City of Parramatta

20-Mar-2017

Technical Paper 003: Parking Review

Supplement to the Parramatta CBD Strategic Transport Study

AECOM

AECOM Australia Pty Ltd
Level 21, 420 George Street
Sydney NSW 2000
PO Box Q410
QVB Post Office NSW 1230

T: +61 2 8934 0000
F: +61 2 8934 0001
aecom.com

ABN 20 093 846 925

To:
City of Parramatta

CC:

Project name:
Parramatta CBD Strategic Transport Study

Project ref:
60444984

From:
Jeremy Setio, Brett Linnane

Date:
20 March, 2017

Technical Paper 003

Subject: Parking Review

SUMMARY

The purpose of this paper is to review current parking demand and supply in Parramatta CBD, and compare Parramatta CBD's parking policies with those established in North Sydney CBD and Sydney CBD. Key lessons learnt are identified to help shape the future role of the private vehicle in Sydney's second CBD. Several recommendations were drawn from this analysis and are provided to assist City of Parramatta (Council) in developing an appropriate parking strategy for Parramatta CBD.

Key messages from the paper include:

- Driving to work and parking in Parramatta is relatively attractive as a Journey To Work (JTW) option, through:
  - High supply: Parramatta CBD has 26,800 parking spaces, equating to roughly one car space to every two workers in the CBD. The City of Sydney estimates there is just one parking space for every six workers in the Sydney CBD.
  - Low cost: Public 'early bird' parking rates are approximately a third of those in Sydney CBD, and have lower applied parking levies.
- Parramatta CBD's parking provision rates for commercial uses, which are applied to proposed developments during the development application (DA) process, are approximately four to five times higher than other benchmark CBDs in Sydney.
- An almost 60% increase in parking supply is currently (accumulatively) proposed as part of development proposals (as of early 2016): approximately 13,800 spaces.
- Continuing to supply proportial parking provisions in the future has the potential to enable significantly higher volumes of private vehicle traffic on the surrounding road network and increasing congestion which can:
  - Impact on all road-based travel modes including commercial vehicles and bus
  - Decrease urban amenity and 'place' function of Parramatta CBD, regardless of proportional investment in road infrastructure
  - Decrease economic productivity
  - Impact on community health
  - Devalue the land that comprises Parramatta CBD
  - Impact on the feasibility and Government support of the Planning Proposal.
- Council should seek to review its parking policies to be more restrictive and in line with other CBDs in Sydney, and integrate changes into its Parking Strategy currently in development.

1. Context

1.1 Need for an evidence-based review

In order to achieve Council's vision of Parramatta as Australia's next great city, a comprehensive set of transport plans, policies and strategies need to be identified and implemented in order to manage travel demand for Parramatta CBD and create a sustainable transport outcome. Under any of the three growth scenarios considered in the broader Strategic Transport Study, the continued increase use of the private vehicle in accessing the Parramatta CBD – accommodated for through parking provisions - is likely to lead to increased congestion on roads, and indirectly the negative urban, transport and economic outcomes that can follow.

During the early stages of this Strategic Transport Study, it was identified that parking provision rates for Parramatta CBD required review, particularly in the context of the three growth scenarios associated with the Planning Proposal to significantly increase the capacity for commercial and residential development. Case studies assist in evidence based recommendations for suitable amendments to current parking policies within the commercial core. This study aims to encourage a shift towards more sustainable transport modes and reduce the traffic, environmental and amenity impact of planned development.

It is understood that Council is currently leading the development of a separate Parking Strategy. As contextual evidence for further consideration by Council, AECOM has reviewed case studies where the nature of parking policies, public transport provision, socio-economics and land use compositions are similar to that of the vision for Parramatta CBD. This Technical Paper:

- Reviews current and proposed parking supply in the Parramatta CBD
- Reviews and compares car parking, bicycle parking and car share parking rates stipulated in relevant policies for the following Sydney commercial cores:
  - Parramatta CBD
  - North Sydney CBD
  - Sydney CBD
- Provides recommendations for consideration by Council

2. Supply and demand in the Parramatta CBD

A desktop analysis of parking supply and demand has been undertaken to understand the existing distribution of parking, and the location of new developments which will increase parking supply within Parramatta CBD. For the purposes of this analysis, detailed parking survey data was provided by Council.

