, 8 and 9:** Investigate the best practice for other parking requirements such as electric vehicles, waste collection and loading and servicing and make recommendations on these aspects.
- **Section 10:** Summary of recommendations on how to best implement the findings for Bankstown and Campsie.

2. EXISTING CONDITIONS

02

2.1. Overview of City Centres

2.1.1. Bankstown

The Bankstown city centre has retail, commercial, educational, recreational and service facilities, including the Bankstown Central Shopping Centre, six schools, Bankstown City Gardens, Bankstown Library and Knowledge Centre, Bankstown RSL Club and Bankstown Sports Club. The city centre is separated by the railway line, with Bankstown Station accessible from both the northern and southern side. Bankstown has a population of approximately 16,500 according to the 2016 Census, with a mix of Australian (33 per cent) and non-Australian (59 per cent) born residents.

2.1.2. Campsie

Campsie city centre consists mostly of retail, commercial, educational, recreational and service facilities, including the Campsie Central Shopping Centre, Campsie Public School, Campsie RSL Club and the CBC Centre branch. Campsie has a population of approximately 25,000 residents according to the 2016 Census, with a mix of Australian (29 per cent) and non-Australian (69 per cent) born residents.

2.2. Travel Patterns and Demand

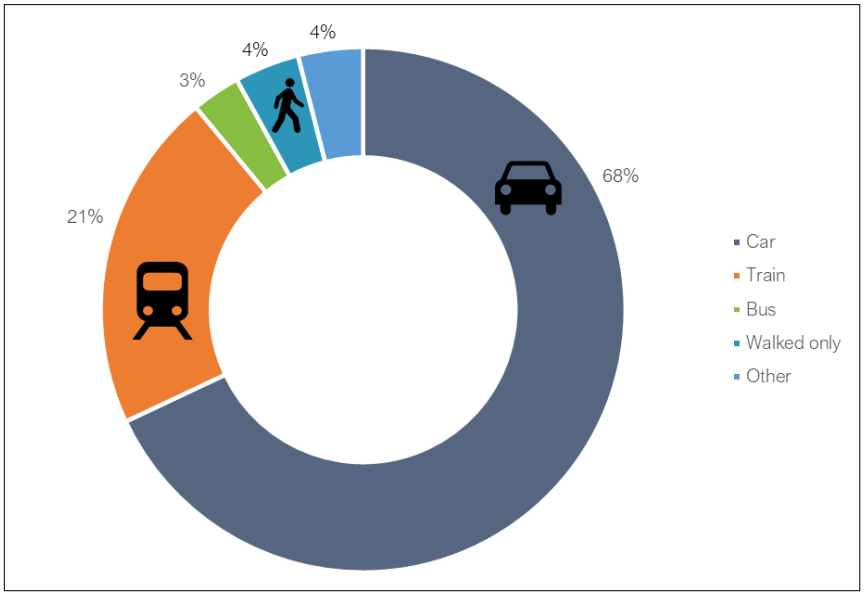
2.2.1. Mode Split

Method of Travel to Work – Residents of Bankstown and Campsie

Bankstown

Figure 2.1 shows the travel pattern used by residents within the Australian Bureau of Statistics (ABS) SA2 area of Bankstown – North and Bankstown – South commute trips based on census data in 2016. As the chart illustrates, 10,597 residents commute for work out of Bankstown, 68 per cent of these trips are undertaken by car whereas 24 per cent of work commute trips are undertaken by public transport. The percentage of people who walked to work were four percent while other modes accounted for a further four per cent. It is however noted this SA2 area captures a greater catchment area than Bankstown city centre including areas further away from the train line which can alter the mode share by a slight amount.

Figure 2.1: Mode share journey to work – residents trips in Bankstown – North and Bankstown – South SA2

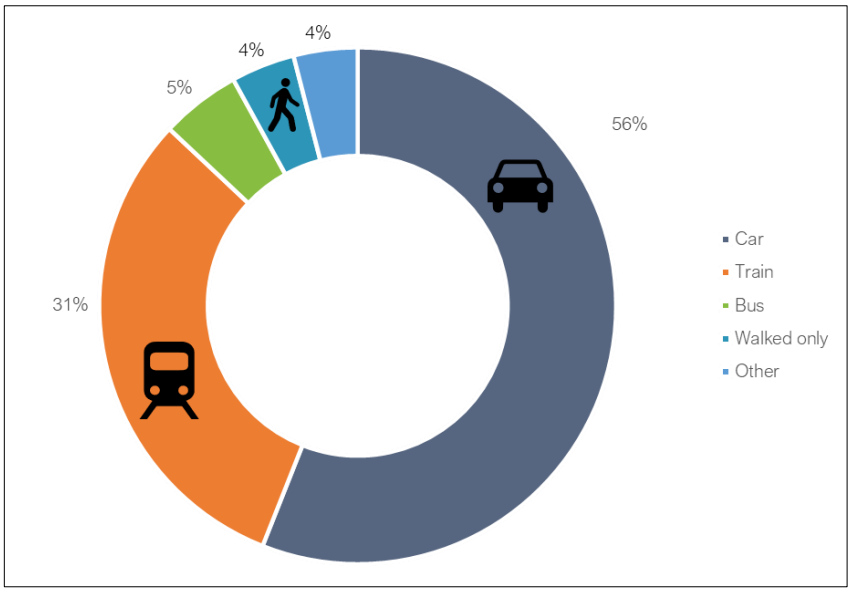


Source: ABS - 2016 Census of Population and Housing

Campsie

Figure 2.2 shows the travel pattern used for residents within the Australian Bureau of Statistics (ABS) SA2 area of Canterbury (South) – Campsie commute trips based on census data in 2016. As the chart illustrates, of the 12,581 residents who commute out of Campsie for work, 56 per cent of these trips are undertaken by car whereas 36 per cent of work commute trips are undertaken by public transport. The percentage of people who walked to work were 4 percent while other modes accounted for a further 4 per cent.

Figure 2.2: Mode share journey to work – residents trips in Canterbury (South) – Campsie SA2



Source: ABS - 2016 Census of Population and Housing

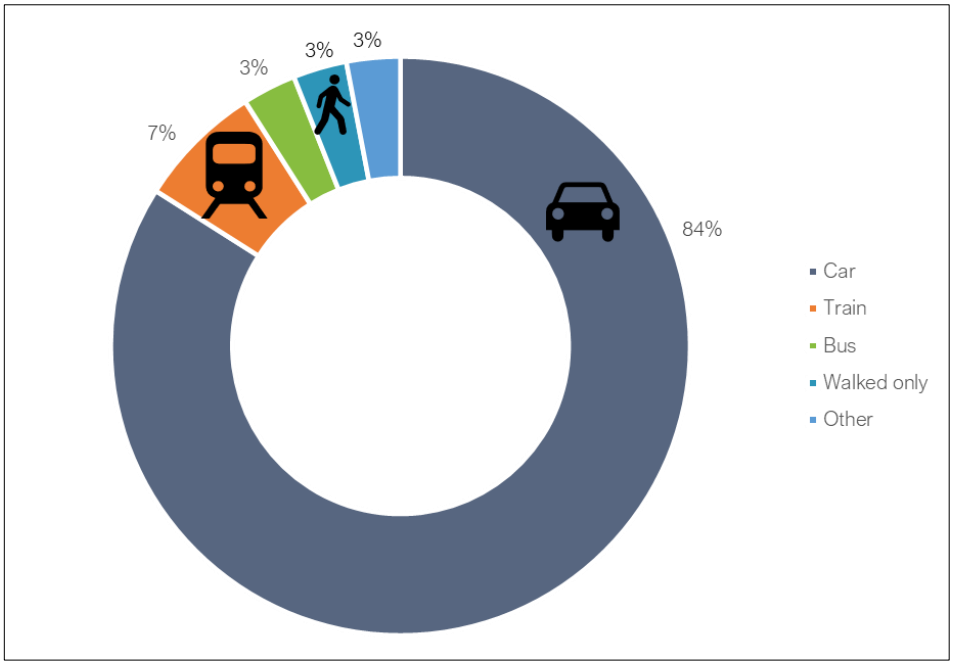
Comparing the two city centres, it is evident that Bankstown's residents are more reliant on cars for journeys to work with 68 per cent of resident commute trips undertaken by car compared to Campsie's 56 per cent. This is further confirmed with a greater public transport usage in Campsie with 36 per cent using trains or buses for journeys to work compared to Bankstown's 24 per cent.

Method of Travel to Work – Commuters from outside the city centres

Bankstown

Figure 2.3 illustrates the method of travel to work to Bankstown – North and Bankstown – South SA2 based on data extracted from Census 2016. Of the 15,437 people who work in this area, approximately 84 per cent travel by private vehicle either as a driver or a passenger, while 10 per cent used public transport to travel to work. The data also indicates up to three per cent of employees in the area walked to work with another three per cent using other modes.

Figure 2.3: Mode share for commuter trips in Bankstown – North and Bankstown – South SA2

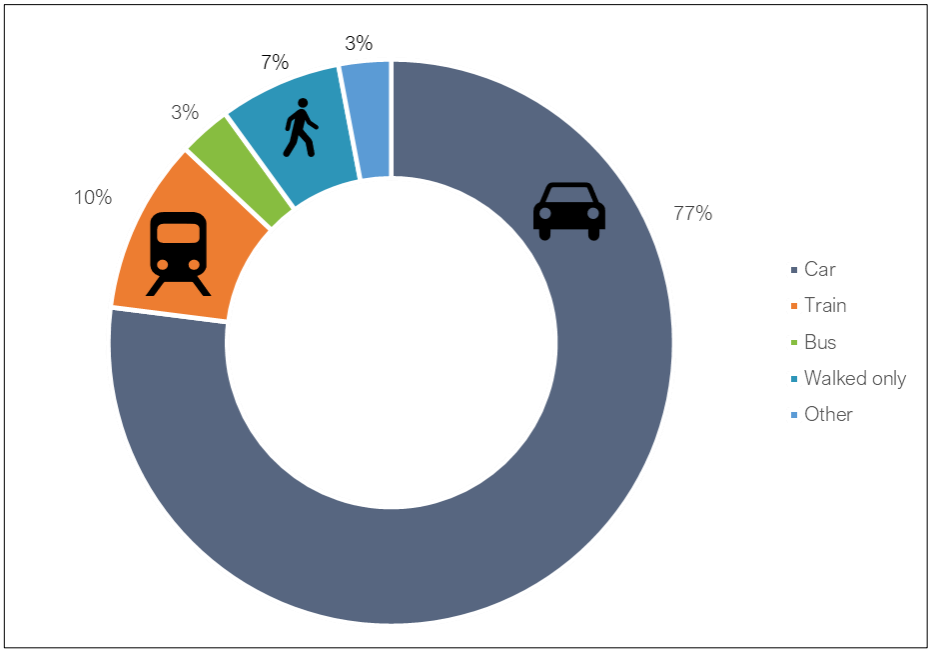


Source: https://auth.censusdata.abs.gov.au/webapi/jsf/dataCatalogueExplorer.xhtml

Campsie

Figure 2.4 illustrates the method of travel to work to the SA2 area of Canterbury (South) - Campsie. Approximately 77 per cent of workers travelled by car either as a driver or a passenger, while 10 per cent travelled by train, with a further three per cent by bus. The data also indicates up to seven per cent of employees in the area walked to work with three per cent using other modes.

Figure 2.4: Mode share for commuter trips in the Canterbury (South) – Campsie SA2



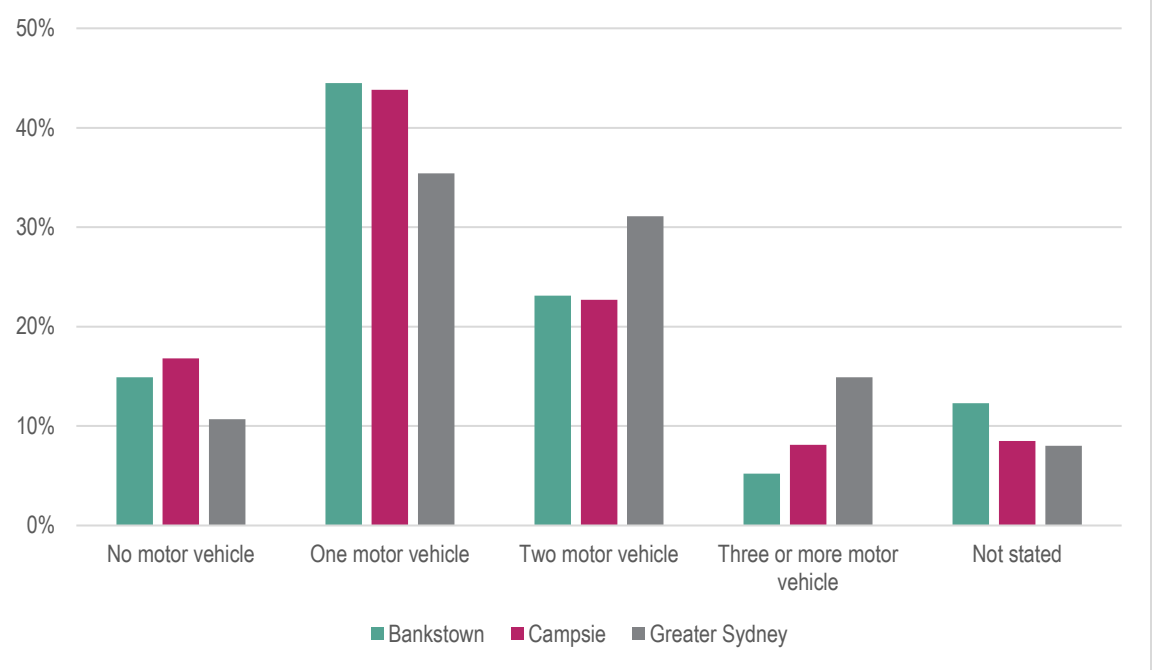
Source: https://auth.censusdata.abs.gov.au/webapi/jsf/dataCatalogueExplorer.xhtml

Comparing the two city centres, it is evident that both have a similar mode share in terms of journey to work for local workers. With Bankstown and Campsie both having a vehicle mode share of 84 and 77 per cent and a public transport mode share of 10 and 13 per cent respectively.

2.2.2. Car Ownership

Analysis of the 2016 Census car ownership data highlights that both Bankstown and Campsie have a similar car ownership profile compared to the rates for Greater Sydney. However, one notable difference lies in the number of cars owned per household. Both Bankstown and Campsie have a higher proportion of households owning one car compared to the Greater Sydney average but a lower proportion of two and more cars. The reason for this is likely the fact that majority of the city centre residents live in apartments with no or limited on-street parking and a small number of allocated off-street parking spaces.

Figure 2.5: Car ownership 2016

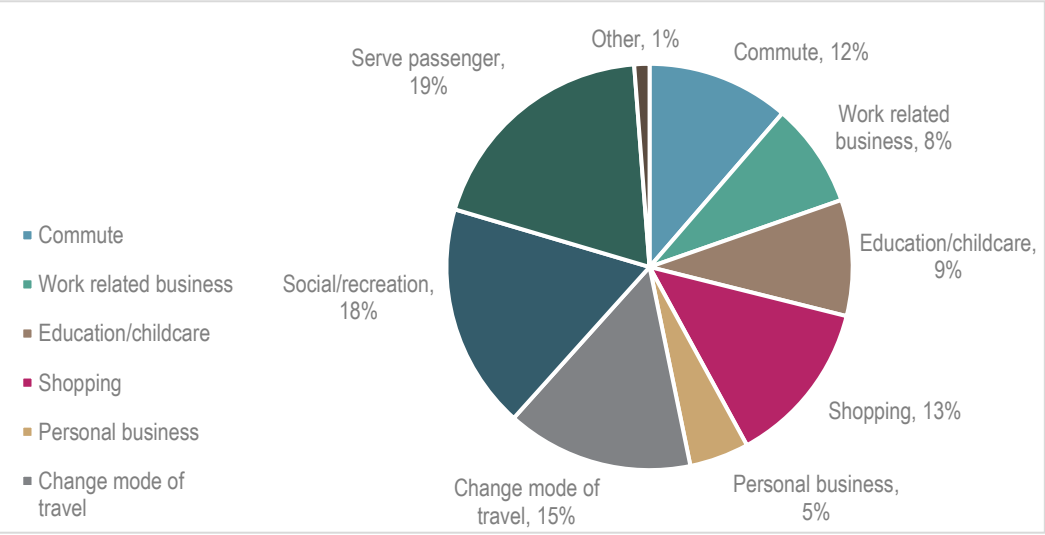


Source: https://profile.id.com.au/canterbury-bankstown/car-ownership

2.2.3. Travel Purpose

Trip purposes for residents in the City of Canterbury-Bankstown are shown in Figure 2.6 for 2017/ 2018. The highest percentage was 19 per cent for people whose travel purpose was to serve a passenger/ s (e.g. picking up or dropping off a person). Social/ recreational trips were also high (18 per cent), followed by travelling in order to change to a different mode (15 per cent). Commuting only comprises 12 per cent of trips in Canterbury Bankstown, however it is reasonable to assume that many of the people travelling in order to change travel mode may also be commuters.

Figure 2.6: Trip purpose for the City of Canterbury-Bankstown, 2017/18



Source: https://www.transport.nsw.gov.au/performance-and-analytics/passenger-travel/surveys/household-travel-survey-hts/household-travel

2.2.4. Travel Destination

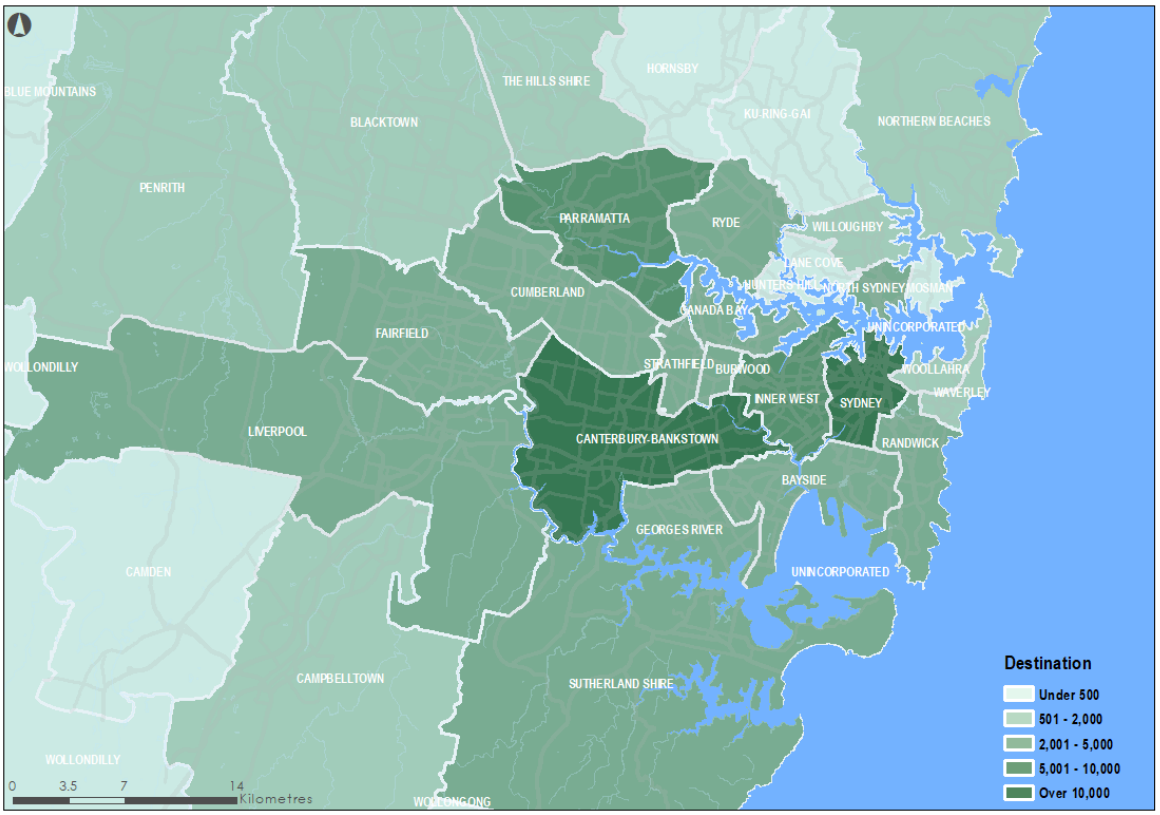
Figure 2.7 shows the travel destinations for Canterbury Bankstown residents across multiple trip purposes. Canterbury Bankstown LGA is the primary destination with 39,338 trips, followed by the Sydney city centre with 25,642 trips. The council areas of Inner West, City of Parramatta and Cumberland are other popular travel destinations. Based on investigations and trip purpose for the LGA, the following locations inside and outside of Canterbury-Bankstown are considered key destinations and trip generators.

Within the Canterbury-Bankstown LGA, Bankstown city centre is the most important trip destination for residents. This includes trip generators such as the Bankstown Library and Knowledge Centre, Bankstown Central (shopping centre), and the Bankstown Arts Centre. Other major centres including Campsie and Canterbury also represent key destinations within the LGA, in particular for shopping trips.

Outside the LGA, the City of Sydney is the second most important trip destination for Canterbury-Bankstown residents. This includes travelling to work as well as recreational, shopping trips and special events.

The City of Parramatta is the third most travelled destination for Canterbury Bankstown residents. This is more attractive for recreational trip purposes. Sydney Olympic Park and Parramatta Park have been identified as potential trip attractors within the City of Parramatta.

Figure 2.7: Trip destination for Canterbury-Bankstown



Source: Australia Bureau of Statistics.

2.3. Parking

Public (i.e. CBC owned or managed) on-street and off-street parking within Bankstown and Campsie typically includes:

- Parking within the city centre core which is mostly characterised by short to medium stay unpriced, time restricted parking (usually between one-hour parking and four-hour parking).
- Unrestricted parking outside of the core which is mostly used by residents.

Short and medium stay parking restrictions in and around the centres are located on higher order roads such as Beamish Street in Campsie and Chapel Road in Bankstown. These restrictions are also carried over onto minor roads, approximately 100 to 200 metres from intersections with major roads. On-street parking restrictions are generally in effect between 8:30am to 6:00pm on weekdays and 8:30am to 12:00pm on Saturdays.

CBC operates a range of larger off-street car parks in the Bankstown city centre with a total of 1,650 parking spaces, with just under 50 per cent of those being unrestricted. In Campsie, there are also four council car parks.

Off-street parking within Bankstown and Campsie is also provided privately around clusters of commercial and retail uses such as supermarkets, dining and specialty retail within centres. These car parking spaces are provided either at the rear of the developments in the form of at-grade car parks or basement parking as part of larger shopping centre developments. Off-street parking set in basement car parks for specific large developments such as the Campsie Centre consists of three hours free parking with paid parking thereafter. This is generally used to deter long term parking thereby encouraging higher turnover. Commuter parking is also provided off-street at Bankstown and Campsie Stations.

2.3.1. Car Share

GTA reviewed current operations for GoGet and Car Next Door.

Currently, the farthest west that GoGet has vehicles is around Campsie station (along the Bankstown rail line alignment) where four pods are located. Substantially higher densities of GoGet vehicles are present east of Hurlstone Park. There are also some vehicles placed around centres such as Flemington and Lidcombe, with higher densities of vehicles east of Ashfield.

Correspondence from GoGet indicated that they generally start exploring opportunities after an (unspecified) number of expressions of interest have been received by residents and businesses.

Car Next Door also has cars available to hire in Bankstown and Campsie. As Car Next Door involves the sharing of private vehicles, any resident could likely contact the organisation and commence operations promptly.

3. FUTURE GROWTH AND DEVELOPMENT

03

3.1. Future City-Shaping Transport Projects

3.1.1. Sydney Metro

Sydney Metro consists of Sydney Metro Northwest and Sydney Metro City and Southwest infrastructure projects. The proposed Sydney Metro City and Southwest comprises these two core components:

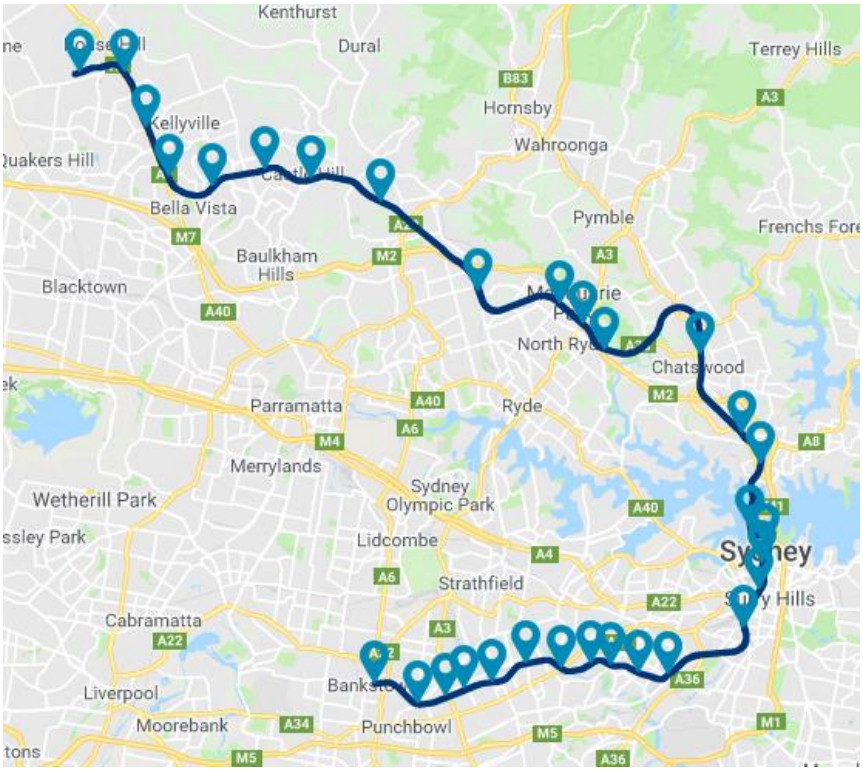
- Chatswood to Sydenham – comprised of new 15.5 km twin tunnels from Chatswood, under Sydney Harbour through Sydney's city centre to Sydenham.
- Sydenham to Bankstown upgrade – proposed upgrade and conversion of the existing 13.5 km railway from Sydenham Station to Bankstown to metro standards.

Sydney Metro will deliver a train every four minutes in the peak and upgraded stations along the line. Sydney's new metro railway will have a target capacity of about 40,000 customers per hour.

Bankstown Station will be the terminus station of the metro and once the project is operational, Sydney Trains services would no longer operate between Sydenham and Bankstown stations. Customers would be able to interchange with Sydney Trains services at Sydenham and Bankstown stations.

The route of Sydney Metro is shown in Figure 3.1.

Figure 3.1: Sydney Metro Route



The current project considers a new station at grade at Bankstown Station, next to the existing one. The existing Sydney Trains entrance will be retained, and a new entrance will be added to the East. The bus layover will be reconfigured.

As per the Environmental Impact Statement (EIS), main elements of Bankstown station upgrade, regarding traffic and transport, are:

- Introduction of a secondary concourse to the Eastern extent of the existing platform with separate gate lines to Sydney Metro and Sydney trains platforms.
- Modification and extension to existing southern and northern plazas to create new station entries.
- Creation of 70 additional spaces for bicycle parking (from existing 32 bike parking spaces), distributed between the north and south of the station entrances.
- No change to the arrangements of bus stops but possibly additional services.
- Ten existing taxi spaces retained.
- Extension of the kiss and ride bays on North Terrace from existing four spaces to approximatively 13 spaces.
- Loss of 12 car parking spaces.

No details about the Bankstown Station layout are available in the preferred infrastructure report, noting that CBC made a submission to the EIS advocating for an underground solution with improved connectivity between the North and the South of the metro line, and other interventions that bring more opportunity for Bankstown city centre's regeneration.

Campsite Station will be upgraded to include a new partial open-air plaza at the station entrance on Beamish Street that will open up the gateway area and enhance the way people move through the station. The proposed design will help ease station crowding by creating a more seamless interface between the station entry and Lilian Lane, where pedestrian congestion occurs. The station upgrade also features new bicycle parking within the station concourse and off North Parade in the existing car park to relieve bicycle parking demand on Beamish Street.

3.2. Future Land Use and Demographics

3.2.1. Bankstown's Growth

Bankstown will significantly change in the next 10 to 20 years. It is expected to receive an additional 29,500 residents and up to additional 14,000 jobs by 2036[1].The employment and population growth will be concentrated within the Bankstown city centre and within the walking catchment of Bankstown station (800m catchment).

In addition to that, the Bankstown city centre will receive a new University campus (10,000 students) and a potential new hospital. Urban redevelopment is also already planned at significant sites such as Bankstown Sports Club and the Bankstown Central Shopping Centre.

3.2.2. Bankstown Planned Developments

The transformation of the city centre is already happening. Some of the current or planned key redevelopments are presented below.

Western Sydney University – Bankstown Campus

WSU will open a 21-storey campus in Bankstown, located between Bankstown Library and the CBC administration building. It is expected to open in early 2022 and receive around 10,000 students.

[1] SGS Economic and Land Use Study, 2020

Bankstown Central Shopping Centre

Currently, Bankstown Central is a three level Major Regional shopping centre. It is anchored by Myer, Big W, Kmart, Target, Woolworths and Supa IGA and includes more than 240 specialty stores.

Vicinity has plans to build on the opportunity of the urban renewal around Bankstown Station and redevelop the site into a mixed-use development including a residential component.

Bankstown RSL Club

Bankstown RSL club redevelopment consists of the construction of a new mixed-use building on the adjacent site at the corner of Meredith and Marion streets, including one level of licenced club, one podium level and five levels of hotel rooms. It also includes one basement car parking and 3 levels of upper level parking (total of about 495 car parking spaces).

Figure 3.2: Bankstown RSL redevelopment

Source: http://www.bankstownrsl.com.au/ accessed 6 September 2018

The existing site has been sold and the proposal is to build a fourteen-storey mixed use development comprising of basement car-parking, 521 residential apartments, retail tenancies, health services facility, child-care centre

3.2.3. Campsie's Growth

The population is forecast to increase by around 14,800 people and the number of jobs by an additional 3,000 jobs between 2016 and 2036 near Campsie Town Centre in four primary Travel Zones including:

- Campsie
- Harcourt Primary School
- Canterbury Memorial Hospital
- Campsie – Beamish Street and Ninth Street.

Based on a current population in the area of 24,500 people and around 4,100 jobs existing in 2016, this is an increase of approximately 60 per cent in terms of population and over 70 per cent in terms of jobs.

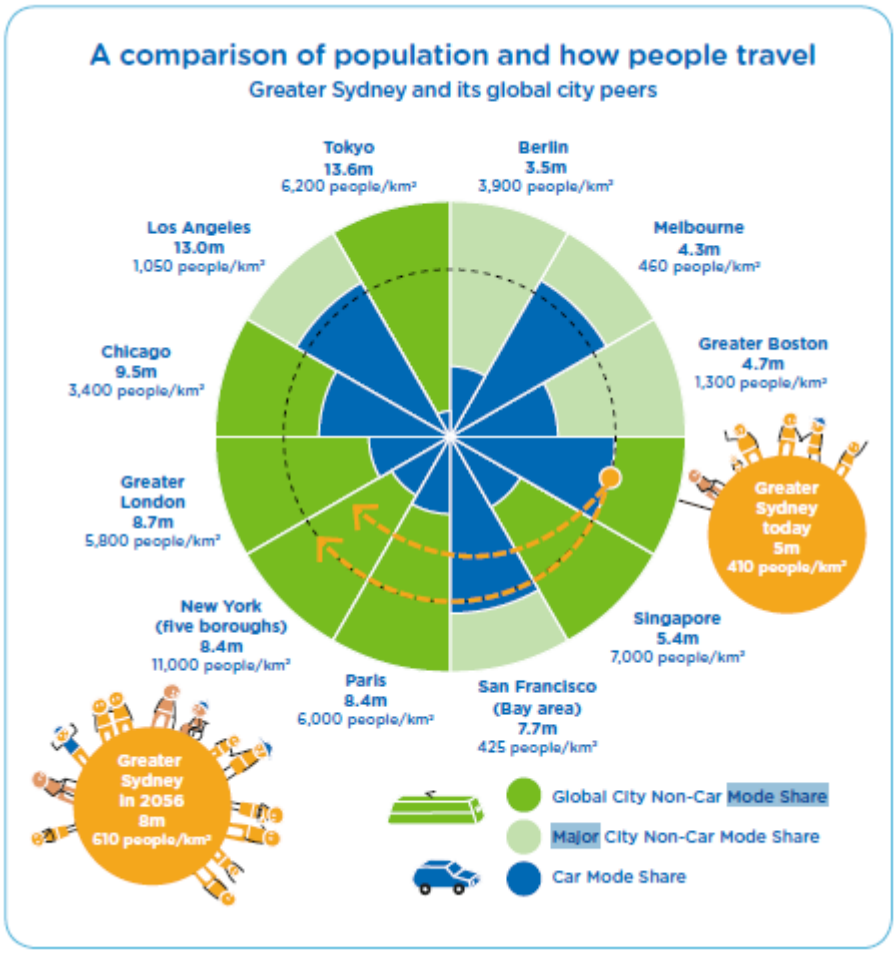
3.3. Transport Trends

3.3.1. State and Regional Policies

The NSW Government is investing across Sydney in public transport and road transport to improve travel times and increase network capacity. However, congestion will continue to increase if current levels of private vehicle use persist and will bring considerable social and economic costs, including increased travel time, lost productivity and increased pollution. A shift of demand towards more efficient and sustainable modes of transport is needed to respond to congestion and to meet NSW Government's objective of achieving net-zero emissions by 2050.

Future Transport 2056 also includes the objective of moving people from private vehicles to more sustainable modes of transport and compare how Sydney could progress with the expected population growth in terms of transport mode shares, compared to other cities worldwide.

Figure 3.3: Population and Mode Share comparison



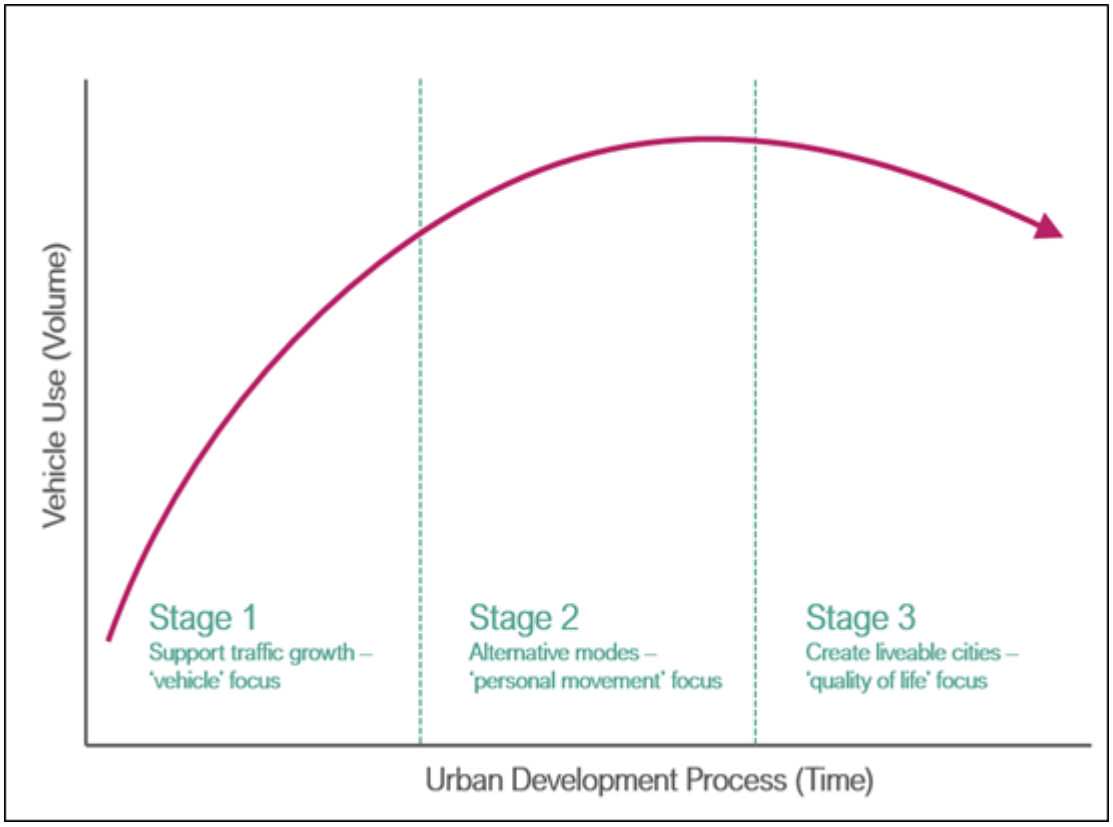
Source: Future Transport Strategy 2056 (Transport for NSW, 2018)

3.4. Overall Future Trend

Similarly, in Bankstown and Campsie, without any change in investment priorities and travel behaviours, congestion and travel time will increase and threaten the city's attractivity and the level of amenity of people residing, working or visiting the city centres.