2.1 Existing situation

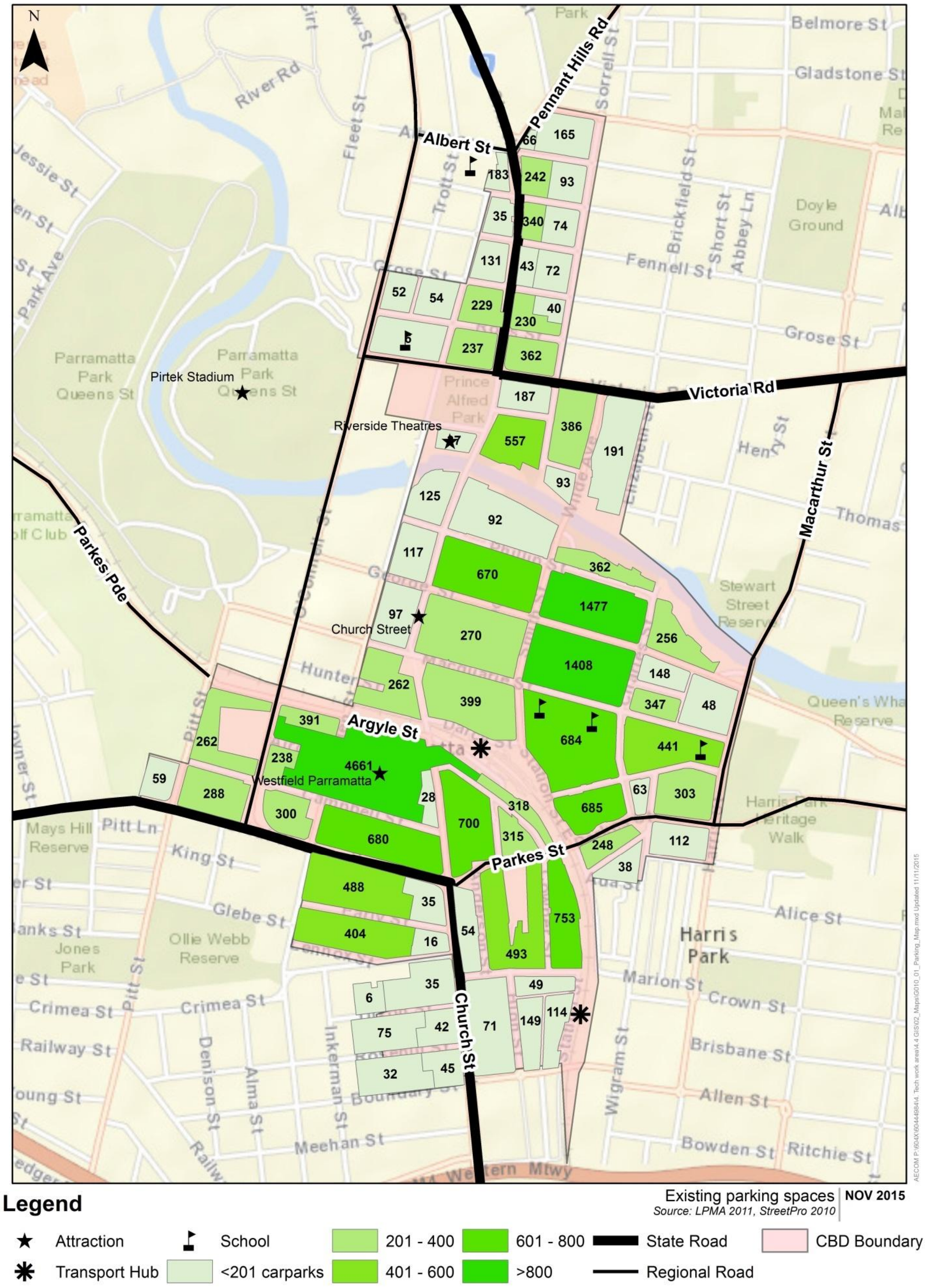
The Parramatta CBD planning proposal area accommodates a total of approximately 26,800 parking spaces comprising a range of parking types including on and off-street, paid and unpaid, private and public parking. The spatial distribution of these parking spaces across the CBD is shown in **Figure 1**.

JTW data shows approximately 19,900 employees travel to work as a car driver in 2011, indicating a likely significant utilisation of these spaces for JTW purposes. It also equates to a car space to approximately every two workers in Parramatta CBD. In comparison, the City of Sydney estimates there is one parking space available for every six workers in Sydney CBD[1].

The predominant commercial blocks with the highest volume of parking are generally found in the traditional core of Parramatta CBD. This can be linked to existing land uses with the greatest commercial and retail activity located within the traditional Parramatta CBD. Westfield Parramatta accounts for approximately 17 per cent of all existing parking spaces in the area. However, daily parking rates at Westfield Parramatta are $40, making it relatively unattractive as a car park for commuting. A significant supply of metered on-street parking is also available in the CBD, a portion of which is free for up to 15 minutes - presumably to service local businesses / retail and schools.