The significant and rapid increase in population and jobs expected in Bankstown and Campsie is part of its natural evolution from a locally based centre serving the local LGA to a larger city centre with regional and metropolitan functions (Figure 3.4).

Figure 3.4: Stages of centre evolution



Source: Based on Jones and Anciaes (2018).

As centres like Bankstown and Campsie naturally evolve over time from a locally based centre focused on traffic growth (Stage 1) to a Stage 3 centre with a high intensity of activity, population and employment, geographic and transport constraints mean it will no longer by financially or environmentally sustainable to adopt a business-as-usual approach of traffic growth to service this high activity and place intensity. This evolution to a Stage 3 city requires a focus on making cities liveable, accessible and attractive, which combined with the strategic vision for land use and movement in the centres as espoused in *Complete Streets*, makes it urgent for CBC to adopt a more integrated and balanced approach to transport and land use. This approach includes the management of parking in the private and public domains to engender travel behaviours that support the anticipated growth and vision and to ensure valuable land in the city centres are focused on providing more space for quality of life rather than cars and parking.

4. GENERAL CAR PARKING

04

4.1. Introduction

General car parking is a critical transport element of any development. The focus has traditionally been on the provision of private car parking for particular user groups of residents and commercial/ retail tenancies. However, contemporary foci have also included consideration for alternative parking frameworks and strategies such as the unbundling and decoupling of car parking from each development.

Other frameworks that are also becoming prevalent and popular especially across areas in Metropolitan Sydney include the provision of Car Sharing spaces within or adjacent to a development as an alternative or complementary provision in addition to private parking, catering to the general trend towards lower car ownership.

4.1.1. Status Quo – Current Framework

The current Development Control Plans (DCP) of Bankstown and Campsie prescribes parking requirements as minimum rates in the DCP for different land uses. In respect to providing parking, it prescribes it must be provided on-site and does not provide any mechanisms for variation or alternative frameworks. As part of this piece of work, it is important to review the current provisions to ensure it remains relevant to current and future needs while also identifying any alternative frameworks that may be applicable and adaptable to the city centres.

4.2. Private Parking

Private parking provision involves providing private car parking spaces for each development usually as a rate against the scale of the development and for each land use. These car parking provision rates are typically categorised into three main types, minimum rates, maximum rates or a combination thereof.

Minimum rates are the most common and refer to the minimum number of parking spaces a development must provide for a set scale of the development, usually in the form of how many spaces per dwelling or floor area (e.g. 1 space per 1 bedroom). Additional car parking can be provided over and above the minimum level if desired by a development. An amount of parking below the minimum rate can typically be permitted with approval from the relevant planning authority. In many circumstances minimum parking rates are established to ensure that individual isolated developments provide a suitable level of parking to satisfy their needs. However, as minimum parking rates are static and are not sufficiently agile to respond to changes in parking demand, land use or travel behaviour, these rates can also overprescribe parking relative to demand, leading to an oversupply of parking and an effective mandated subsidy for car ownership and driving.

Maximum rates are adopted in selected areas in Sydney and they refer to a maximum number of parking spaces allowed to be provided by a development, e.g. (max 1 space per 1-bedroom dwelling). This restricts the number of parking spaces allowed for a development, and in turn does not specify a minimum and as such a development can be approved and built with no provision of parking.

Combination rates involve a combination of both maximum and minimum rates for the provision of parking; this would set a range of parking provision for a development and prohibit any development with excessively low or high parking provisions and are only adopted in selected areas in Sydney.

4.2.1. Current Provisions

The current DCPs for Bankstown and Campsie for multi-dwelling residential development and general commercial and retail land uses adopt minimum parking rates. It is acknowledged that as Bankstown and Campsie were previously located in two separate councils (Bankstown Council and Canterbury Council)

before recently merging to form the City of Canterbury Bankstown, the minimum parking rates currently for both locations are governed by separate DCP's with differing provisions. Table 4.1 presents the current parking rate requirements for each town centre.

Table 4.1: Current DCP rates for Bankstown and Campsie

Land Use	Size/ Description	Bankstown	Campsie
Residential Flat Buildings	Studio or 1 bedroom	1 space	1 space
	2 bedroom	1.2 space	1.2 space (0.2 remain as common property)
	3 bedroom	1.5 space	2 spaces
	Visitor	1 space per 5 dwellings	1 space per 5 dwellings or 1 space per 3 dwellings for developments on less than 11m road width/ cul-de-sac
Shop top housing	Shop top housing in R4 zoning	1 space per retail/ business premises in addition to residential flat building requirements	0.25 space per studio 0.8 space per 1 bedroom 1 space per 2 or more bedrooms No visitor parking required
	Shop top housing in business zones	1 space per dwelling, with retail and business premises to comply with their own requirements respectively	
Office premises	Office premises	1 space per 40sqm of half of GFA, other half is dependent on a planning agreement	1 space per 60sqm GFA (10% of total allocated for visitors)
Retail premises	Retail premises (Shops)	1 space per 40sqm GFA (<4,000sqm) Parking survey (>4,000sqm)	1 space per 66.7sqm GFA (<120sqm) 1 space per 33sqm GFA (120sqm – 1,000sqm) 1 space per 27sqm GFA (>1,000sqm)

Furthermore, CBC publicly exhibited its draft Consolidated DCP on 3 February 2021 to 5 March 2021. This is primarily a housekeeping DCP to align the current Bankstown DCP 2015 and Canterbury DCP 2012. Therefore, the proposed parking rates that pertain to the former Bankstown and Canterbury LGAs in relation to residential flat buildings, shop top housing and commercial/retail developments are proposed to remain substantially the same. This parking study provides an opportunity to review the minimum parking rates for Bankstown and Campsie to encourage more sustainable modes of travel behaviour.

4.2.2. Current Provision Constraints

Based on the current DCP car parking requirements, an assessment into the provisions required to cater to the future of each centre is complete to understand the extent of parking required and the constraints of current DCP requirements for an as-is status quo scenario.

Bankstown and Campsie

Bankstown's population is expected to increase by 30,000 people through the addition of 12,500 dwellings by 2036 according to the Canterbury-Bankstown Housing Strategy. With such a large number of dwellings required to be built within the city centre over the next 20 years, it is understood most will likely be in the form of high-density residential developments.

To understand the impacts of such development on Bankstown, an assessment of the likely development scenario using the current DCP requirements for parking will provide an indication on the amount of parking that would have to be constructed under the status quo parking regime, which in turn provides an indication of the impacts this amount of parking provided would have on development affordability and travel behaviours.

Assuming a typical apartment composition of 30 per cent for one-bedroom dwellings, 50 per cent as two-bedroom dwellings and 20 per cent as three-bedroom dwellings and applying the respective parking requirements of 1 car parking space per 1 bedroom dwelling, 1.2 car parking spaces for 2 bedroom dwelling, and 1.5 car parking spaces per 3 bedroom dwelling, the result is an average of 1.2 parking space for every dwelling built.

An assessment for the total number of car parking required for Bankstown city centre for the scenario year of 2036 based on the status quo DCP rates is shown in Table 4.2.

Table 4.2: Parking Requirement for Bankstown 2036 based on current DCP rates

Dwelling Size	Composition	Number of Dwellings	Parking Rate	Parking Required
1 bedroom	30 per cent	3,750	1.0	3,750
2 bedroom	50 per cent	6,250	1.2	7,500
3 bedroom	20 per cent	2,500	1.5	3,750
Total		**12,500**	**-**	**15,000**

Campsie's population is expected to increase by 14,800 by 2036 through the addition of 6,360 new dwellings, according to the Canterbury-Bankstown Housing Strategy. With such a large number of dwellings required to be built within the city centre over the next 20 years, it is similarly understood that most will likely be in the form of high-density residential developments.

To understand the impacts of such development on Campsie, an assessment of the likely development scenario using the current DCP requirements for parking will provide an indication on the amount of parking that would have to be constructed under the status quo parking regime, which in turn provides an indication of the impacts this amount of parking provided would have on development affordability and travel behaviours.

Assuming a typical apartment composition of 30 per cent for one-bedroom dwellings, 50 per cent as two-bedroom dwellings and 20 per cent as three-bedroom dwellings and applying the respective parking requirements of 1 car parking space per 1 bedroom dwelling, 1.2 car parking spaces for 2 bedroom dwelling, and 2.0 car parking spaces per 3 bedroom dwelling, the result is an average of 1.3 parking space for every dwelling built. An assessment for the total number of car parking required for Campsie town centre for the scenario year of 2036 is shown in Table 4.3.

Table 4.3: Parking Requirement for Campsie 2036 based on current DCP rates

Dwelling Size	Composition	Number of Dwellings	Parking Rate	Parking Required
1 bedroom	30 per cent	1,908	1.0	1,908
2 bedroom	50 per cent	3,180	1.2	3,816
3 bedroom	20 per cent	1,272	2.0	2,544
Total		**6,360**	**-**	**8,268**

With Bankstown and Campsie city centres expecting approximately 12,500 and 6,360 new dwellings respectively by 2036, this results in approximately the need for a minimum of 15,000 and 8,200 parking spaces respectively based on the current DCP parking provisions. Putting this in perspective, with a typical area of 30-35 square metres required for the construction of one basement car parking space, equates to between 260,000 to 490,000 square metres of area[2] required to accommodate the additional parking for Bankstown and Campsie by 2036. This is equivalent to 36 to 69 soccer fields, or more than two times the footprint of the two blocks of Bankstown Central and associated at-grade parking or more than five times the footprint of the block bounded by Canterbury Hospital.

The provision of such number of parking spaces for both city centres not only puts a strain on the requirement for land area and construction cost of future developments but also the on-flow cost of dwelling prices to residents and tenancies as well as the associated additional traffic that is naturally generated of such number of vehicles. As such, the current DCP car parking provision rates for both town centres present significant constraints for the future growth of both town centres.

With the introduction of the Metro services and improved public transport connections in these areas, we can expect mode split to shift towards more public transport usage and less reliant on private vehicles, and with both Bankstown and Campsie aspiring to further develop their strategic importance in Metropolitan Sydney, other strategic/ metropolitan centres within both Sydney and other cities in Australia can be considered as examples for comparison and benchmarking for both the existing scenario of Bankstown and Campsie, as well as the future of Bankstown and Campsie.

4.2.3. Centres Similar to Bankstown's Current Form

Centres similar to Bankstown include:

Liverpool

Liverpool is located approximately 28 kilometres southwest of Sydney city centre, and 11 kilometres from Bankstown, features a similar geographical footprint and size to Bankstown, with similar transport, accessibility and road networks, where the town centre is serviced by a major train station and the main arterial roads of Hume Highway and Newbridge Road passes by the periphery of the town centre. The centre attractiveness is also similar with Liverpool being the main strategic centre serving southwestern Sydney with amenities such as Liverpool Westfields, Library, and many other government services.

Hurstville

Hurstville is approximately 14 kilometres south of Sydney city centre, and eight kilometres from Bankstown, features similar accessibility, transport, road network and centre element as Bankstown, with a main train station serving the centre, and main arterial road of King Georges Road bypassing to the west, and features key centre amenities such as Hurstville Westfields and the main provider of government services for the area of St George. The town centre is however slightly smaller in geographical footprint than Bankstown.

Table 4.4: DCP rates for the town centres of Liverpool, Hurstville

Land Use	Size/ Description	Liverpool	Hurstville
Residential Flat Buildings	Studio	1 space per 2 studios	1 space
	1 bedroom	1 space	1 space
	2 bedroom	1 space	1 space
	3 bedroom	1.5 space	2 space

[2] Applying a conservative 30 square metres per parking space.

Land Use	Size/ Description	Liverpool	Hurstville
	Visitor	1 space per 10 dwellings	1 space per 4 dwellings
	Servicing	1 space per 40 dwellings (including washing bays max 4)	
Shop top housing	Shop top housing in business zones	Parts of a building used for residential purposes are exempt	
Office premises	Office premises	1 space per 150sqm (1 space per 200sqm for ground floor areas)	1 space per 100sqm (B4 zoning) 1 space per 200sqm (B3 zoning)
Retail premises	Retail premises (Shops)	1 space per 100sqm (1 space per 200sqm for ground floor areas)	1 space per 50sqm

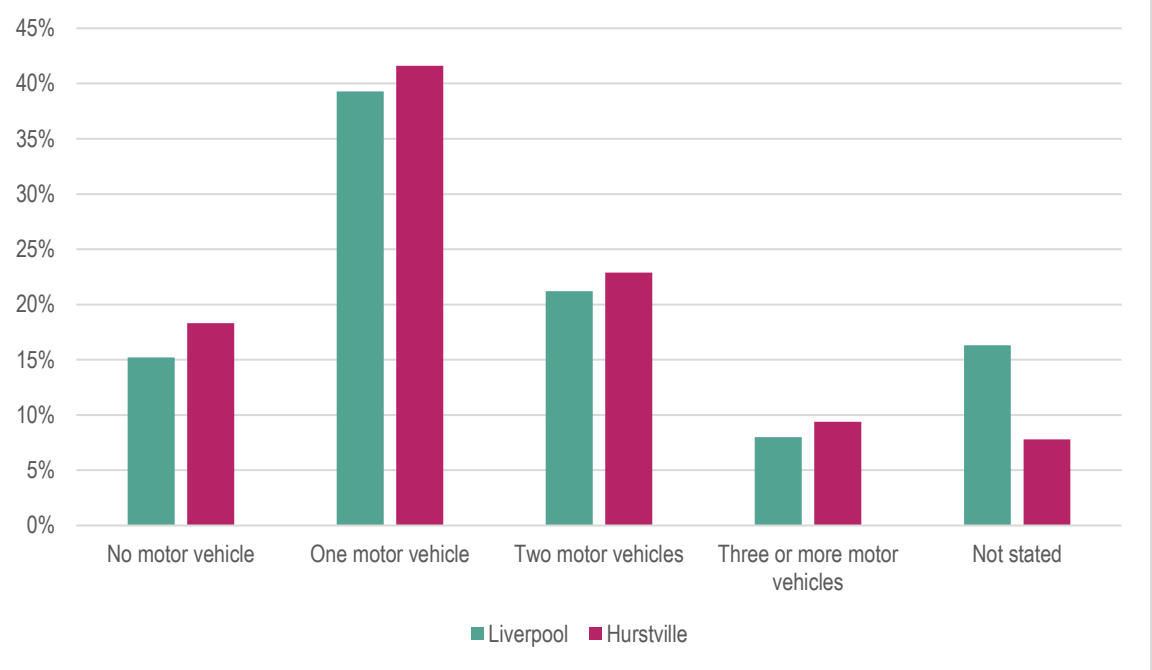
Comparing the car parking rates of the town centres similar to Bankstown indicate that the current car parking provision rates as part of Bankstown's DCP is similar to the rates of those for Liverpool and Hurstville particularly for residential flat buildings. One noticeable difference is Bankstown's current parking rates have a much higher provision of commercial and retail parking, more than two times of those for Liverpool or Hurstville, indicating a higher overall car parking provision rates for Bankstown.

Table 4.5 and Figure 4.1 presents the characteristics and motor vehicle ownership of comparable local centres to Bankstown.

Table 4.5: Characteristics of Liverpool and Hurstville, 2016 Census

		Liverpool	Hurstville
Resident Population		21,448	20,134
Employment Population		19,524	9,504
Resident/ Employment Ratio		50-50	70-30
Car Ownership	No motor vehicle	15.2%	18.3%
	One motor vehicle	39.3%	41.6%
	Two motor vehicles	21.2%	22.9%
	Three or more motor vehicles	8.0%	9.4%
	Not stated	16.3%	7.8%

Figure 4.1: Car ownership of Liverpool and Hurstville, 2016 Census



Source: https://auth.censusdata.abs.gov.au/webapi/jsf/dataCatalogueExplorer.xhtml

4.2.4. Centres Similar to Campsie's Current Form

Centres similar to Campsie include:

Five Dock

Five Dock is located seven kilometres west of Sydney city centre and five kilometres from Campsie. The centre features a geographical footprint and road network similar to Campsie, with Great North Road being the main 'high street' running as the spine within the town centre, though features quite different offerings in terms of public transport, accessibility and centre attractiveness. Five Dock is only served by buses with no train station in its current state (though the future Sydney Metro West will feature a station in 2024), and the retail/ commercial offerings of the town centre features only retail shops on the high street with no retail shopping centres or plaza's and only Coles as the main anchor retail tenant in the area, as such Five Dock features a comparatively smaller retail/ centre catchment to Campsie.

Ashfield

Ashfield is located approximately eight kilometres west of Sydney city centre and three kilometres from Campsie. The two centres are almost identical in all elements, with similar geographical footprint, accessibility, centre element, public transport, road networks. Ashfield similarly features the main arterial road of Liverpool Road as its centre 'high street' and is well served by train and buses, whilst also featuring similar retail/ commercial offerings with a retail shopping centre located just off Liverpool Road. As such is very much aligned with Campsie.

Eastwood

Eastwood is located 15 kilometres northwest of Sydney city centre and 13 kilometres north of Campsie. The town centre features a similarly sized geographical footprint, with similar accessibility, centre element and public transport, and only minor differences in road network to Campsie. Eastwood is well served by trains

and buses while also features a centre/ retail 'high street' of Rowe Street though is not a major vehicle thoroughfare such as Beamish Street in Campsie. The town centre also features a small shopping centre similar to that of Campsie.

The car parking rates for these centres are governed by each centre's local council DCP and Table 4.6 presents the car parking provision in centres similar to Campsie in its current form.

Table 4.6: DCP rates for the town centres of Five Dock, Ashfield and Eastwood

Land Use	Size/ Description	Five Dock	Ashfield	Eastwood
	Studio or 1 bedroom	Max 0.6 space for B4 Mixed Use Min 0.6 space within 400m of B4	1 space for all dwellings	0.6 to 1 space per dwelling for high density 1 space per dwelling for medium density
	2 bedroom	Max 0.9 space for B4 Mixed Use Min 0.9 space within 400m of B4	1 space for all dwellings	0.9 to 1.2 space per dwelling for high density 1 space per dwelling for medium density
	3 bedroom	Max 1.4 space for B4 Mixed Use Min 1.4 space within 400m of B4	1 space for all dwellings	1.4 to 1.6 space per dwelling for high density 2 space per dwelling for medium density
	Visitor	Max 1 space per 5 dwellings for B4 Mixed Use Min 1 space per 5 dwellings within 400m of B4	1 space per 4 dwellings	1 space per 5 dwellings for high density 1 space per 4 dwellings for medium density
	Servicing		1 car wash bay	On-site loading required
Shop top housing	Shop top housing in R4 zoning	Same rates as Residential Flat Buildings	-	-
	Shop top housing in business zones			
Office premises	Office premises	1 space per 40sqm	1 space per 40sqm 1 signposted courier parking space for 200sqm+ developments	1 space per 40sqm
Retail premises	Retail premises (Shops)	1 space per 40sqm GLFA	1 space per 40sqm 1 signposted courier parking space for 200sqm+ developments	1 space per 25sqm

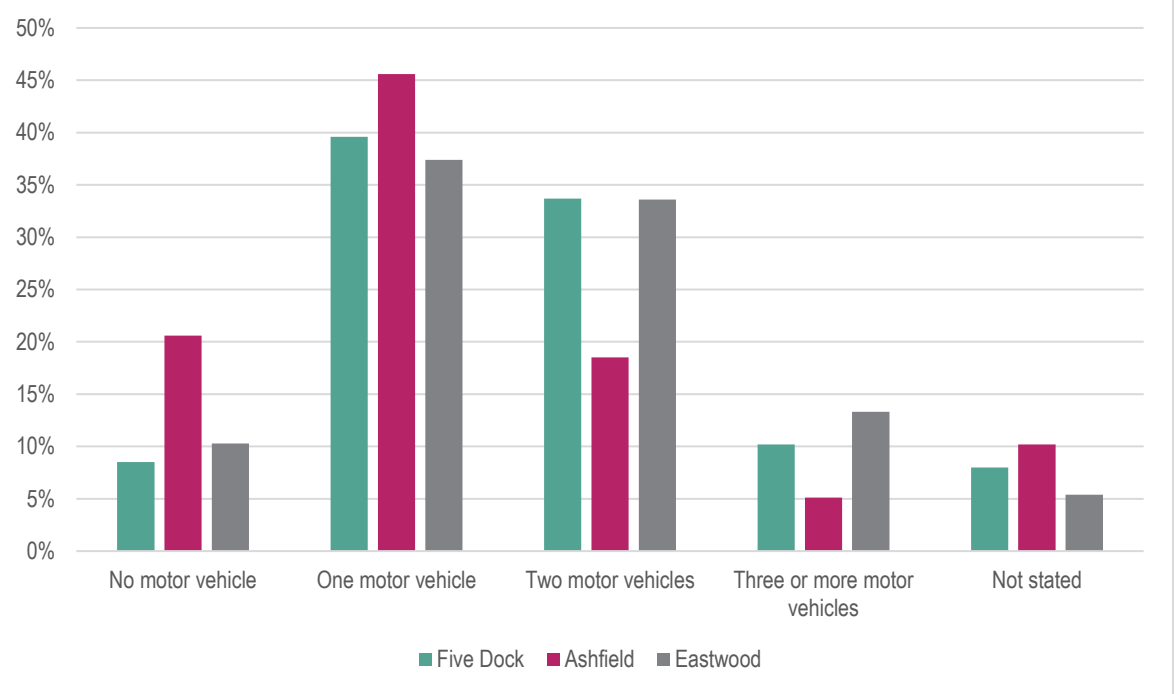
Comparing the car parking rates of the town centres similar to Campsie indicate that the current car parking provision rates as part of Canterbury's DCP is slightly higher than those for Five Dock, Ashfield and Eastwood particularly for residential flat buildings, with Five Dock incorporating maximum rates for the town centre's core. The car parking rates for commercial and retail uses are similar amongst all centres at approximately 1 space per 40sqm GFA, with Campsie's rate for office premises being slightly lower at 1 per 66sqm GFA. However, Campsie's overall car parking requirement is still considered higher than those of similar centres, mainly due to the higher minimum rates for residential car parking.

Table 4.7 and Figure 4.2 presents the characteristics and motor vehicle ownership of comparable local centres to Campsie.

Table 4.7: Characteristics of Five Dock, Ashfield and Eastwood, 2016 Census

		Five Dock	Ashfield	Eastwood
Resident Population		16,930	21,461	20,929
Employment Population		5,381	7,756	5,784
Resident/ Employment Ratio		75-25	75-25	80-20
Car Ownership	No motor vehicle	8.5%	20.6%	10.3%
	One motor vehicle	39.6%	45.6%	37.4%
	Two motor vehicles	33.7%	18.5%	33.6%
	Three or more motor vehicles	10.2%	5.1%	13.3%
	Not stated	8.0%	10.2%	5.4%

Figure 4.2: Car ownership of Five Dock, Ashfield and Eastwood, 2016 Census



Source: https://auth.censusdata.abs.gov.au/webapi/jsf/dataCatalogueExplorer.xhtml

4.2.5. Centres Similar to the Future Vision for Bankstown

Centres similar to the future vision for Bankstown include:

Parramatta

Parramatta is located 20 kilometres west of the Sydney CBD and 14 kilometres from Bankstown. Parramatta has a similar geographical size to Bankstown, while featuring similar public transport and road networks with Parramatta being well served by trains and buses as well as having arterial roads bypass around the periphery. One element that Parramatta excels in is the centre attractiveness with Parramatta becoming

collectively known as Sydney's 'second CBD' with a strong concentration of commercial and retail offerings as well as residential development, which is well aligned with the vision for Bankstown.

Chatswood

Chatswood is located nine kilometres north of the Sydney CBD and 19 kilometres from Bankstown. Chatswood is noticeably smaller than Bankstown though it does have a similar road network with main roads such as Pacific Highway bounding the city centre. Chatswood is however better serviced by public transport with trains, buses and metro services, while also having the centre element of Chatswood being much denser and more attractive to the local area featuring a good mix and concentration of commercial, retail and residential uses, which is suitable for comparison with the vision for Bankstown.

North Sydney

North Sydney is located four kilometres north of the Sydney CBD and 18 kilometres from Bankstown. North Sydney is also noticeably smaller than Bankstown though it does have a similar road network with main roads such as the M1 bypassing the city centre. North Sydney is however better served by public transport with high frequency trains and buses as well as the future metro services while also having the centre element of North Sydney being much denser and more commercially focused with high employment opportunities which is comparable for the vision for Bankstown.

The car parking rates for these centres are governed by each centre's local council DCP and Table 4.8 presents the car parking provision in these centres.

Table 4.8: DCP rates for the town centres of Parramatta, Chatswood, North Sydney

Land Use	Size/ Description	Parramatta	Chatswood	North Sydney
Residential Flat Buildings	Studio	Max 1 space for all dwellings	0.5 space per dwelling	Max 0.5 space per dwelling for B4 Zoning Max 1 space per dwelling other than B4 Zoning
	1 bedroom	Max 1 space for all dwellings	1 space per dwelling	Max 0.5 space per dwelling for B4 Zoning Max 1 space per dwelling other than B4 Zoning
	2 bedroom	Max 1 space for all dwellings	1 space per dwelling	Max 1 space per dwelling for B4 Zoning Max 1 space per dwelling other than B4 Zoning
	3 bedroom	Max 1 space for all dwellings	1.25 space per dwelling	Max 1 space per dwelling for B4 Zoning Max 1.5 space per dwelling other than B4 Zoning
	Visitor	Max 1 space per 5 dwellings	1 space per 4 dwellings	0.25 space per dwelling other than B4 Zoning
	Servicing	-	-	Car wash bay required
Shop top housing	Shop top housing in R4 zoning	-	-	Same as Residential Flat Buildings
	Shop top housing in business zones			

Land Use	Size/ Description	Parramatta	Chatswood	North Sydney
Office premises	Office premises	Max 1 space per 100sqm	1 space per 110sqm 1 space per 200sqm where access is only available from Pacific Highway, Albert Avenue, Victoria Avenue, Help or Railway Streets	Max 1 space per 400sqm
Retail premises	Retail premises (Shops)	Max 1 space per 30sqm	1 space per 25sqm	Max 1 space per 400sqm

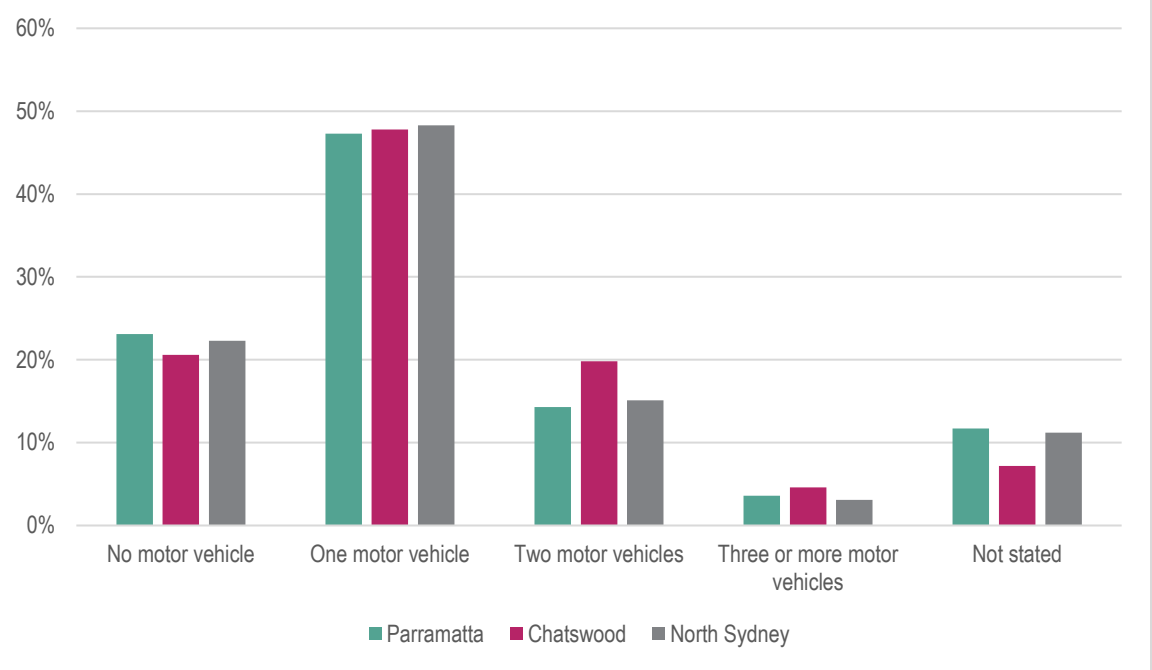
Comparing the car parking rates of these city centres to Bankstown's current rates will provide an indication of where Bankstown currently sits and how different these centres are to Bankstown in terms of the provision of car parking. The most noticeable difference is Parramatta and North Sydney's use of maximum rates for all land uses, this includes maximum rates for residential uses being far lower than the current minimum rates for Bankstown, while commercial and retail are also significantly lower with North Sydney being limited by a factor of 10. Chatswood on the other hand still has residential parking provision rates at a similar level as Bankstown, with the exception of commercial rates being much lower at 1 per 110sqm. Comparing these centres with Bankstown indicates that Bankstown's current parking rates are significantly higher than those of North Sydney, Parramatta and to a lesser extent Chatswood.

Table 4.9 and Figure 4.3 presents the characteristics and motor vehicle ownership of local centres comparable to Bankstown's vision.

Table 4.9: Characteristics of Parramatta, Chatswood and North Sydney, 2016 Census

		Parramatta	Chatswood	North Sydney
Resident Population		24,207	23,670	9,640
Employment Population		50,227	27,655	48,975
Resident/ Employment Ratio		30-70	45-55	15-85
Car Ownership	No motor vehicle	23.1%	20.6%	22.3%
	One motor vehicle	47.3%	47.8%	48.3%
	Two motor vehicles	14.3%	19.8%	15.1%
	Three or more motor vehicles	3.6%	4.6%	3.1%
	Not stated	11.7%	7.2%	11.2%

Figure 4.3: Car ownership of Parramatta, Chatswood and North Sydney, 2016 Census



Source: https://auth.censusdata.abs.gov.au/webapi/jsf/dataCatalogueExplorer.xhtml

4.2.6. Centres Similar to the Future Vision for Campsie

Centres similar to the future vision for Campsie vision include:

Burwood

Burwood is located 10 kilometres west of the Sydney CBD and four kilometres from Campsie. It features a similar if not slightly larger geographical footprint, with an almost identical public transport and road network system to Campsie, with Burwood Road functioning as the main 'high street' running through the town centre similar to Beamish Street. Burwood does however feature a greater centre element than Campsie with more retail offerings and a concentrated dense town centre with significant residential development, comparable to Campsie's vision.

Hornsby

Hornsby is located 21 kilometres north of the Sydney CBD and 23 kilometres from Campsie. It features a greater geographical footprint and road network than Campsie with no major roads running through the town centre core acting as the 'high street' like that of Campsie. It does feature however similar public transport offerings though with a much larger centre catchment area with retail, commercial as well as government services for much of the northern suburbs of Sydney. These elements are comparable to Campsie's vision, although acknowledging it is much farther away from the Sydney CBD compared to Campsie.

Bondi Junction

Bondi Junction is located four kilometres east of the Sydney CBD and 13 kilometres from Campsie. It features s greater geographical footprint and better road network than Campsie, with the main arterial road bypassing the town centre retaining Oxford Street as a local 'high street'. Bondi Junction also features a better public transport network as well as centre element than Campsie with frequent bus and train services

as well as a more concentrated dense town centre core with a good mixture of commercial, retail and residential land-uses, which is well suited for comparison with the future vision for Campsie.

The car parking rates for these centres are governed by each centre's local council DCP and Table 4.10 presents the car parking provision in these centres.

Table 4.10: DCP rates for the town centres of Burwood, Hornsby, Bondi Junction

Land Use	Size/ Description	Burwood	Hornsby	Bondi Junction
Residential Flat Buildings	Studio	0.5 space per dwelling (Min and Max)	0.75 space per dwelling for Medium Density Max 0.4 space per dwelling for High Density	Max 0 spaces per dwelling
	1 bedroom	1 space per dwelling (Min and Max)	0.75 space per dwelling for Medium Density Max 0.4 space per dwelling for High Density	Max 0.4 spaces per dwelling
	2 bedroom	1 space per dwelling (Min and Max)	1 space per dwelling for Medium Density Max 0.7 space per dwelling for High Density	Max 0.7 spaces per dwelling
	3 bedroom	1.5 space per dwelling (Min and Max)	1.5 space per dwelling for Medium Density Max 1.2 space per dwelling for High Density	Max 1.2 spaces per dwelling
	Visitor	1 space per 5 dwellings (Min and Max)	1 space per 7 dwellings	1 space per 7 dwellings 1 car share = 4 spaces Minimum 1 car share per 90 dwellings
	Servicing			
Shop top housing	Shop top housing in R4 zoning	Same rate as Residential Flat Buildings	-	-
	Shop top housing in business zones			
Office premises	Office premises	1 space for first 400sqm 1 space per 120sqm for additional areas (Min and Max)	1 space per 48sqm	Max 1 space per 150sqm Minimum 1 car share per 50 spaces
Retail premises	Retail premises (Shops)	1 space for first 400sqm 1 space per 40sqm for additional areas (Min and Max)	1 space per 29sqm	Max 1 space per 50sqm

Comparing the car parking rates of these town centres to Campsie's current rates will provide an indication of where Campsie currently sits and how different these centres are to Campsie in terms of the provision of car parking. All three town centres provide some sort of limit to the number of parking provided for residential land uses, with Burwood adopting specific rates (not to be deviated) at similar levels to Campsie's minimum rates, while Hornsby and Bondi Junction adopt limiting maximum rates with no minimum. Commercial and retail rates are however much lower in Burwood and Bondi Junction with maximum rates in place, while Hornsby features minimum rates that are higher than Campsie's current provision. Overall, Campsie's current

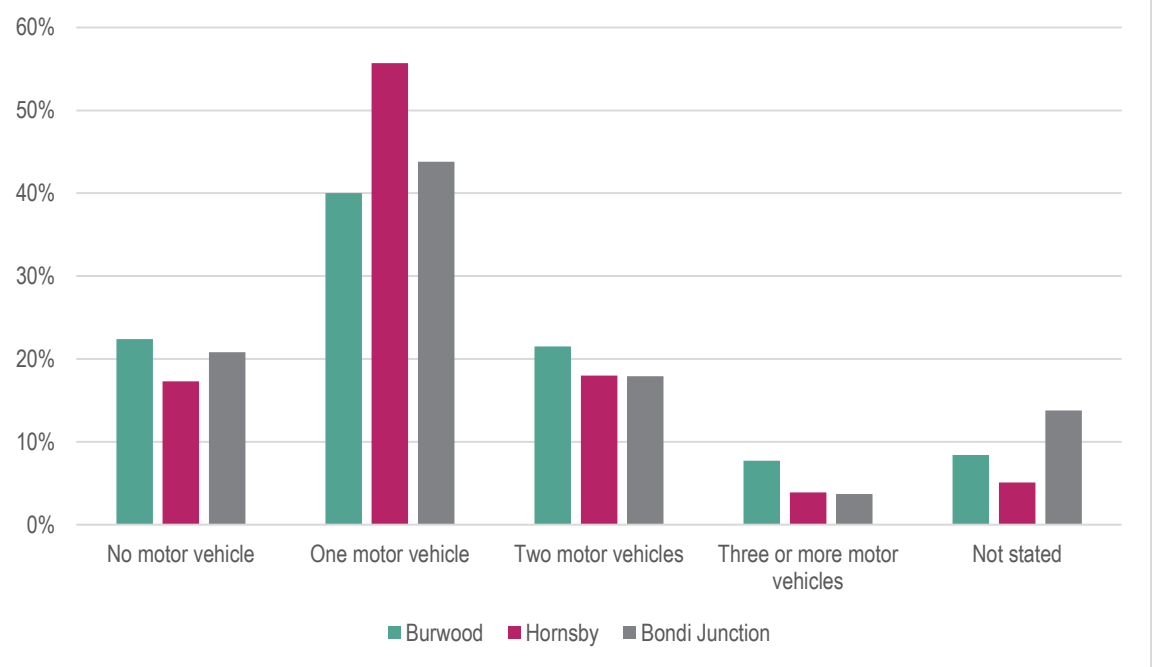
car parking requirements are considered noticeably higher to those of Bondi Junction, Burwood and Hornsby.

Table 4.11 and Figure 4.4 presents the characteristics and motor vehicle ownership of local centres comparable to Campsie's vision.

Table 4.11: Characteristics of Burwood, Hornsby and Bondi Junction, 2016 Census

		Burwood	Hornsby	Bondi Junction
Resident Population		21,641	9,689	14,332
Employment Population		13,316	10,162	15,309
Resident/ Employment Population		60-40	50-50	50-50
Car Ownership	No motor vehicle	22.4%	17.3%	20.8%
	One motor vehicle	40.0%	55.7%	43.8%
	Two motor vehicle	21.5%	18.0%	17.9%
	Three or more motor vehicles	7.7%	3.9%	3.7%
	Not stated	8.4%	5.1%	13.8%

Figure 4.4: Car ownership of Burwood, Hornsby and Bondi Junction, 2016 Census



Source: https://auth.censusdata.abs.gov.au/webapi/jsf/dataCatalogueExplorer.xhtml

4.2.7. Roads and Maritime Services Guide (TfNSW)

An alternative parking rate that can also be assessed and is often compared with is the TfNSW rates for strategic centres that is located close to train stations and other frequent public transport.