[1] *Parking in the Sydney CBD: An International Comparison*, NRMA (2014)

Figure 1: Existing parking supply in Parramatta CBD



Source: City of Parramatta, adapted by AECOM (2015)

2.1.1 Current cost of commuter parking

A desktop review of parking rates at public car park facilities, operated by Wilson Parking and Secure Parking, indicated that 'early bird' parking rates are generally $10-$15. This is low in comparison to rates in Sydney CBD which are generally $25-$45 per day.

Parking space levies (PSL) are also currently applied within Parramatta, in accordance with the *Parking Space Levy Act 2009.* As identified in Transport for NSW's *Review of the Parking Space Levy Regulation 2009 Discussion Paper* (October 2016), Parramatta is a 'Category 2' area levied at a lower rate than the Sydney CBD ('Category 1'). As at 1 July 2016, the PSL is $2,350 per space per year for Category 1 areas ($6.45/day) and $840 in Category 2 areas ($2.30/day)[2]. The rates are imposed on owners of off-street commercial and office parking spaces with the underlying aim to reduce congestion (by discouraging car use) and promoting public transport use by contributing funds towards improvements to essential infrastructure (including projects such as the Liverpool to Parramatta T-Way). In the 2015-16 financial year, the PSL raised $104m.

Based on the above, it is considered that a combination of the relatively high parking supply in Parramatta CBD, and relatively low parking fees and levies, make driving to work a relatively attractive option.

2.1.2 Current parking demand

Table 1 summarises the number of parking spaces, daily vehicle numbers and daily occupancy generated by Council-owned carparks in Parramatta CBD. The data indicates that the Erby Place and Horwood Place parking facilities accommodate a high number of daily vehicles, resulting in high occupancy rates - over 90 per cent. In contrast, the Wentworth Street facility has more parking spaces but accommodates fewer cars each day, with a daily occupancy of 55%. Overall the data indicates utilisation is generally quite high.

Table 1: Utilisation of Council-owned parking facilities

Car park	Number of spaces	Daily number of vehicles	Daily occupancy
Erby Place	559	1,045	98%
Horwood Place	768	1,090	90-95%+
Wentworth Street	1,143	808	55%
Total	**2,968**	**3,357**	

Source: City of Parramatta, 2015

2.1.3 Additional parking supply

As part of new developments in the Parramatta CBD planning proposal area, 13,800 additional parking spaces have been proposed across a number of locations. This represents a 58 per cent increase in parking supply, resulting in a future supply of 37,600 parking spaces. The location of proposed additional parking is shown in **Figure 2**.

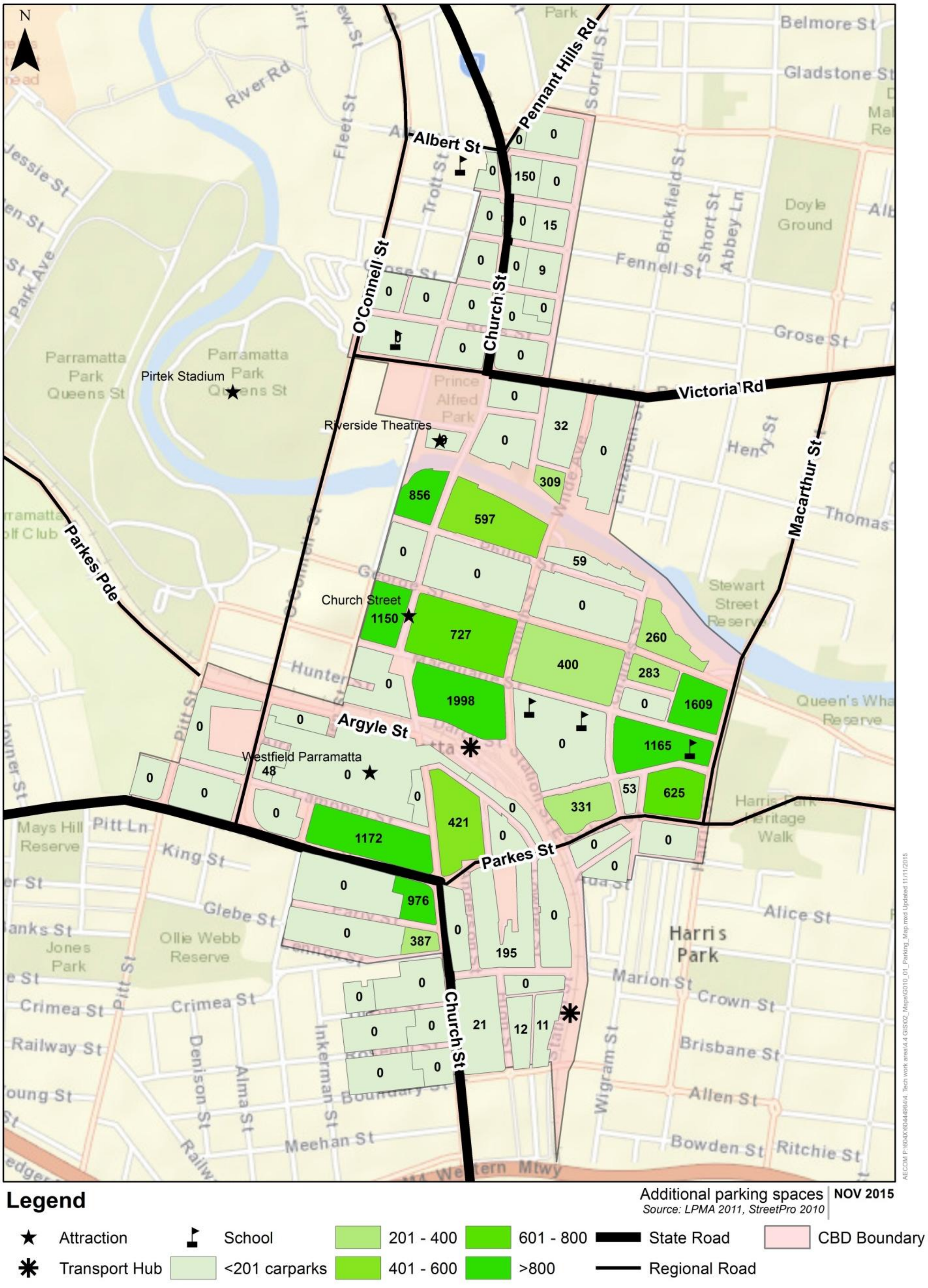
The additional spaces are shown to be largely centred adjacent blocks with high existing parking numbers. It is considered that large contributors to these increases are high density mixed use proposals at the northern end of Auto Alley (south of Westfield Parramatta) and Parramatta Square development.