The rates that are indicated as part of the TfNSW guide is presented in Table 4.12.

Table 4.12: RMS (TfNSW) car parking rates

Land Use	Size/ Description	Metropolitan Regional (CBD) Centres	Metropolitan Sub - Regional Centres
Residential Flat Buildings	Studio	0.4 space per dwelling	0.6 space per dwelling
	1 bedroom	0.4 space per dwelling	0.6 space per dwelling
	2 bedroom	0.7 space per dwelling	0.9 space per dwelling
	3 bedroom	1.2 space per dwelling	1.4 space per dwelling
	Visitor	1 space per 7 dwellings	1 space per 5 dwellings
	Servicing	1 space per 50 dwellings <200 dwellings 4 space + 1 per 100 dwellings >200 dwellings	1 space per 50 dwellings <200 dwellings 4 space + 1 per 100 dwellings >200 dwellings
Shop top housing	Shop top housing in R4 zoning	-	-
	Shop top housing in business zones		
Office premises	Office premises	Refer to council Docs	1 space per 40sqm Unrestrained situation
Retail premises	Retail premises (Shops)	Peak Parking Demand at 4.5 spaces per 100sqm 1 space per 22sqm	Peak Parking Demand at 4.5 spaces per 100sqm 1 space per 22sqm

Comparing with Bankstown and Campsie, both centres' current car parking rates for residential uses are higher than those of both Metropolitan Regional (CBD) Centres and Metropolitan Sub-regional Centres with commercial offerings being similar or slightly lower. This means that for Bankstown and Campsie to function as Metropolitan Sub-regional or Regional Centres, the car parking rates for residential land uses would need to be aligned more closely with the rates of the TfNSW guide at a minimum.

4.2.8. Discussion

In 2019, CBC adopted the Complete Streets approach for Bankstown in October 2019 and is preparing a similar concept for Campsie, which involves a vision of enhancing the liveability of these centres by upgrading pedestrian amenities, improving pedestrian safety and increasing the overall space for pedestrians. This can be achieved by reducing (but not removing) the space for cars. In addition to reducing space for cars, it is important to reduce the need for and reliance on cars by providing a mix of residential, commercial and recreational spaces in close proximity to public transport hubs. With CBC adopting an overall approach of reduced car reliance in major city centres and the introduction of Sydney Metro services in Bankstown and Campsie, it is clear a new parking management framework is required to address the provision of new parking spaces in conjunction with private development.

The analysis presented in Section 4.2 has demonstrated that while Bankstown and Campsie have similar minimum parking rates and travel behaviours to their current comparable centres, there is a discernible disparity between these centres and other larger, more vibrant and more successful centres with which the visions for Bankstown and Campsie align.

The new parking management framework should enable the provision of as much new parking as necessary but also as little as possible. That means the framework needs to critically review the need for parking in each development, taking into account the following:

- The alternatives to car travel in the direct vicinity to the development, in particular the provision of public transport services and active transport infrastructure.
- The expected demographics of the residential and working population of the development.
- The commercial and recreational facilities in the direct vicinity of the development.

Providing a quantum of parking that is aligned with current DCP rates for Bankstown and Campsie's future growth will not support these centres' vision to be attractive destinations that support dense employment and residential activity and may simply be physically and financially unattainable due to the sheer physical requirements to construct the 'required' quantum of parking specified in Table 4.2 and Table 4.3. Closer alignment of Bankstown and Campsie's private parking management approach with that taken by comparison cities aligned with the future vision for more walking activity and less car reliance is needed. To that end, Table 4.13 presents the shift in transport behaviours needed to be closer aligned with the comparison cities reflective of future change, using employment density and journey to work trends as benchmarks.

Table 4.13: Change required for Bankstown and Campsie to be similar to future comparative cities

Location	Existing Density (employee / sqkm)	Existing Mode Split to Car	Future Density (employee / sqkm)	Comparison Density (employee / sqkm)	Comparison Mode Split to Car	Required Change in Mode Split
Bankstown	~2,500	85%	~5,000 (100% increase)	Parramatta ~ 5,900 Chatswood ~5,500 North Sydney ~25,500	Parramatta ~54% Chatswood ~50% North Sydney ~29%	50% reduction
Campsie	~1,500	78%	~2,700 (80% increase)	Burwood ~3,000 Hornsby ~3,900 Bondi Junction ~6,000	Burwood ~59% Hornsby ~75% Bondi Junction ~44%	25% reduction

'Mode split' refers to journey to work mode split

Table 4.14 shows the future employment densities in Bankstown and Campsie will transform these centres to have similar employment densities found in the future comparative cities. However, to realise a similar mode split, a roughly 50 per cent and 25 per cent reduction in driving journey to work mode share is required. Part of this mode shift will naturally eventuate as future investments in public and active transport infrastructure comes online, including Sydney Metro and new walking and cycling links to station precincts. However, action is still required on the part of CBC to affect the necessary shift away from driving and this can be achieved through:

1. Maximum parking rates that limit the amount of parking provided, which will change car ownership behaviours and driving patterns, akin to those used in the future comparative cities; and/ or
2. Removal of minimum parking rates that allow for developments to provide a supply of parking more reflective of demand, which in combination with better transport alternatives, will likely cause reductions in overall parking supply in the future

The trade-offs and consequences associated with these options are discussed further below.

Option 1 - Adopt a maximum rate approach which restricts an over provision of car parking

- Supports and delivers on Complete Streets by limiting the growth in car-based travel in favour of other modes.
- Supports public transport improvements.
- Sets the upper rates that allow developers some flexibility to respond.
- Often results in reduced parking provision reflecting market needs.

Option 2 – No minimum parking requirements

- Allows developers to provide a quantum of parking that reflects actual demand.
- Over time, as Bankstown and Campsie become more accessible and walkable through greater intensities in local activity and stronger public transport connections, demand for parking is expected to decrease, which will lead to fewer private parking spaces being constructed in the long term.
- Gradual reductions in provided parking will allow the price of parking to reflect actual market conditions, allowing consumers to make informed travel choices free of any market distortions caused by minimum parking requirements.
- CBC must be willing to manage surrounding parking to ensure that any increase in demand for public parking resources is appropriately managed through a mixture of timed and priced parking.
- Note: Just because developers are not compelled to provide parking does not mean that they will not provide parking.

Option 3 – Reducing minimum parking requirements and adopt a maximum parking rate

- Recognises that some level of car travel will remain through the regulatory push to developers to provide a lower minimum amount of parking to accommodate that car travel.
- However, there is no guarantee the lower rate would reflect current or future demand for car parking, so it would still need to be regularly reviewed and amended accordingly (e.g. yearly).
- Still requires management of surrounding parking to manage increase in demand in parking in the public domain.

4.3. Recommendations

Discussions with CBC that took place in a series of workshops held in November 2020 where these options were presented and the consequences highlighted have informed the following recommendations for consideration as part of future changes to the DCP for Bankstown and Campsie.

Recommendation One: Consistency of parking rates for Bankstown and Campsie

Both Bankstown and Campsie are earmarked for high density residential growth and will benefit from similar investments in transport infrastructure upgrades (e.g. Sydney Metro). Therefore, adopting the same parking management approach for both locations is advantageous as it would treat both centres as major city centres within the LGA that will attract future employment and residential growth and be transformed into attractive destinations that draw people in from across Greater Sydney. In this way, there would not be differences in parking policy that may distort preferences and trends in development between the two centres (e.g. imbalanced development activity in one centre over the other to take advantage of more relaxed parking regulation).

Recommendation Two: Adopt maximum parking rates

Bankstown and Campsie's current and future functions as major employment hubs will attract sizeable volumes of peak travel activity to and from the centres for which reliable transport alternatives exist in the form of Sydney Metro, frequent bus services and walking and cycling links. Accordingly, maximum parking rates will 'keep a lid' on parking provision for certain types of land uses that typically attract peak period travel to minimise negative externalities such as peak period congestion, air pollution and adverse safety impacts from high traffic volumes. It would also help support the strategic shift to the use of public and active transport modes espoused in state and local council planning strategies by discouraging excessive car ownership and driving activity, especially in the peak. As such, the following maximum parking rates are proposed in Table 4.14. Activities not listed mean there are no applicable maximum parking rates.

Table 4.14: Recommended maximum parking rates

Land Use	Size/ Description	Recommended maximum rate
Residential Flat Buildings and Shop Top Housing	Studio	0.5 space per dwelling
	1 bedroom	0.5 space per dwelling
	2 bedroom	1 space per dwelling
	3 bedroom	1.5 space per dwelling
	Visitor	1 space per 10 dwellings
Office premises	Office premises	1.25 space per 100 sqm
Retail premises	Retail premises (Shops)	1.25 space per 100 sqm
Education premises (schools, universities, TAFE)	Education premises	1.25 space per 100 sqm
Health services facility	Health services facility	2 spaces for every consulting room
Hotel or motel accommodation, serviced apartments	Hotel or motel accommodation, serviced apartments	1 space for every 5 rooms/suites/units plus 1 space for every 3 employees

The recommended rates proposed are based on the 25-50 per cent reduction in driving mode shift required for Bankstown and Campsie to achieve the mode shift observed in the future comparative cities, extrapolated to a similar scale of reduction to existing minimum DCP rates but functioning as maximums, which broadly align with the maximum rates currently used in the comparative cities.

Recommendation Three: No minimum parking rates for all activities except for detached dwellings

As explained in the discussion in sub-section 4.2.8 and illustrated by the analysis of the amount of parking that would be need to be built to support the anticipated growth in dwellings in Bankstown and Campsie in 2036 in Table 4.2 and Table 4.3, it is neither practicable nor sustainable to continue with status quo minimum parking rates into the future. Furthermore, the analysis in Table 4.2 and Table 4.3 pertains to growth in dwellings only; it does not include all other growth in commercial and civic uses in Bankstown and Campsie in the future, which would only exacerbate the physical and financial requirements for parking in these centres in the future.

Accordingly, based on the discussion and analysis presented, it is recommended that no minimum parking requirements be implemented for all activities in Bankstown and Campsie city centres, except for detached dwellings.

The effect of this recommendation would be that as the intensity of development across almost all uses increase in Bankstown and Campsie, development proponents would have the ability to provide a quantity of parking that meets the needs of future occupants and customers, albeit with upper limits for those activities listed in Table 4.14. This could mean a moderate amount of parking to support a range of land uses depending on the level of market demand, or it could mean little or even no parking if that was the prevailing market trend. The broad flexibility afforded by this recommendation would enable a diversity of land uses to be fostered that may not otherwise have occurred without the deregulation of minimum parking requirements, including examples such as:

- A range of street fronting shops, bars and restaurants that can be developed to cater for walk-in customers with little or no parking.
- Dense student accommodation or boarding houses with little or no parking (especially useful to support the future university campus in Bankstown).
- Residential apartment buildings with parking, but not at the same rate of provision as currently experienced.

Furthermore, over time, having no minimum parking requirements is expected to gradually reduce the amount of parking constructed in the two city centres, and also more lots with parking being repurposed to other uses as land becomes more valuable. This gradual reduction of supply will lead to the price for parking being more reflective of actual market conditions (as opposed to the current situation where vast quantities of private and public parking have no upfront cost to the driver), allowing consumers to make more informed travel choices given the wide range of transport options that will be available in Bankstown and Campsie in the future. Such a strategic shift in travel behaviours is consistent with the policy direction set for these centres in state and council planning documents.

The recommended exception for detached dwellings recognises the prevalence of this housing typology that exists and may continue to exist in the periphery of Bankstown and Campsie in the future. Setting a minimum parking rate for this type of land use acknowledges that the detached dwellings are typically located a considerable distance away from the diversity of services, land uses and transport infrastructure in the core of Bankstown and Campsie. Accordingly, enabling the provision of a small amount of on-site parking to support these dwellings if they are redeveloped into the same typologies would support the enduring mobility needs for occupants of these land uses. The recommended minimum parking rate for this type of activity is indicated below.

Table 4.15: Recommended minimum parking rate for detached dwellings in Bankstown and Campsie

Land Use	Recommended minimum rate
Detached dwelling	1 space per dwelling

Recommendation Four – Adopt variable maximum and minimum parking rates

An alternative to recommendations two and three is to adopt maximum and minimum parking rates that vary depending on walking distance to Bankstown and Campsie Stations. This approach recognises that accessibility and the propensity to use public transport may have an inverse correlation to walking distance to a public transport station, which may lead to greater car use and ownership further away from a station. However, a 2019 review of walking distances to public transport has found that the average walking distance to train stations in Sydney is 805 m, with the 75th percentile walking distance at just over 1 km, based on an

earlier study in Daniels and Mulley (2013)[3] .[4] As such, maximum parking rates could be more restrictive closer to the station and less restrictive further out and vice versa for minimum parking rates, based on the average walking distances reported in van Soest *et al*. (2019).

Reduced minimum parking rates could be prescribed for the area beyond the Bankstown or Campsie core city centre but within the wider city centre to provide community confidence that a minimal quantum of parking will be supplied to support land uses within these more sensitive residential areas. Given development patterns in the wider city centre areas, it is expected that developers would likely provide parking beyond the prescribed rates and within the set maximums, so the proposed minimums are unlikely to be binding.

Based on this approach, the following variable maximum and minimum parking rates are proposed in Table 4.16.

Table 4.16: Recommended variable maximum and minimum parking rates

Land Use	Size/ Description	Bankstown or Campsie core city centre		Beyond the Bankstown or Campsie core city centre but within the wider city centre	
		Recommended minimum rate	Recommended maximum rate	Recommended minimum rate	Recommended maximum rate
Detached dwelling	N/A	1 space per dwelling	N/A	1 space per dwelling	N/A
Residential Flat Buildings and Shop Top Housing	Studio	0	0.5 space per dwelling	Zero	0.75 space per dwelling
	1 bedroom		0.5 space per dwelling	0.2 space per dwelling	0.75 space per dwelling
	2 bedroom		1 space per dwelling	0.5 space per dwelling	1.5 space per dwelling
	3 bedroom		1.5 space per dwelling	1 space per dwelling	2 spaces per dwelling
	Visitor		1 space per 10 dwellings	1 space per 10 dwellings	1 space per 5 dwellings
Office premises	Office premises		1.25 space per 100 sqm	1 space per 100 sqm or part thereof	2 spaces per 100 sqm
Retail premises	Retail premises (Shops)		1.25 space per 100 sqm	1 space per 100 sqm or part thereof	2 spaces per 100 sqm
Education premises (schools, universities, TAFE)	Education premises		1.25 space per 100 sqm	1 space per 100 sqm of part thereof	2 spaces per 100 sqm
Health services facility	Health services facility		2 spaces for every consulting room	0.2 space for every consulting room	3 spaces for every consulting room

[3] Daniels, R. & Mulley, C. (2013). Explaining walking distance to public transport: The dominance of public transport supply. Journal of Transport and Land Use, 6(2), 5-20

[4] van Soest, D., Tight, M. & Rogers, C. (2019). Exploring the distances people walk to access public transport. *Transport Reviews*. 40. 1-23.

Land Use	Size/ Description	Bankstown or Campsie core city centre		Beyond the Bankstown or Campsie core city centre but within the wider city centre	
		Recommended minimum rate	Recommended maximum rate	Recommended minimum rate	Recommended maximum rate
Hotel or motel accommodation, serviced apartments	Hotel or motel accommodation, serviced apartments		1 space for every 5 rooms/suites/units plus 1 space for every 3 employees	1 space for every 3 rooms/suites/units plus 1 space for every 3 employees	1 space for every 2 rooms/suites/units plus 1 space for every 2 employees
All other land uses	N/A	Existing DCP rates to apply			

Fractions of a parking rate 0.5 or higher shall be rounded up to the nearest whole number.

The core city centre and wider city centre areas to which the differing rates would apply, as described in Table 4.16 are shown in Figure 4.5 and Figure 4.6.

Figure 4.5: Bankstown core and wider city centre

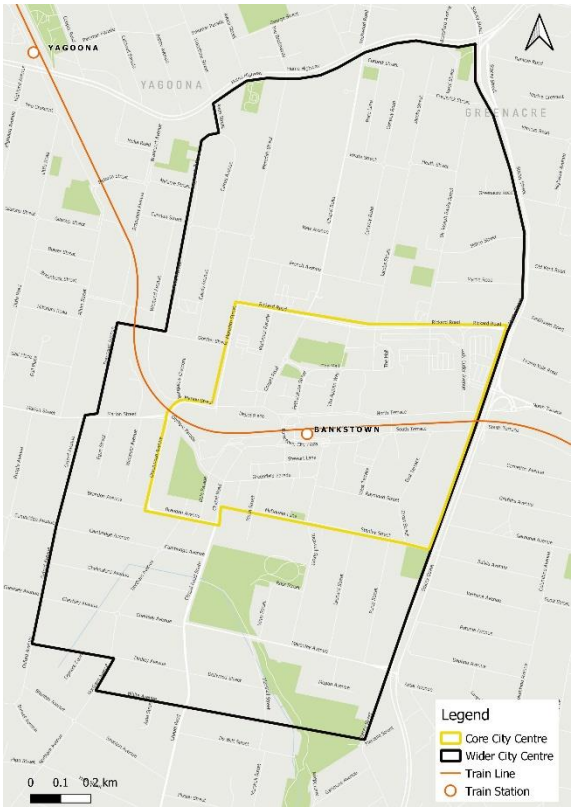
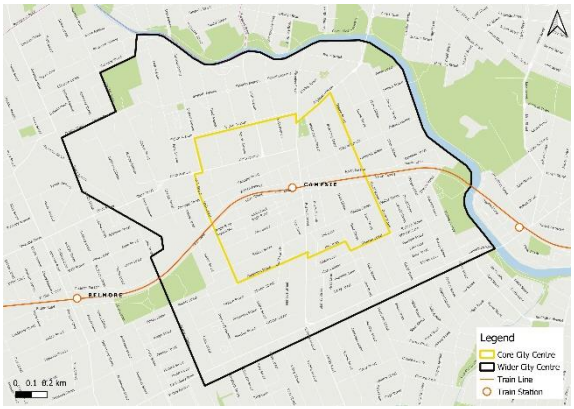


Figure 4.6: Campsie core and wider city centre



The core city centre areas defined for Bankstown and Campsie are premised on several factors, including an approximate 400 m walking distance to the train station (i.e. within the Sydney average reported in van Soest *et al*. (2019)), land that is commercially zoned and in the case of Bankstown, land that falls within the local

'ring road'. This core area could be subject to regular review by CBC in the event that the commercial zoned lands expand farther outwards for example.