Five blocks are projected to see an increase of over 1,000 parking spaces. Two are located at the eastern end of Parramatta CBD, bordered by Macarthur Street. A third is located immediately south of Westfield Parramatta bordered by the Great Western Highway and the remaining two are located on either side of Church Street, south of George Street.

The location of a significant majority of these parking spaces closely coincides with critical transport infrastructure and services both current (buses accessing Parramatta Interchange) and proposed (Parramatta Light Rail): inferring potential conflict for road space between modes and congestion.

[2] *Review of the Parking Space Levy Regulation 2009 Discussion Paper* (October 2016)

Figure 2: Additional parking supply in Parramatta CBD



Source: City of Parramatta, adapted by AECOM (2015)

3. Planning Proposal future land use scenarios

Parramatta CBD is characterised by high density commercial land uses surrounded by medium and high density residential land uses. The Planning Proposal for Parramatta CBD drafted by Council has a strong focus on increases in both commercial and residential floor space. More specifically, Council has prepared the following three future land use scenarios which form the basis of the Strategic Transport Study.

Table 2: Utilisation of Council-owned parking facilities

Scenario		Additional commercial space (m^2)	Additional residential (dwellings)
1	Existing controls	803,550	5,712
2	Medium level growth	1,516,867	12,154
3	High level growth	1,755,440	20,297

Source: City of Parramatta, 2015

The currently proposed additional parking supply described in **Section 2.1.3** is significant. The implementation of one of Council's three growth scenarios, combined with the continued supply of proportional parking provisions, as the potential to enable significantly higher volumes of private vehicle traffic on the surrounding road network and increasing congestion which can:

- Impact on all road-based travel modes including commercial vehicles and bus.
- Decrease urban amenity and 'place' function of Parramatta CBD, regardless of proportional investment in road infrastructure.
- Decrease economic productivity.
- Impact on community health.
- Devalue the land that comprises Parramatta CBD.
- Impact on the feasibility and Government support of the Planning Proposal

4. Benchmarking review

4.1 Parramatta CBD

Transport for NSW Transport Performance and Analytics (TPA) provides a range of JTW data on travel patterns and behaviour. JTW data counted 43,622[3] people working in the Parramatta CBD in 2011, 13% of which resided in the Parramatta SA3[4]. In comparison, the Parramatta CBD had a residing workforce of 8,177 people.

The Parramatta CBD forms the major transport hub for Western Sydney, with trains, buses and ferries converging on Parramatta CBD. Parramatta Interchange is a major transport interchange for the T1 Western, T5 Cumberland and Blue Mountains Lines. It includes a major bus interchange located on the south eastern side of the railway station which is serviced by four separate bus operators; Sydney Buses, Transit Systems Sydney, Hillsbus and Transdev. There is also a free shuttle bus service, operated by City of Parramatta in conjunction with State Government, which circles Parramatta CBD.