Notwithstanding the variable maximum and minimum parking rates proposed in Table 4.15, it is anticipated that following the opening of Sydney Metro City and Southwest, the 75th percentile walking distance (around 1 km) observed in van Soest *et al*. (2019) could become closer to the median average, due to the vast improvements in service frequency, service span and public transport accessibility from Sydney Metro. Consequently, it is still recommended that CBC review whether maximum and minimum parking rates can be standardised across Bankstown and Campsie as per recommendations two and three following the opening of Sydney Metro. Therefore, the variable rates in Table 4.15 could be considered an interim approach.

This alternative option of variable maximum and minimum parking rates based on distance from public transport can be used as an interim option with the objective to fully implement Recommendation Two and Three in the long term.

Recommendation Five: Develop and adopt a comprehensive public parking management plan

Although this recommendation does not pertain to the management of parking in the private realm per se, a by-product of implementing maximum parking rates and having no minimum parking rates is an increase in parking demand for publicly available parking on-street and in CBC-managed off-street car parks. It is important that CBC has a plan at the ready to manage the parking demand increase following the application of parking maximums and removal of minimums, which stems from the 'freerider effect' of a subset of the population who choose not to pay for private off-street parking and rely on public on-street and off-street parking. This public parking management approach could involve a mixture of timed or priced parking to ensure it is not possible to have long-stay private parking within the public domain, which should instead be focused to support high turnover, short-stay parking to provide access to local activities and services. Therefore, CBC should develop comprehensive public parking management plans for Campsie (noting that one already exists for Bankstown as part of Complete Streets) and implement them at the same time as the implementation of Recommendations One to Three.

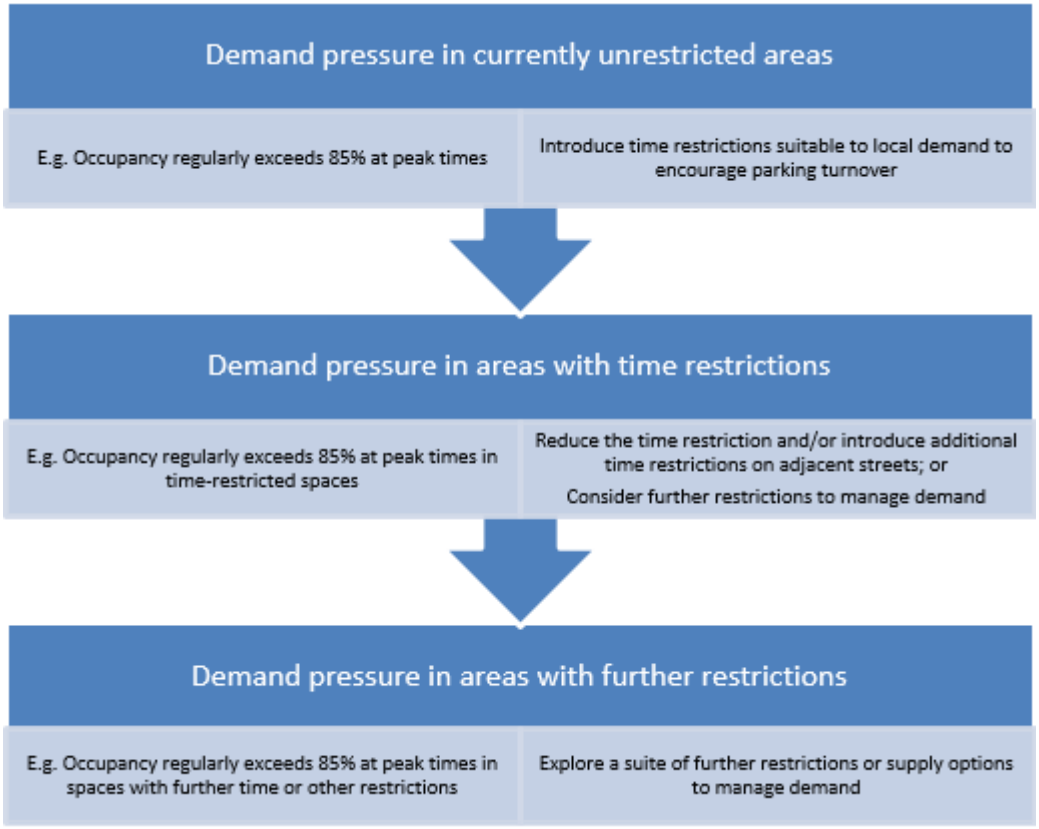
While the remit of this study does not extend to the preparation of a comprehensive public parking management plan, high-level principles for public parking management are presented below for CBC's consideration and incorporation into such a plan, which would address any consequent increases in public parking demand from the 'freerider' effect described above.

These principles include:

1. CBC adopts an optimal average peak parking occupancy rate of 85 per cent, which is defined as the average occupancy of the four busiest hours of parking occupancy[5], regardless of the time of day.
2. CBC adopts a graduated parking management approach in centres such as Bankstown and Campsie similar to Figure 4.7 below.
3. CBC to decide the conditions or 'triggers' under which where parking restrictions can be further enhanced or relaxed and by how much, to respond to sub-optimal parking occupancy rates.
4. CBC does not issue residential parking permits

[5] A parking space is deemed to be 'occupied' at the point of survey. E.g. if a surveyor finds a space is occupied during an hourly survey, then that space is deemed to be occupied for that hour.

Figure 4.7: Graduated parking management approach



In general, the graduated parking management approach allows time limits to be considered as a management intervention before recommending further restrictions, which gives CBC the opportunity to test whether this response is sufficient to manage any increase parking demand following the removal of parking minimums and the increase in visitor activity expected in the future redeveloped town centres. Application of the graduated parking management approach necessitates regular (e.g. annually or every two years) monitoring of local parking occupancy and turnover conditions, with CBC needing to further restrict time limits if demand conditions regularly exceed 85 per cent. Conversely, CBC also needs to be prepared to relax time limits if parking demand declines.

The rationale behind the principle to not issue residential parking permits is twofold. First, new residential developments should be expected to contain their parking needs on-site; any opportunity to rely on residential parking permits will encourage developers and future occupants to 'offload' their parking demand to the public domain, which would undermine CBC's management response. Not issuing permits sends a clear signal to future occupants with cars that they should buy or rent apartments with parking, be prepared to lease parking elsewhere, which would lead to high costs. It also acts as encouragement to consider car-free or 'car-light' living, e.g. using car share following the recommended implementation of a car share policy.

Second, there is currently no residential parking permit system in place for existing residents of Bankstown, Campsie or the LGA at-large. Given existing housing stock in the two study areas is likely to have on-site residential parking due to the long history of minimum parking requirements, and the ability for visitors to park in on-site visitor parking or on-street (subject to the proposed graduated restrictions), it is recommended that introducing a new residential parking permit system is avoided. A commitment to managing on-street parking

in a graduated manner will free up enough parking spaces for visitors, while avoiding streets being highly parked by cars, maintaining amenity for existing residents.

Examples of successful implementation

There are several examples of places that have removed minimum parking requirements in conjunction with implementing public parking management measures that address any increase in on-street parking demand and restrict the ability for future residents to park on-street long term. These examples are listed in below.

Table 4.17: Examples of cities that have removed minimum parking requirements in conjunction with public parking management measures

City/ Area	Comment
Parramatta city centre	A mixture of priced and time limited parking applies to on-street parking in the Parramatta city centre, where there are no minimum parking requirements and maximum parking requirements apply. Selected areas also have legacy residential permit parking schemes.
City of Sydney	A mixture of priced and time limited parking applies to on-street parking in the City of Sydney, where there are no minimum parking requirements and maximum parking requirements apply. Selected areas also have legacy residential permit parking schemes.
North Sydney	A mixture of priced and time limited parking applies to on-street parking in North Sydney, where there are no minimum parking requirements and maximum parking requirements apply. Selected areas also have legacy residential permit parking schemes.
New Zealand	New Zealand's National Policy Statement on Urban Development requires all local government areas in that country to remove all minimum parking requirements in their equivalent documents to NSW's DCP/ LEP. This process is ongoing, with larger cities such as Auckland, Wellington and Christchurch already complying. At the same time, guidance is available to local government areas to adopt public parking management plans, similar to the principles described above.

5. ALTERNATIVE PARKING FRAMEWORKS

05

5.1. Introduction

Alternative parking frameworks, as the name suggests, are alternative ways to administer the management of private parking that are ancillary to land uses, such as parking for a residential development. The two most common types of alternative parking framework include the unbundling of parking spaces and the decoupling of parking spaces. Each of these frameworks are explained in greater detail below, with supporting commentary and recommendations on their suitability for adoption as part of the regulation of private parking in Bankstown and Campsie.

5.2. Unbundled Parking

Unbundled car parking refers to the unbundling of the ancillary parking spaces from a development, whereby the parking spaces are on separate titles to the individual dwellings or commercial units and as such are able to be purchased, sold or leased separately. This means that under a scenario without any minimum parking requirements, new developments that choose to provide parking would be able to sell individual parking spaces to purchasers of units or dwellings in the development (or even third parties) separate to the sale of those units or dwellings. Owners of those parking spaces would subsequently be able to on-sell or lease parking spaces to other parties in the same way as other types of real estate.

This alternative framework is in contrast to the traditional bundling of parking spaces with a development where parking is attached to an individual dwelling or commercial unit and in a situation with minimum parking requirements, had to be provided irrespective of need. This bundling, which is enforced via the minimum parking regulation, does not allow the owner/occupant of a dwelling or commercial unit to sell or lease that parking space should the need for parking no longer arise.

In a situation without minimum parking requirements and the introduction of unbundling of parking, the unbundling assists with better resource allocation of private parking to those people who are willing to pay for it (e.g. a regular commuter visiting Bankstown leasing a parking space from inside an apartment building). It also spurs innovation in parking technology with sharing economy apps such as 'Share with Oscar' that facilitates the leasing of parking spaces on short or long-term bases in a legal manner.

5.3. Decoupled Parking

Decoupled parking for developments refers to the provision of car parking off-site, usually in the form of consolidated car parking in close proximity to the development, to satisfy the prevailing minimum parking requirements in a DCP. This decoupling is useful in situations where it is physically not possible or financially unviable to provide parking on-site, but the parking required by the DCP could be satisfied via the construction of that parking at a nearby site or the leasing of available parking elsewhere in perpetuity, to be maintained by the future occupants via strata by-laws for example.

However, in a situation with no minimum parking requirements as proposed in Recommendation Three in Section 4.3, the need for decoupled parking dissipates as there is no longer a requirement to provide a set amount of parking for a development, and the development proponent can provide a quantity of parking to match market demand and the physical space available at a site.

5.4. Recommendations

Based on the preceding commentary, the following recommendations with respect to alternative parking frameworks are provided:

Recommendation One: Implement unbundled parking

It is recommended that unbundled parking be implemented in Bankstown and Campsie in conjunction with the removal of minimum parking requirements in Bankstown and Campsie. As explained in Section 5.2, unbundled parking has synergies with the removal of minimum parking requirements and allows for parking to be separately sold from the development of dwellings or commercial units, which in turn allows the market to allocate that parking to those with a need for parking and have a willingness to pay.

Recommendation Two: Do not implement decoupled parking

It is recommended that decoupled parking is not implemented as this alternative framework becomes redundant where there are no minimum parking requirements. While it is recommended minimum parking requirements remain for detached dwellings in Bankstown and Campsie, this housing typology typically is able to contain their parking supply on-site, so there is no foreseeable need to provide for decoupled parking to support detached dwellings' parking needs.

6. ELECTRIC VEHICLES AND CAR SHARE

06

6.1. Electric Vehicles

Electric vehicles (EVs) are growing in popularity in Australia. Modelling undertaken by the Bureau of Infrastructure, Transport and Regional Economics (BITRE) suggests that the Australian EV share of new car sales is predicted to reach eight per cent by 2025 and 27 per cent by 2030.[6] Furthermore, the *NSW Electric and Hybrid Vehicle Plan* predicts the total cost of ownership (TCO) of an EV is predicted to reach total-cost parity with conventional vehicles by 2020/21 and purchase-price parity between 2025 and 2027. Against this backdrop, it is prudent for councils in urban areas such as Canterbury-Bankstown to prepare for the expected growth in the number of EVs and their associated demands on the transport network. At a high-level, these demands comprise:

1. Space required for the charging infrastructure (e.g. charging machine and cables) attached to a parking space for electric vehicles, whether in the public domain or in private developments.
2. Electricity infrastructure and capacity to support EV charging, whether in the public domain or in private developments.

CBC, through its land use planning policies, can influence point 1 above to satisfy the spatial demands for EV parking and charging, in the same way that status quo planning policies stipulate the quantum of space that should be set aside for conventional parking. As regards point 2, while CBC can provide guidance on the forms of EV charging infrastructure that should be provided, it is important to recognise that increasing the underlying electricity capacity to support the growth in EV charging is beyond CBC's remit. The discussion and recommendations for EVs provided below therefore recognise these areas of influence and limitations.

6.1.1. Electric vehicle parking and charging in private developments

Currently there are no requirements for EV charging stations and parking in the Bankstown and Campsie DCP. Accordingly, the DCP is presently poorly positioned to plan for the anticipated uptake in EVs across Australia. Planning for EV charging stations and parking needs to start now as retrofitting this infrastructure in existing developed buildings and sites might be financially or physically prohibitive. A series of considerations when deciding on the nature of EV charging and parking requirements in DCP is presented below to aid the discussion and development of recommendations for EV parking.

In terms of whether to specify a minimum amount of EV parking spaces in private developments, it is important to recognise that earlier sections of this report recommended that DCPs for Bankstown and Campsie should have no parking minimums, except for detached dwellings. Therefore, it would be inconsistent for the DCP to stipulate a minimum amount of EV parking to support a development. Rather, it is more practicable to provide a ratio of EV charging facilities and spaces per the total amount of parking spaces provided, therefore developments that do not provide any car parking will not be required to provide parking and charging facilities for electric vehicles.

There are also differing requirements for EV charging in terms of time. Parking spaces used by a high turnover of vehicles (e.g. in retail land uses) would naturally require fast (one to three hours) or rapid (30 minutes) charging facilities to full or 80 per cent charge to support the typical visits of shorter duration. Conversely, EV charging in a residential setting could rely on a conventional electrical connection that can provide overnight (eight hours) charging to full charge, as residents' cars are normally parked for long

[6] Bureau of Infrastructure, Transport and Regional Economics (BITRE), 2019, Electric Vehicle Uptake: Modelling a Global Phenomenon, Research Report 151, BITRE, Canberra ACT

durations and/ or overnight. These differing requirements clearly influence the specifications for charging infrastructure that could be set out in a DCP.

Another important consideration is that of futureproofing. The provision of EV parking and charging to satisfy current and known future demand may not be adequate should the uptake of EVs increase beyond the estimates provided by BITRE[7], either before or beyond 2030. Therefore, planning requirements should consider ways to allow futureproofing for the comprehensive uptake of EVs beyond 2030 (e.g. nearing towards 100 per cent of all vehicle sales) and the associated demand for parking spaces with charging infrastructure, without overburdening current developments with onerous EV charging installation costs. One possible way to do this is to require future developments to be equipped with the electric cabling and sufficient electricity capacity to support the installation of a charging station at each parking space or a set percentage of parking spaces. In this way, it would strike an appropriate balance between planning for future needs versus incurring upfront installation costs and would also address the issue of trying to estimate where it is appropriate to place charging infrastructure (e.g. in residential developments, a developer or a council cannot know which owners of parking spaces own an EV).

Other important considerations relate to the specifications for the charging infrastructure and responsibility for electricity supply and maintenance. As there are now different manufacturers of EVs, some of which use slightly different charging adapters from one another, requirements to have EV charging in the DCP should also stipulate that charging structures be of an open standard (non-proprietary) and must be designed to be used with a wide range of EV makes and models. As regards the electricity supply and maintenance, as such charging facilities would be on private land, the responsibility for these should fall with the owner, who are free to on-charge any usage costs to the end user if they so wish.

6.2. Recommendations – Electric Vehicles

Based on the preceding discussion, the following recommendations are made:

Recommendation One: Provide for private EV connection parking spaces and charging infrastructure as a set ratio of the total amount of parking spaces supplied in a development

CBC should set requirements in the DCP to provide private EV connection parking spaces as a set ratio of all parking spaces provided. Therefore, developments will be required to set aside a modest percentage of all parking spaces provided for EV charging and parking. Conversely, developments that do not provide car parking will not be required to provide parking and charging facilities for EVs. The recommended ratio is as follows:

- Five per cent of all parking spaces provided to be equipped with EV charging stations.

This ratio is in line with the BITRE modelling for new EV sales in Australia by 2025. While growth in EV ownership is predicted by BITRE to increase to 27 per cent of new car sales by 2030, this prediction may change and can be influenced by other uncertainties such as EV purchase price and global crude oil prices. Therefore, it is recommended that CBC review this DCP requirement at least once every two years to ensure its currency. However, market demand may also influence developers to provide more electric charging points in car parks than this minimum ratio irrespective of regulatory intervention.

[7] *Ibid* at 6

Recommendation Two: DCP requirements for EV charging to include fast or rapid charging for commercial developments

As commercial developments such as retail typically attract a high turnover of vehicles in the car park, the DCP should include requirements for any EV charging provided to be equipped with fast or rapid EV charging to support the typically shorter visitation durations at these locations (60 minutes or less to full charge). Such requirements are not recommended to be extended to residential developments.

Recommendation Three: Include EV charging futureproofing requirements in the DCP

Enable future developments to support a greater proliferation of EVs in Australia by requiring all or a set percentage of parking spaces to have the electric cabling and capacity installed to support the future installation of an EV charging station. It is recommended that CBC undertakes consultation with the construction sector and the electricity infrastructure sector to investigate local electricity capacity and the upgrades required to support this policy shift.

Recommendation Four: Adopt open charging standards for EV charging

The DCP should set out that EV charging adapters for any EV parking provided be of an open standard (non-proprietary) and must be designed to be used with a wide range of EV makes and models. This requirement would accommodate the diverse range of EVs used currently and in the future.

Recommendation Five: No specific intervention is required for the maintenance and supply of electricity for EV charging in private developments

As EV charging infrastructure required by the DCP would be on private land, responsibility for the supply of electricity for the infrastructure and its continued maintenance would fall with the owner. It is not recommended that CBC becomes involved in this aspect of EV charging, except to the extent the land is owned by CBC.

6.3. Car Share

Car share refers to the car sharing services offered by individual companies such as GoGet, PopCar and CarNextDoor where cars are available to rent by the hour by members and as such is available on demand. Car share is becoming increasingly common in areas in Metropolitan Sydney with services such as GoGet commonly providing car share vehicles in both on-street and off-street environments, with companies touting its benefits in terms of reducing the demand for parking spaces and travel demand (through reduced vehicle kilometres travelled (VKT)). Shaheen and Cohen (2013)[8] undertook a comprehensive review of studies that analysed these purported benefits, and documented the following results based on case studies from Australia, Europe and North America:

- Each car share vehicle has been documented to reduce the number of private vehicles owned across car share members by 7 to 10 vehicles in Australia, 4 to 10 vehicles in Europe, and 9 to 13 vehicles in North America, with the related need for parking spaces reduced.
- A variety of European studies demonstrated a reduction in VKT per car share member of 28 to 45 per cent, and in North America some studies demonstrated a VKT reduction of up to 80 per cent.
- Car share also reduces the need to own a vehicle, reducing the overall number of cars in a city and reducing car ownership costs for an individual. European studies indicate that between 15 and 34 per cent of participants sold a vehicle after joining a car sharing program, while between 11 and 29 per cent of members did the same in the North American studies. Including the decision to forego the purchase of a car, this number rises to around 50 per cent of members in the North American context.

[8] Shaheen, S.A. & Cohen, A.P. (2013): Carsharing and Personal Vehicle Services: Worldwide Market Developments and Emerging Trends, International Journal of Sustainable Transportation, 7:1, 5-34

Car share therefore has the potential to reduce the amount of public space dedicated to parking as well as reduce the demand for individualised parking in private developments. Despite the benefits, car share has a limited presence in the City of Canterbury Bankstown, with only a handful of car share spaces operating in Campsie (as explained earlier in 2.3.1).

It is important to recognise the inherent links between density of activity, scarcity of private parking supply and the viability of car share in any given area that explain the current lack of car share in Bankstown and Campsie. Car share in Greater Sydney and in other cities is more prevalent in areas with a high density of residents and workers (large catchment of potential users for car share) and where there is limited on or off-street space for parking (parking scarcity disincentivises individual car ownership and parking). These phenomena function as necessary conditions for the viability of car share that are not prevalent in Bankstown and Campsie currently but have the potential to occur through the anticipated growth in these city centres. Recommendations to remove parking minimums also contribute to the emergence of these necessary conditions, as reductions in the mandated supply of parking over time will contribute to the gradual decline in new parking supply, making parking relatively scarcer. Therefore, CBC's land use planning policies with respect to parking management have a strong bearing on the viability of car share in Bankstown and Campsie.

As car share operators are either private companies that respond to market demand for car share or peer-to-peer services that require local members to let their cars into the car share pool, it is recognised that CBC cannot directly introduce car share vehicles in Bankstown and Campsie. However, in addition to the recommended removal of minimum parking requirements and the anticipated growth in density, there are other initiatives CBC can do to be prepared for the inevitable emergence and spread of car share in Campsie and Bankstown, given its popularity in other parts of Greater Sydney. These include the setting up of an LGA-wide car share policy which transparently sets out CBC's approach to dealing with car share operators, how and where car share spaces are provided in the public domain and in private developments, the parameters of car share operations allowed in the City of Canterbury Bankstown, the mechanisms for charging car share operators for their use of public space (e.g. on-street parking spaces) and the encouragement of EV car share. In this way, CBC would be well-positioned to respond to future requests for new car share spaces, especially in the public domain and can harness its control of public land to support the uptake of car share. To attract car share operators to expand their presence initially, CBC could offer the lease of public on or off-street parking spaces free of charge to operators but retain the right to charge as part of a car share policy.

In regard to the provision of car share spaces in private developments, it is important to recognise that earlier sections of this report recommended that DCPs for Bankstown and Campsie should have no parking minimums, except for detached dwellings. Therefore, it would be inconsistent for the DCP to stipulate a minimum amount of car share parking to support a development. It would also be redundant to stipulate rules for the provision of car share spaces to offset a requirement to provide parking (as is practised in cities such as Parramatta, whose DCP allows one car share space to be provided in lieu of three parking spaces), as requirements to provide a minimum amount of parking would no longer apply. Therefore, it may not be entirely necessary for CBC to be involved in the development process to require car share spaces in private developments. Besides, car share spaces operated by companies like GoGet are often co-located in private parking buildings or in residential apartment buildings and are available for access to all users. Many of these spaces are there due to private negotiations between property owners or developers and the car share operator on a *quid pro quo* basis without the participation of a council, whereby the developer can reduce their parking supply and the car share operator can increase its exposure.

6.4. Recommendations – Car Share

Based on the preceding discussions, the following recommendations are made:

Recommendation One: Develop an LGA-wide car share policy

It is recommended that CBC develop an LGA-wide car share policy that sets out its approach to working with car share operators should they wish to increase their presence in the LGA and particularly in Bankstown and Campsie.

The policy should include the following high-level aspects, at a minimum:

- Car share organisations that use EVs should have priority for use of public parking spaces, provided their costs are not significantly more than standard car sharing schemes and they can provide the same level of coverage/ capacity (e.g. provide a service that is just as attractive and convenient).
- Should a car share be an EV, then Charging Points for should be provided and maintained by the car share provider. The car share provider should also cover the costs of electricity required to charge vehicles.
- Car share organisations must have membership available to all local residents and businesses.
- Car share organisations must have a 24-hour booking system and can be provided on-street or off-street, as long as it is ensured that vehicles are available 24 hours a day, 7 days a week (except when maintenance is required).
- CBC reserves the right to charge for the establishment and on-going provision of on-street and off-street car share parking spaces.
- Car share organisations may be required to regularly report back to CBC on, but not limited to, the uptake, utilisation, and membership in each area that car share parking spaces are installed.
- Car share organisations may be required to report to CBC on, but not limited to, the travel and car ownership habits of car share members.
- CBC is willing to allow for adaptation of its policy on car sharing schemes if required to better support A to B (one-way) style car share schemes in future. However, such schemes will be considered on a case-by-case basis.
- The ability for CBC to allow the provision of car share spaces in private developments that would not count towards the prevailing recommended maximum parking requirements, which would incentivise more upfront off-street car share provision in developments.

7. BICYCLE PARKING AND END-OF-TRIP FACILITIES

07

7.1. Introduction

Bicycle parking rates refer to guidelines for a minimum amount of bicycle parking to be provided in private developments to support access by bicycle for residents, workers and visitors, depending on the type of land use. The design of bicycle parking to be provided is typically specified in DCPs, for instance, bicycle parking in enclosed areas with secure access is often specified for long-stay bicycle users (e.g. residents and workers), while less secure, publicly accessible bicycle parking racks are often specified for short-stays (e.g. customers to a shop).

Additionally, end-of-trip facilities refer to guidelines that specify facilities such as changing rooms and showers for bicycle riders at land uses that typically attract commutes to work (e.g. offices, educational institutes).

7.2. Current bicycle parking and end-of-trip facility rates

Current bicycle parking rates in Bankstown in Clause 5.18, Part B5 of the Bankstown DCP are vague, referring to the discretion available to CBC to require the provision of *"appropriate bicycle parking facilities either on–site or close to the development"* in accordance with Australian Standards without specifying the recommended quantum or what those Australian Standards look like. In Campsie, the Canterbury DCP is relatively more specific, prescribing minimum bicycle parking rates for different activities including residential flat buildings, hotels, offices, shops and educational institutions.

End-of-trip facility rates are not found in the Bankstown DCP while the Canterbury DCP specifies one shower and change room to be provided for every 10 staff bicycle parking spaces provided, where more than five spaces are provided.

7.3. Discussion

Considering CBC's move towards a new consolidated DCP for the Canterbury-Bankstown LGA and the anticipated changes to Bankstown and Campsie's future urban form, it is advisable to consider reforms to the ways in which bicycle parking and end-of-trip facilities are provisioned in these centres, especially in light of the current lack of guidance in Bankstown, the inconsistency of rates between the two centres, and a lack of guidance on bicycle parking design. The overarching purpose of reforms to bicycle parking and end-of-trip facility rates should be to enable an increasing participation in cycling in the two centres as they develop in density, since it is not physically sustainable to retain business-as-usual travel patterns for a higher intensity of job and residential activity in Bankstown and Campsie.

Furthermore, a case can be made to support the inclusion of bicycle parking and end-of-trip facility rates in the DCP for Bankstown and Campsie, based on case studies in other locations. For instance, in a study of over 5,000 daily commuters in the Washington, DC metropolitan area, it was found that people with access to cycle parking at workplaces were more likely to commute by bicycle, even after controlling for other factors such as demographics, income, and car ownership[9]. Other studies have also shown that town centres which attract greater cycling activity yield better economic outcomes. For example, a study in Lygon Street, Carlton in Melbourne showed that even though the average cyclist's expenditure on Lygon Street was 73 per cent of that of a car user, the space required to park a bicycle is only 12 per cent of the space required to park a car. Thus, each square metre of space allocated to cars yields only $6 per hour in expenditure, whereas each

[9] Buehler, R. (2012) Determinants of bicycle commuting in the Washington, DC region: The role of bicycle parking, cyclist showers, and free car parking at work. Transportation Research Part D: Transport and Environment, 17(7), 525-531.

square metre of space allocated to bicycle yields five times as much at $31 per hour.[10] As for end-of-trip facilities, the same study from Washington, DC showed that people who had end of trip facilities at their workplaces were almost five times more likely to cycle to work, even after controlling for other factors such as demographics, income, and car ownership..

In light of these reported benefits, it is also important to understand how bicycle parking and end-of-trip facility rates are prescribed in comparison cities whose urban forms are similar to the future vision for Bankstown and Campsie (i.e. those adopted for discussion in Section 4) to understand their approach. Subsequently, this review of rates will inform recommendations for bicycle parking and end-of-trip facility rates for Bankstown and Campsie for common activities such as residential development, office, retail and educational establishments, having regard to the centres' future development characteristics.

7.3.1. Review of comparison cities

Table 7.1: Bicycle parking rates in comparison cities

Land Use	Size/ Description	Parramatta	Chatswood	North Sydney	Burwood	Hornsby	Bondi Junction
Residential Flat Buildings	Studio	1 space per 2 dwellings	1 per 10 units	1 per dwelling	1 per 3 dwellings	1 space per 5 units	1 space per dwelling
	1 bedroom						
	2 bedroom						
	3 bedroom						
	Visitor		1 per 12 units	1 per 10 dwellings	1 per 12 dwellings	1 space per 10 units	1 space per 10 dwellings
Shop top housing	Shop top housing						
	Visitor						
Office premises	Office premises	1 space per 200sqm GFA	1 per 2500sqm GFA	1 per 150sqm GFA	1 per 200sqm GFA	1 space per 600sqm GFA	0.45 spaces per 100sqm GFA
	Visitor			1 per 400sqm GFA	1 per 750sqm over 1000sqm		1 space per 2000sqm GFA
Retail premises	Retail premises (Shops)	1 space per 200sqm GFA	1 per 150sqm GFA	1 per 250sqm GFA	1 per 300sqm GFA	1 space per 600sqm GFA	0.1 spaces per 100sqm NFA
	Visitor			2 + 1 per 100sqm over 100sqm GFA	1 per 500sqm over 1000sqm		0.4 spaces per 100sq GFA
Primary Schools					1 per 5 students over year 4	1 rack per 20 FT staff	Staff: 0.3 spaces per staff
Secondary Schools					1 per 5 students	5 racks per class	

[10] Lee, A. and March, A. (2010) Recognising the economic role of bikes: sharing parking in Lygon Street, Carlton, Australian Planner, 47(2), 85-93,

Land Use	Size/ Description	Parramatta	Chatswood	North Sydney	Burwood	Hornsby	Bondi Junction
Tertiary Schools	Tertiary Schools			1 per 10 staff	1 per 100 PT students. 2 per 100 FT students	(between grades 5-12)	Student: 0.3 spaces per student
	Visitor			1 per 10 students			

Table 7.2: End-of-trip facility rates in comparison cities

Land Use	Size/ Description	Parramatta	Chatswood	North Sydney	Burwood	Hornsby	Bondi Junction
Residential Flat Buildings	Studio						
	1 bedroom						
	2 bedroom						
	3 bedroom						
	Visitor						
Shop top housing	Shop top housing	End-of-trip facilities should adequately service number of bicycle spaces provided.		For non-residential uses (staff): 1 personal locker for each bike parking space. 1 shower and change cubicle for up to 10 bike parking spaces. 2 shower and change cubicles for 11-20 or more bike parking spaces. 2 additional shower and change cubicles for each additional 20 bike parking spaces.		For GFA greater than 2500sqm at least 1 shower and change room be provided for staff	For non-residential uses (staff): 1 personal locker for each bike parking space. 1 shower and change cubicle for up to 10 bike parking spaces. 2 shower and change cubicles for 11-20 or more bike parking spaces. 2 additional shower and change cubicles for each additional 20 bike parking spaces.
Office premises	Office premises		Showers and change facilities must be provided where more than three bicycle lockers are provided.				
Retail premises	Retail premises (Shops)						
Primary Schools						For staff: 1 shower cubicle with change room per 10 bicycle racks	
Secondary Schools							
Tertiary Schools							

Based on a review of Table 7.1 and Table 7.2, the following observations are made:

- Bicycle parking for residents does not vary by the size of the dwelling and is prescribed at a rate ranging from one for every one to ten dwellings, depending on the comparison city.
- Visitor bicycle parking for residential activity in the comparison cities is more standardised at one per 10 or 12 dwellings
- Bicycle parking for staff in offices varies at a rate of one space per 150 to 2500 m^2 of GFA, depending on location, while the visitor rate is at least one space per 400 m^2 of GFA but this rate is only found in North Sydney, Burwood and Bondi Junction
- Bicycle parking for staff in retail premises varies at a rate of one space per 150 to 1000 m^2 of GFA, depending on location, while the visitor rate is at least one space per 50 m^2 of GFA depending on the overall size of the premises but this rate is only found in North Sydney, Burwood and Bondi Junction
- As for educational institutions, not all cities adopt bicycle parking rates but those that do prescribe rates based on the number of students and/or staff
- Regarding end-of-trip facility rates, these logically pertain to non-residential uses only. For cities such as North Sydney, Hornsby and Bondi Junction that prescribe specific rates, they range from the provision of one personal locker for every staff bicycle parking space, as well as a shower and change room to be provided for every ten staff bicycle parking spaces, which is similar to the existing Canterbury DCP rate.
- In Parramatta and Chatswood, end-of-trip facility provision is required but the specific rates are vague.

In light of the range of bicycle parking and end-of-trip facility provision requirements in the comparison cities and the reported benefits of providing such facilities, it would be prudent to set rates for bicycle parking and end-of-trip facilities within a range established by the comparison cities, taking into account any obvious outliers. Rates should also be as specific as possible to avoid all doubt, rather than leaving discretion to the development proponent. Recommendations on rates are provided in the next section.

7.4. Recommendations

Based on the preceding discussion and analysis, the following recommendations are made with respect to bicycle parking and end-of-trip facility rates for Bankstown and Campsie.

Recommendation One: Adopt the following bicycle parking rates

Table 7.3: Recommended bicycle parking rates

Land Use	Size/ Description	Bicycle parking rate
Residential Flat Buildings	Studio	1 secure bicycle space per 3 dwellings
	1 bedroom	
	2 bedroom	
	3 bedroom	
	Visitor	1 visitor bicycle space per 10 dwellings
Shop top housing	Shop top housing	Rates for residential flat buildings or commercial office/retail/business premises will be applicable to the relevant area of the development
Office premises	Office premises	1 secure bicycle space per 200 m^2 GFA for staff 1 visitor bicycle space per 500 m^2 over 1000 m^2 GFA

Land Use	Size/ Description	Bicycle parking rate
Retail or business premises	Retail premises (Shops) or business premises	1 secure bicycle space per 300 m^2 GFA for staff 1 visitor bicycle space per 200 m^2 GFA
Educational institutions	Primary schools	1 bicycle rail per 20 students 1 secure bicycle space per 10 staff
	Secondary schools	1 bicycle rail per 10 students 1 secure bicycle space per 10 staff
	Tertiary institutes	1 bicycle rail per 10 full-time students 1 secure bicycle space per 10 full-time staff

Recommendation Two: Adopt the following bicycle parking design guidelines

There is an absence of design guidelines for bicycle parking in the Bankstown DCP, while the Canterbury DCP contains such guidelines. For the purpose of consistency, it is recommended that bicycle design guidelines reference Section 4.1 of *Bicycle Parking Facilities: Updating the Austroads Guide to Traffic Management*. Recommended requirements to provide secure bicycle parking should follow Security Level B parking at a minimum of the cited Austroads Guide, while references to visitor parking or bicycle rail should follow Security Level C.

Recommendation Three: Adopt the following end-of-trip facility rates

Table 7.4: Recommended end-of-trip facility rates

Land Use	Size/ Description	End-of-trip facility rate
Office premises	Office premises	1 shower and change room for every 10 secure bicycle parking spaces for staff required by the DCP
Retail premises	Retail premises (Shops)	
Educational institutions	Primary schools	
	Secondary schools	
	Tertiary institutes	

8. WASTE COLLECTION

08

8.1. Introduction

Waste collection in urban environments is typically either done through kerbside pick-up for street fronting land uses without on-site waste collection facilities (e.g. detached houses, main street shops), rear access lanes for land uses that benefit from this facility and on-site waste collection facilities (e.g. in a separate area within a car park).

Each of these waste collection methods and facilities have their advantages and disadvantages, which vary depend on the location, the type and scale of activity serviced by the waste collection operation. For example, kerbside waste collection has little effect on traffic when done on a quiet street with detached housing but on a street with a higher density of shops and dwellings, this collection method would require a considerable amount of time. Rear access lanes can take waste collection vehicles away from the main street to avoid traffic delay and amenity effects but not all access lanes are made equally so some waste collection vehicles may not be able to circulate in and out of the lane. While on-site waste collection completely takes waste collection out of the transport network and out of sight from main street activities, an appropriate balance needs to be struck to avoid imposing excessive costs on developments whose scale may not justify an on-site facility.

Other issues that transcend all types of waste collection include right-sizing the facility to accommodate the required frequency of waste collection, having sufficient space for different bins for different types of waste and general vehicle circulation geometry considerations.

The challenge for CBC is to grapple with this complexity by issuing guidance through the DCP on how to conduct waste collection operations while managing adverse effects on the transport network in an acceptable manner. The discussion below presents a variety of options available to CBC for consideration, drawing from the experience of cities that are similar in scale to the future aspirations for Bankstown and Campsie.