Vehicle ownership for the Parramatta LGA (as defined in 2014-2015) was recorded in the Household Travel Survey (HTS) at 1.5 vehicles for every dwelling.

The policy requirements for car parking, bicycle parking and car share provision for the Parramatta commercial core are described in **Table 3**, **Table 4** and **Table 5** respectively.

Table 3: Car parking provision rates for Parramatta CBD

Land use	Maximum parking rate
Multi dwelling	1 space / dwelling 0.20 visitor spaces / dwelling
Commercial	1 space / 100m² GFA

Source: Parramatta Local Environmental Plan 2011 – Clause 7.3 Car Parking

Table 4: Bicycle parking provision rates for Parramatta CBD

Land use	Minimum parking rate	Additional facilities
Residential	1 space / 2 dwellings	N/A
Commercial	1 space / 200m² GFA	Showers, change facilities and lockers

Source: Parramatta DCP 2011 – 3.6.1

Table 5: Car share parking provision rates for Parramatta CBD

Land use	Location	Minimum parking rate
Residential	Within 800m of a railway station or 400m of a bus stop that is serviced every 15 minutes in AM peak.	1 space / 50 dwellings
Commercial	Within 800m of a railway station or 400m of a bus stop that is serviced every 15 minutes in AM peak.	1 space / 5,000m²

Source: Parramatta DCP 2011 – 3.6.1.

Note: 1 care share space can be provided in lieu of 3 car parking spaces.

[3] Value in accordance with 2011 JTW data based on 2011 BTS Travel Zones selected that approximately comprise the CBD. BTS September 2014 Release Employment Forecasts indicate there were 49,513 employees within the 'Parramatta Centre' in 2011, as defined in August 2014. Reasons for typical discrepancies between JTW employee counts and employment estimates are noted in the BTS forecast release notes. Discrepancies may also result from different geographic definitions of the CBD area.
[4] Statistical Area Level 3: an area designed to provide a regional breakdown of Sydney / Australia, usually with a population of 30,000 to 130,000 people

4.2 North Sydney CBD

North Sydney CBD is one of Australia's largest commercial centres. North Sydney CBD is characterised by various grades and sizes of commercial floor space accommodating a mix of small and large businesses, services, high tech industries and retail. JTW data shows 40,730[5] people work in North Sydney CBD core and a very small residing workforce (just over 2,000 employed residents).

HTS data shows vehicle ownership in the North Sydney LGA (as defined in 2014/2015) at approximately 1.3 vehicles for every dwelling. Public transport is the main form of access to the centre. This is enabled through leveraging from a high level of public transport serviceability driven by the combined needs of the North Sydney and Sydney CBD travel tasks. This is accompanied by more restrictive parking policies for commercial uses (refer tables below) and higher parking costs when compared to the Parramatta CBD.

While the volume of workers in North Sydney CBD core is comparable to Parramatta CBD, the differences in JTW mode share is apparent. Addressing this issue increases in urgency as Parramatta continues to grow – BTS forecasts indicate Parramatta CBD will overtake North Sydney CBD in terms of employee numbers between 2016 and 2021[6] - and the reconsideration of parking policies is one factor which can assist in achieving Council's vision.

The policy requirements for car parking, bicycle parking and care share provision for the North Sydney commercial core are described in **Table 6**, **Table 7** and **Table 8** respectively.

Table 6: Car parking guideline rates for North Sydney

Land use	Maximum parking rate
Residential flat buildings / shop top housing	0.5 space / studio 0.5 space / 1 bedroom 1 space / 2 bedroom 1 space / 3+ bedroom
Commercial	1 space / 400m² GFA

Source: North Sydney DCP 2013 – Section 10.2 Parking Provision

Table 7: Bicycle parking guideline rates for North Sydney

Land use	Minimum parking rate	Additional facilities
Residential	1/dwelling (resident) 1/10 dwellings (visitor)	N/A
Commercial	1/150m² GFA (resident) 1/400m² GFA (visitor)	Showers, change facilities and lockers

Source: North Sydney DCP 2013 – Section 10.5 Bicycle Parking and Associated Facilities

Table 8: Car share parking guideline rates for North Sydney

Land use	Parking rate
Residential	The number of car share parking spaces cannot replace more than 25% of total off-street parking requirement. Each car share space replaces 3 or 4 residential/commercial parking spaces.
Commercial	

Source: North Sydney DCP 2013 – Section 10.2.2. Car Share Schemes

[5] Value in accordance with 2011 JTW data based on 2011 BTS Travel Zones selected that approximately comprise the CBD. BTS September 2014 Release Employment Forecasts indicate there were 51,616 employees within the 'North Sydney Centre' in 2011, as defined in August 2014. Reasons for typical discrepancies between JTW employee counts and employment estimates are noted in the BTS forecast release notes. Discrepancies may also result from different geographic definitions of the CBD area.
[6] BTS September 2014 Release Employment Forecasts

4.3 Sydney CBD

Sydney CBD is the main commercial centre of metropolitan Sydney, NSW and Australia with approximately 268,215[7] workers according to 2011 JTW data. Of Sydney CBD's 10,751 residing workforce, approximately 75% work within the Sydney CBD. Along with high self-containment of residential trips, vehicle ownership rates in the Sydney LGA are low at approximately 0.8 vehicles per dwelling. Sydney CBD is well serviced by all forms of public transport and has an associated significant majority of JTW trips by public transport and low portion by private vehicle (approximately 15%).

The policy requirements for car parking, bicycle parking and car share parking provisions for the Sydney CBD are described in **Table 9**, **Table 10** and **Table 11** respectively. Category A for residential and Category D for commercial properties are assessed in the tables to represent the developments located closest to the commercial centre of the City of Sydney LGA.

Table 9: Car parking guideline rates for Sydney CBD

Land Use		Maximum parking rate
Residential flat buildings / shop top housing		0.1 space / studio 0.3 space / 1 bedroom 0.7 space / 2 bedroom 1 space / 3 bedroom
Commercial	FSR > 3.5	M = (G*A) / (50*T) Where: M = maximum number of parking spaces G = GFA of all office/business premises in building (m^2) A = site area (m^2) T = total GFA of all buildings on the site (m^2)
	FSR < 3.5	Office/Business:1 space / 175m^2 GFA Retail: 1 space / 90m^2 GFA

Source: Sydney LEP 2012 – Part 7 D1 Car Parking Ancillary to Other Development

Table 10: Bicycle parking guideline rates for Sydney CBD

Land use	Minimum parking rate	Additional facilities
Residential	1/dwelling (resident) 1/10 dwellings (visitor)	N/A
Commercial	1/150m^2 GFA (resident) 1/400m^2 GFA (visitor)	Showers, change facilities and lockers

Source: Sydney DCP 2012 – 3.11.3. Bike parking and associated facilities

Table 11: Car share parking guideline rates for Sydney CBD

Land use	Minimum parking rate
Residential	1 space / 50 residential spaces
Commercial	1 space / 30 commercial spaces

Source: Sydney DCP 2012 – 3.11.2. Car share scheme parking spaces

Note: Car share parking spaces to be provided in addition to maximum number of car parking spaces.

[7] Value in accordance with 2011 JTW data based on 2011 BTS Travel Zones selected that approximately comprise the CBD. BTS September 2014 Release Employment Forecasts indicate there were 313,945 employees within the 'Sydney Centre' in 2011, as defined in August 2014. Reasons for typical discrepancies between JTW employee counts and employment estimates are noted in the BTS forecast release notes. Discrepancies may also result from different geographic definitions of the CBD area.

4.4 Summary of benchmarking car parking rates

For the critical **commercial** land use, the Parramatta Local Environment Plan 2011 provides a general commercial parking rate of 1 space per 100m² GFA. North Sydney CBD and Sydney CBD have targeted car parking provision rates which are much lower in comparison to the rest of the respective LGAs. Critically, as highlighted in **Table 12**, the maximum number of commercial parking spaces allowed within the Parramatta commercial core would effectively be four times higher than if North Sydney CBD policy rates were applied, and five times higher than if Sydney CBD policy rates were applied.

Table 12: Hypothetical commercial car parking provision increases

Land use	Growth scenario	Parramatta CBD	Sydney CBD	North Sydney CBD
Commercial	*Existing controls*	8,036	1,607	2,009
	Medium growth	15,169	3,034	3,792
	High growth	17,554	3,511	4,389

Source: AECOM based on information provided by City of Parramatta, 2016

Note: Average FSR is assumed as 10 to calculate the Sydney CBD commercial car parking growth.

In regards to **residential** parking provisions, the Parramatta Local Environment Plan 2011 provides a maximum residential parking rate of one space per dwelling for multi dwellings plus one parking space for every five dwellings for visitors. In comparison, North Sydney CBD and Sydney CBD both have varying rates dependent on the number of bedrooms per dwelling for residential flat buildings / shop-top housing. **Table 13** illustrates the effects on maximum allowable residential parking provisions if the respective policy rates for each Parramatta, North Sydney and Sydney CBDs are applied to the three Parramatta CBD growth scenarios.