8.2. Residential Waste Collection

As discussed earlier, waste collection can be done kerbside, via rear lanes or in an on-site facility and the same is true for residential activities. Drawing on from the experience in the City of Sydney and the City of Melbourne, LGAs which feature both high density housing as well as examples of low density detached and attached housing, these LGAs have adopted a graduated management approach to their requirements for residential waste collection facilities.

According to City of Sydney's *Guidelines for Waste Management in New Developments*, kerbside waste collection is allowed residential developments with six or fewer units under the following conditions:

- The collection point does not exceed one-third of the property frontage's width.
- The roadway is not obstructed by waste collection and effects from odour and noise can be minimised.
- Approval is sought from the City of Sydney.

For residential developments beyond six dwellings, waste collection must be carried out on-site by City of Sydney waste collection vehicles from one of the following on-site locations by order of preference:

- building basement
- at grade within a building in a dedicated collection or loading bay
- at grade and off-street outside a building where vehicles must enter and exit in a forward direction.

In the City of Melbourne, the *Guidelines for Preparing a Waste Management Plan* states that residential waste collection can occur kerbside where the bins to be collected by City of Melbourne vehicles do not exceed the property frontage and do not create obstructions to pedestrians, street furniture or bicycle lanes. Multi-unit residential developments of up to ten storeys must use communal bins for waste collection and they must be located on-site if the collection frequency is greater than once per week.

The practices in the City of Sydney and the City of Melbourne show that residential waste collection requirements vary by the scale of the residential activity, the scale of occupation of the property frontage as well as the frequency of waste collection. Similar practices would equally function well in Bankstown and Campsie (as well as LGA-wide), whereby kerbside collections could be allowed for low density low impact residential uses but the requirement for on-site collection would be triggered beyond a certain threshold of residential activity.

8.3. Commercial Waste Collection

Commercial waste collection is currently carried out kerbside, via rear lanes or in an on-site facility in many different parts of the City of Canterbury Bankstown and Greater Sydney. The experience in the City of Sydney and the City of Melbourne, LGAs which feature a diverse range of high-density commercial activities as well as examples of traditional main street shops, indicates a more standardised regulation of commercial waste collection.

The City of Sydney adopts a blanket requirement for non-residential waste collection to be carried out on-site. This requirement applies to all scales of commercial activity but discretion is provided for smaller developments (e.g. main street shop fronts) where on-site collection may not be physically possible.

The City of Melbourne adopts a similar blanket requirement as the City of Sydney. There is greater detail in the City of Melbourne's policy where it is required that waste is stored and collected on-site (i.e., bins cannot be put out on the footpath for collection).

In both cities, commercial waste is generally collected by private waste management companies so developers need to demonstrate the waste collection vehicles to be used and how they will circulate into and around the on-site facility.

Adopting a similar standardised on-site waste collection requirement for commercial land uses in Bankstown and Campsie has merit due to the higher volume of waste and higher frequency of collection associated with such activities. If carried out kerbside, this would invariably generate frequent obstructions of kerbside activities and traffic delays, as well as the storage of large volumes of odorous waste on public space. Therefore, it appears sensible that all commercial waste collection is carried out on-site, especially as commercial waste is generally collected by private contractors who can rely on smaller vehicles for collection and/or adapt the vehicle and timing to service the development, with discretion only available in exceptional circumstances (e.g. collection in rear service lanes or kerbside for main street shops in existing buildings without on-site waste collection facilities).

8.4. Recommendations

In light of the discussion above, the following recommendations are made for waste collection. These recommendations are to be further tested as part of the CBC's ongoing urban design work and DCP updates.

Proposed requirements for on-site waste collection in the DCP should be subject to operational and design testing and considerations with the following parameters:

Recommendation One: Residential waste to be stored and collected on-site, with exceptions for small-scale residential developments

On-site residential waste storage and collection is required for:

- Sites with no sufficient rear lane access for CBC waste trucks; and
- Sites with a minimum frontage of 30m; and
- Developments with a minimum of 30 units

It is recommended that CBC retains the right to exercise discretion for exceptions to this rule, allowing kerbside waste collection for new residential developments of fewer than 30 units that do not require communal waste storage (e.g. detached dwellings or small-scale unit blocks). Where kerbside waste collection is allowed, bins must not create obstructions to walking, wheelchairs, cycling, street furniture and traffic and must not exceed one-third of the property frontage.

Rubbish collection bays and vehicle access to these bays must provide for a 12.5 m long CBC rubbish truck (heavy rigid vehicle).

Recommendation Two: Commercial waste to be stored and collected on-site, with exceptions only in limited circumstances

On-site commercial waste storage and collection is required for:

- All commercial developments with the exception of sites without the physical space for the activity or sites with suitable alternative arrangements (such as smaller commercial developments with rear lane access)

Exceptions should only be allowed for existing or new commercial activities located in existing buildings without the physical space for an on-site waste collection facility (e.g. main street shops whose waste collection would be carried out via a rear access lane or kerbside). Any kerbside waste collection exceptions provided must not create obstructions to walking, wheelchairs, cycling, street furniture and traffic and must not exceed the property frontage.

CBC should also consider DCP provisions that consolidate commercial waste storage and collection to offset increased traffic generation from multiple individual waste collection points for commercial development.

Rubbish collection bays and vehicle access to these bays must provide for a 12.5 m long CBC rubbish truck.

9. LOADING

09

9.1. Introduction

Loading requirements in DCPs for Bankstown and Campsie are currently unclear in terms of the actual amount of loading spaces required for different types of activity. For example, the Bankstown DCP states that all loading and unloading for residential and mixed-use developments must be undertaken on site, without specifying actual rates. In the Canterbury DCP, no rates are set for residential or retail premises with offices only requiring one courier parking space. In both former council areas, the loading requirements are consequently considered on a case-by-case basis at the DA or planning proposal stage. While this approach may afford CBC flexibility in terms of deciding what the loading requirements may be for individual developments, the drawback from this approach is that there is no clear guidance to the development sector on how much loading they need to provide and what these loading facilities should look like. The present approach may also lead to inconsistencies in determining on-site loading requirements as there is no clear guideline on how to assess the loading plans in DAs or planning proposals, with information potentially limited to past precedents only.

In light of this situation, there is a benefit to developing clarity and guidance to CBC and the development sector on CBC's expectations for loading for the many different land uses that will be developed in Bankstown and Campsie in the future. As will be clear from the examples cited in the discussion below, the guidance does not need to be overly prescriptive, but can provide sufficient direction so as to maintain consistency in the level of loading provision for developments. This discussion and review of examples from similar cities will inform recommendations for loading requirements in the DCP for Bankstown and Campsie.

9.2. Discussion

Before reviewing relevant loading practices in comparable cities, it is necessary to understand the context of loading, what it is for and what the desired outcomes from loading may be in the context of planned growth in Bankstown and Campsie.

Loading is an activity that is generated by commercial, industrial, retail and residential land use and is an essential transport activity to support the ongoing operation of businesses. The scale and location of this essential transport activity determines its impact on the transport network and the public domain (e.g. size of vehicles required, frequency of loading, on-street loading or off-street loading). Given the anticipated growth of residential activity, employment and associated services in Bankstown and Campsie, and the limited amount of road space in these two centres, it is not sustainable to rely primarily upon on-street loading zones to service this growth. A strategic shift towards on-site loading for new land uses in the future is essential.

Accordingly, requirements or guidance on loading should seek to provide for loading to support efficient day-to-day business functions while ensuring the activity is done safely and sustainably on the transport network. These requirements can be focused on an individual site level (e.g. on-site loading requirements for buildings) but with the increased prevalence of e-commerce, food deliveries and general courier activity, consideration must also be given to loading in the public and private domain that consolidate deliveries from multiple sources, which may be more spatially efficient and have a lower transport impact than traditional door-to-door delivery.

Loading activity is also diverse; different types of land uses and user groups in those land uses will generate different demands in terms of loading time and the size of vehicles providing the delivery or pick up of goods, which in turn create different needs for loading space. Accordingly, any loading requirements set in a DCP needs to be sufficiently flexible to cater for these diverse needs. At a high-level, Table 9.1 summarises these diverse loading needs.

Table 9.1: Typical loading duration and vehicle requirements for different user groups and land uses

Land-use	Loading User Groups	Typical Duration of Stay	User Group Vehicles
Residential	Removalists	2 – 4 hours	Up to Heavy Rigid Vehicles (HRV)
	Waste Collection	15 – 60 minutes	Up to Heavy Rigid Vehicles (HRV)
	E-Commerce (Couriers)	5 – 30 minutes	Up to Small Rigid Vehicles (SRV)
	Small Deliveries (Uber-Eats)	5 – 15 minutes	Private Vehicles
Office	Deliveries	15 – 60 minutes	Up to Heavy Rigid Vehicles (HRV)
	Waste Collection	15 – 60 minutes	Up to Heavy Rigid Vehicles (HRV)
	E-Commerce (Couriers)	5 – 30 minutes	Up to Small Rigid Vehicles (SRV)
Retail	Product Deliveries	15 – 60 minutes	Up to Heavy Rigid Vehicles (HRV)
	Waste Collection	15 – 60 minutes	Up to Heavy Rigid Vehicles (HRV)
	E-Commerce (Couriers)	5 – 30 minutes	Up to Small Rigid Vehicles (SRV)
	Small Deliveries (Uber-Eats)	5 – 15 minutes	Private Vehicles

Translating these needs into specific requirements in a DCP is complex, given the discussion presented above. A review of examples from other cities, industry guidance will assist with formulation appropriate loading requirements for Bankstown and Campsie.

9.2.1. Benchmarking against other cities and industry guidance

Table 9.2: Loading requirements in comparative cities and TfNSW guidelines

Land-use	City of Sydney	Transport for NSW RMS Guidelines
Residential	• 1 space for the first 50 dwellings; plus • 0.5 spaces for every 50 dwellings or part thereafter.	• 1 space for every 50 dwellings up to 200 dwellings, • 1 space for every 100 dwellings thereafter.
Office	• 1 space per 3,300 sqm GFA or part thereof, for the first 50,000sqm; plus • 1 space per 6,600 sqm, or part thereof, for additional floor area over 50,000sqm and under 100,000sqm; plus • 1 space per 13,200 sqm, or part thereof, for additional floor area over 100,000sqm.	• 1 space per 4,000sqm GFA up to 20,000sqm GFA, • 1 space per 8,000sqm GFA thereafter.
Retail	• 1 space per 350sqm GFA or part thereof, up to 2,000sqm; then • 1 space per 800sqm GFA thereafter.	• 1 space per 400sqm GFA up to 2,000sqm, • 1 space per 1,000sqm GFA thereafter.

Land-use	Parramatta	Liverpool	Chatswood	North Sydney
Residential	-	1 loading bay per 40 apartments max 4 (not CBD specific)	Provision must be made for removalist vans to park, load and unload onsite for all residential developments in excess of 12 units.	• Between 30 and 60 dwellings must provide at least 1 service delivery space, accommodating at least 1 MRV. • More than 60 dwellings must provide at least 1 service delivery space, accommodating at least 1 HRV or 2 MRV
Office	1 loading bay per 400sqm of GFA (not CBD specific)	-	Determined by Council	Determined by Council
Retail	1 loading bay per 400sqm of GFA (not CBD specific)	-	Determined by Council	Determined by Council

Table 9.2 sets out a review of loading requirements for different land uses in comparative cities to Bankstown and Campsie as well as in the recommended TfNSW guidelines. Table 9.2 shows that the City of Sydney and the TfNSW guidelines are prescriptive in their loading requirements. Conversely, Chatswood and North Sydney adopt a highly flexible approach similar to current practices in Bankstown and Campsie, while the Parramatta and Liverpool LGAs have LGA-wide specific rather than centre-focused loading requirements. All DCPs above require loading facilities to be located on-site. This reflects the aforesaid strategic shift towards on-site loading for new land uses, which is supported in *Future Transport 2056.*

9.2.2. Loading survey data

Another source of information to inform potential loading requirements for Bankstown and Campsie comes from *TDT 2013/04a Technical Direction Guide to Traffic Generating Developments – Updated traffic surveys*, published by TfNSW. This technical direction has compiled surveys of commercial land uses in major centres across NSW and the level of associated on-site loading bay provision, which allows the calculation of the average loading bay provision as a function of floor area. This calculation is contained in Table 9.3.

Table 9.3: Loading zone and floor area surveys

Location	Size	Loading Bays	Loading Bays per 10,000sqm
North Sydney	31,400	1	0.3
Chatswood	10,214	6	6
Sydney Olympic Park	34,131	7	2
Hurstville	3,254	0	0
Macquarie Park	5,748	3	5.2
Parramatta	27,000	3	1.1
Liverpool	2,817	0	0
Norwest	1,200	1	8.3
Newcastle	12,182	0	0
Wollongong	12,921	1	0.77
Average	14,087	2.2	1.56 loading bay per 10,000sqm; or **1 loading bay for every 6,403 sqm**

Source: Transport for NSW

Table 9.3 shows that across the surveyed locations, an average of one loading bay is provided for every 6,400sqm of commercial floor area, ranging from near zero as an average to around eight bays per 10,000sqm in Norwest. This average rate of loading bay provision, if translated as a DCP requirement, would be substantially less stringent than existing DCP requirements in the City of Sydney for retail and office land uses, similar to the TfNSW guidelines for offices but less stringent for retail and less stringent than requirements in the Parramatta DCP. This comparison demonstrates the variation in loading provision for established commercial land uses as well as the contrast with the shift towards a greater reliance on on-site loading in various DCPs across Sydney.

9.3. Recommendations

The following recommendations for loading requirements to be included in the DCP for Bankstown and Campsie reflect the preceding review of loading information and attempt to strike an appropriate balance in the quantum of loading bays needed for different land uses. They also avoid being overly prescriptive while providing CBC and the development sector sufficient direction on the appropriate loading requirements for varying land uses. This balance seeks to create consistency in the quantum of on-site loading provided depending on the type and scale of land use moving forward. These recommendations are to be further tested as part of the CBC's ongoing urban design work and DCP updates.

Furthermore and as alluded to earlier, the increasing prevalence of e-commerce and food deliveries has challenged the existing paradigm regarding the need for individualised delivery and loading. Consolidated locations for the loading and pick-up of freight have emerged organically without government intervention;

Australia Post Parcel Lockers, Amazon Parcel Lockers and ParcelPoint are but a few examples. CBC needs to remain vigilant to the continued proliferation of consolidated freight facilities and methods of freight access to these locations, which involve conventional and non-conventional transport modes including bicycle delivery and electric cargo bicycles. This report has avoided concrete recommendations in this regard mainly due to GTA's informed industry knowledge that TfNSW will soon be publishing guidance on the Last Mile Freight Toolkit, which will fall under the NSW Movement and Place Framework. It is recommended any Bankstown or Campsie-specific last mile and consolidated freight guidance be developed following the release of this toolkit.

Recommendation One: Adopt the following on-site loading bay requirements for residential and commercial land uses

Table 9.4: Recommended on-site loading bay requirements

Land use	Loading bay requirement
Residential	• 0 -20 dwellings = CBC discretion as to whether can be done on-site or on-street • 20 - 200 dwellings = 1 bay • 200 - 500 dwellings = 2 bays • 500 - 1000 dwellings = 3 bays • 1,000+ dwellings = 4 bays It is recommended that a loading bay booking system is implemented by the strata to manage use of the loading bay(s)
Commercial - Supermarkets	Supermarkets may warrant different loading requirements, depending on their size and location. Each supermarket proposal will need to be assessed on its individual merits as part of a development application.
Commercial – Retail other than supermarkets	1 bay per 5000sqm or part thereof*
Commercial – Office	1 bay per 15,000sqm of part thereof*

* The above rates for commercial land uses would typically assume implementation of a loading dock management plan which theoretically reduce peak demands by 20 to 50 per cent based on GTA's industry experience.

Loading bays and vehicle access to loading bays must provide at a minimum for a medium rigid vehicle (MRV).

10. SUMMARY

10

10.1. Summary

The Bankstown and Campsie Parking, Loading and Servicing Study has established the scene for current land use and transport trends and practices in Bankstown and Campsie, and described how these will change as a result of the implementation of the *Complete Streets* approach, planned rapid transit infrastructure like Sydney Metro, new land use growth plans and known future land use developments. The future transport and land use vision for Bankstown and Campsie can be described as one which prioritises movement by foot, public transport and bicycle to access a high density of residential, commercial, mixed-use, recreational, educational and civic land uses. Notwithstanding this prioritisation, there will still be car movements in Bankstown and Campsie but the vision seeks to repurpose space for cars in the private and public domains, for example, parking space and road space, for other more productive purposes in line with the vision.

Accordingly, this study has provided a comprehensive discussion on how CBC is able to reform various aspects of the transport network, including general car parking for private developments, alternative parking frameworks, bicycle parking and end-of-trip facilities, EVs, car share, loading and waste collection, to realise the future vision for Bankstown and Campsie. This discussion has compared various options available to CBC for implementation through its DCP or other policy documents, and explained the trade-offs and consequences of each, with a supporting evidence base through benchmarking with comparable cities, technical guidance or academic literature. Based on this discussion, the study established a series of recommendations for CBC's consideration that would change or adapt its management approach to general car parking for private developments, alternative parking frameworks, bicycle parking and end-of-trip facilities, EVs, car share, loading and waste collection. In summary, the recommendations involve:

- Enablement of developments to be provided with as much parking as needed, within a reasonable limit that minimises negative externalities related to traffic congestion and poor urban amenity.
- Ability to separate private parking spaces from the associated land use, which would enable the efficient allocation of parking resources to those who have a genuine need and a willingness to pay through private sale or lease arrangements.
- Greater clarity on bicycle parking and end-of-trip facility rates to enable active transport access
- Incentives to increase the supply of EV parking and charging infrastructure in Bankstown and Campsie, recognising the expected increased uptake of EVs but also avoiding excessive upfront costs for developers.
- A framework to allow CBC to be in a strong position to welcome the establishment of more car share spaces not only in Bankstown and Campsie but throughout the LGA, by setting out the key parameters that car share operators should follow that benefit both CBC and the operators.
- A shift towards more on-site loading and waste collection for most new developments but retaining exceptions and discretion for smaller scale activities or locations that are physically incapable of providing on-site facilities.

As CBC embarks on its journey to update its DCP for Bankstown, Campsie, other centres as well as for the entire LGA, the study's recommendations, in particular those related to parking, EVs, loading and waste collection, are able to be translated into detailed DCP provisions. Others such as the recommendation for a comprehensive parking management strategy and a car share policy, can be implemented through the preparation of new CBC policies outside the statutory planning framework.

GTAconsultants now Stantec

www.stantec.com