The table highlights a moderate difference between the applied rates in North Sydney and Parramatta CBD's, though the North Sydney CBD is noted to have a very low residential mix and this is potentially reflected in the currently applied parking rate. The table more critically highlights that the maximum number of residential spaces allowable within the Parramatta commercial core would effectively be double that if the Sydney CBD policy rates were applied. The scale of residential parking supply also increases significantly in each of the scenarios, as change in residential mix forms the main differentiator between particularly the medium and high growth land use scenarios. With increased residential mix in each scenario, comes an increased importance on allowable parking supply.

Table 13: Hypothetical residential car parking provision increases

Land use	Growth scenario	Parramatta CBD	Sydney CBD	North Sydney CBD
Residential	*Existing controls*	6,854	3,713	5,141
	Medium growth	14,585	7,900	10,939
	High growth	24,356	13,193	18,267

Source: AECOM based on information provided by City of Parramatta, 2016

Note(s):

1. The parking rates shown are based on a maximum allowable provision rate (not minimum). Actual outcome be less for each scenario.

2. It is assumed that residential dwellings within each centre are classified as one bedroom, two bedroom or three bedroom apartments, divided into the categories according to the following:

- One bedroom apartments: 20 percent of dwellings;
- Two bedroom apartments: 70 percent of dwellings; and
- Three bedroom apartments: 10 percent of dwellings.

4.5 Summary of benchmarking bicycle parking rates

Table 14 and **Table 15** show bicycle parking rates for residential and commercial developments in Parramatta are lower (approximately half) than Sydney CBD and North Sydney CBD.

Table 14: Hypothetical residential bicycle parking provision increases

Land use	Growth scenario	Parramatta CBD	Sydney CBD	North Sydney CBD
Residential	*Existing controls*	2,856	6,283	6,283
	Medium growth	6,077	13,369	13,369
	High growth	10,149	22,327	22,327

Source: AECOM based on information provided by City of Parramatta, 2016

Table 15: Hypothetical commercial bicycle parking provision increases

Land use	Growth scenario	Parramatta CBD	Sydney CBD	North Sydney CBD
Commercial	*Existing controls*	4,018	7,393	7,393
	Medium growth	7,584	13,955	13,955
	High growth	8,777	16,150	16,150

Source: AECOM based on information provided by City of Parramatta, 2016

4.6 Summary of benchmarking car share parking rates

Car share schemes provide vehicles for shared or communal use, and make vehicles available exclusively to members of the development for occasional use over short periods of time. This service is beneficial in areas well serviced by other modes of transport where owning a private vehicle is not necessary. **Table 16** and **Table 17** show Parramatta CBD and Sydney CBD provide similar number of car share parking spaces for both residential and commercial developments.

North Sydney Council does not provide a minimum rate of car share parking; however the DCP allows developers to substitute residential or commercial parking spaces with car share spaces at the rate of 3 or 4 to 1. This replacement is restricted to a maximum of 25 percent of the total provided off-street car parking spaces.

Table 16: Hypothetical residential car share parking provision increases

Land use	Growth scenario	Parramatta CBD	Sydney CBD	North Sydney CBD
Residential	*Existing controls*	114	74	N/A
	Medium growth	243	158	N/A
	High growth	406	264	N/A

Source: AECOM based on information provided by City of Parramatta, 2016

Table 17: Hypothetical commercial car share parking provision increases

Land use	Growth scenario	Parramatta CBD	Sydney CBD	North Sydney CBD
Commercial	*Existing controls*	161	124	N/A
	Medium growth	303	263	N/A
	High growth	351	439	N/A

Source: AECOM based on information provided by City of Parramatta, 2016

5. Recommended parking management and sustainable transport policies

Parramatta CBD's growth exposes the city to the risk of a significant increase in parking provision and traffic generation to the detriment of its vision. In order to achieve its vision, Council will require the adoption of parking management and sustainable transport policies to restrict parking and private vehicle trip growth in tandem with encouraging and supporting increased use of sustainable modes, such as public transport, walking and cycling.

Table 18 describes some of the typical impacts which have been realised in urban centres as a result of new or revised Council policies on parking management and sustainable transport. The table is included for reference to understand potential benefits for Parramatta CBD. This summary table is adapted from research on a number of international case studies, some of which are already in place in Parramatta CBD and may not be directly relevant. However, it does present an order of magnitude, derived through policy change which has been implemented elsewhere.

The below table and additional more specific commentary following form a basis of measures recommended for consideration by Council, and other relevant transport agencies, to be incorporated into the relevant policies (e.g. LEP, DCP, PSL Act).

Table 18: Impact of parking management and sustainable transport policies

Strategy	Description	Typical reduction in traffic/parking demand[1]
Shared parking/ smart growth/ use existing parking for new development	Parking spaces serve multiple users and destinations: encourage more compact, mixed and multi-modal development to allow more parking sharing and use of alternative modes	10-30%
Parking maximums	Establish maximum parking standards	10-30%
Walking and cycling improvements	Improve walking and cycling conditions to expand the range of destinations and serviced by a parking facility.	5-15%
Parking price	Increase charges to motorists directly for using parking facilities.	10-30%
Unbundle parking	Rent or sell parking facilities separately from building space	10-30%
Parking tax / levies reform	Change tax policies and levies to support parking and traffic management objectives.	5-15%
Bicycle facilities	Provide bicycle storage and changing facilities.	5-15%
More accurate and flexible standards	Adjust parking standards to more accurately reflect demand in a particular situation	10-30%
Improve user information and marketing	Provide convenient and accurate information on parking availability and price, using maps, signs, brochures and electronic communication.	5-15%

Source: AECOM 2016, adapted from, VTPI Online TDM Encyclopaedia – Parking Management 2016.

5.1 Private vehicle policies

5.1.1 Adjust parking provision rates

Varying car parking rates in areas where public transport is highly accessible can be seen as a widely adopted policy from the benchmark study between Parramatta CBD, North Sydney CBD and Sydney CBD. Once private parking within new developments is approved and constructed, it can be difficult for Council to influence the use of that parking provision: which places increased importance on placing appropriate parking provision rates within significant commercial cores upfront. By providing a lower car parking rate specifically for the commercial core, commuters to and from the area will be encouraged to utilise more sustainable transport modes.

It is also recommended that more specific rates are provided to assess the different parking needs for studio, one bedroom, two bedroom and three bedroom apartments as is with the Sydney LEP and North Sydney DCP. This specificity allows for Council to minimise the amount of unwanted parking which can potentially lead to wasted space and increased car use.

It is recommended that Council revise their parking rates to be more in line with those adopted for the North Sydney and Sydney CBDs. It is further recommend the supply and management of on-street parking be reviewed as part of more detailed assessments of the road network in the future, accounting for all kerbside road space needs (e.g. bus, loading, taxi, road network operational capacity).

5.1.2 Unbundle parking

Unbundle parking relates to policy or guideline measures to disassociate rental or sale of parking from building leases or titles. In doing so, this policy matches supply with demand and could reduce the potential over-supply of parking. Minimising the number of car parking spaces developed disincentivises the use of private vehicle travel to and from CBDs.

5.1.3 Parking space levy (PSL)

Policies to tax parking facilities to ensure the end user pays, be it the individual or the business, can be very effective in challenging the demand for parking for new developments, as the cost of parking is passed onto the end user. Such a policy could be used to make funds available for other complimentary sustainable measures such as improving transport choice, through shuttle bus or bus loop provision, improved cycle connections or end-of-trip facilities or subsidised public transport. Currently, the *Parking Space Levy Act 2009* is in place in NSW which includes premises in Sydney CBD, North Sydney CBD and Parramatta CBD. However, while North Sydney CBD and Sydney CBD are listed as Category 1 districts, Parramatta is a Category 2 district, effectively applying different levy rates.

Council should liaise with Transport for NSW to engage in the current discussion on how this levy should be applied within the Parramatta CBD going forward.

5.2 Bicycle policies

5.2.1 Improvement and expansion of cycling facilities

As discussed in the main strategy document, cycling infrastructure needs to be expanded and upgraded. Council and other Government stakeholders should focus on providing safe and convenient cycling infrastructure that is physically separated from traffic especially to key destinations. High quality end of trip facilities should be mandated in the DCP for all new commercial development, together with aligning cycle parking provision rates with that enforced in other CBDs.

5.2.2 Shared bicycle provision

Bicycle sharing facilities are used world-wide to provide well-priced (or occasionally free) short distance transportation. These facilities are currently available in some Australian cities such as Melbourne and Brisbane. Neither Melbourne nor Brisbane provide helmets for customers despite it being compulsory for cyclists to wear helmets in Australia. Disconnected cycle networks and engrained travel behaviours have almost contributed to the underperformance of bicycle sharing schemes.

Given Parramatta’s relatively flat terrain and the majority of trips to and from Parramatta CBD are likely to be within ten kilometres, there is potential for a bicycle share scheme to perform well. A proper feasibility and suitability study for the scheme should be conducted in conjunction with transport stakeholders to assess the necessary actions required for the success of a bicycle share scheme in Parramatta.