



Parking Strategy Report;

Georges River Car Parking Strategy

For Georges River Council
31 July 2018

parking;
traffic;
civil design;
communication;
ptc.

Document Control

Georges River Car Parking Strategy, Parking Strategy Report

Issue	Date	Issue Details	Author	Reviewed	For the attention of
1	18.05.2018	Draft	HL/MS/AU/DK	CL/AM	Harkirat Singh
2	07/06/18	Revised Draft Issue	HL	AU/CL	Harkirat Singh
3	05/07/18	Final	DK/HL	MS/AU	Harkirat Singh
4	27/07/18	Updated Final	DK/HL	MS/AU	Harkirat Singh
5	27/07/18	Updated Final	DK/HL	MS/AU	Harkirat Singh
6	31/07/18	Updated Final	DK/HL	AU	Harkirat Singh

Note: The Georges River Car Parking Strategy Report has been amended in accordance with the Council Resolution of 27 April 2020.

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1. Executive Summary

1.1 Brief Summary

The objectives of the Georges River Car Parking Study are to:

- Understand the current parking situation in the Local Government Area (LGA); demand and supply.
- Identify opportunities for improvement, disposal, retention and enlargement of current supply.
- Ensure supply satisfies demand of various land uses and is utilised efficiently now and in the future.
- Encourage sustainable transport modes and reduce reliance on the motor vehicle.
- Review the adequacy of the Development Control Plan (DCP) requirements.

In order to achieve these objectives, **ptc.** has followed the methodology outlined in Figure 1 to develop recommended parking strategies to address the current and emerging issues identified from empirical data collected through surveys and a review of previous documents and background information.

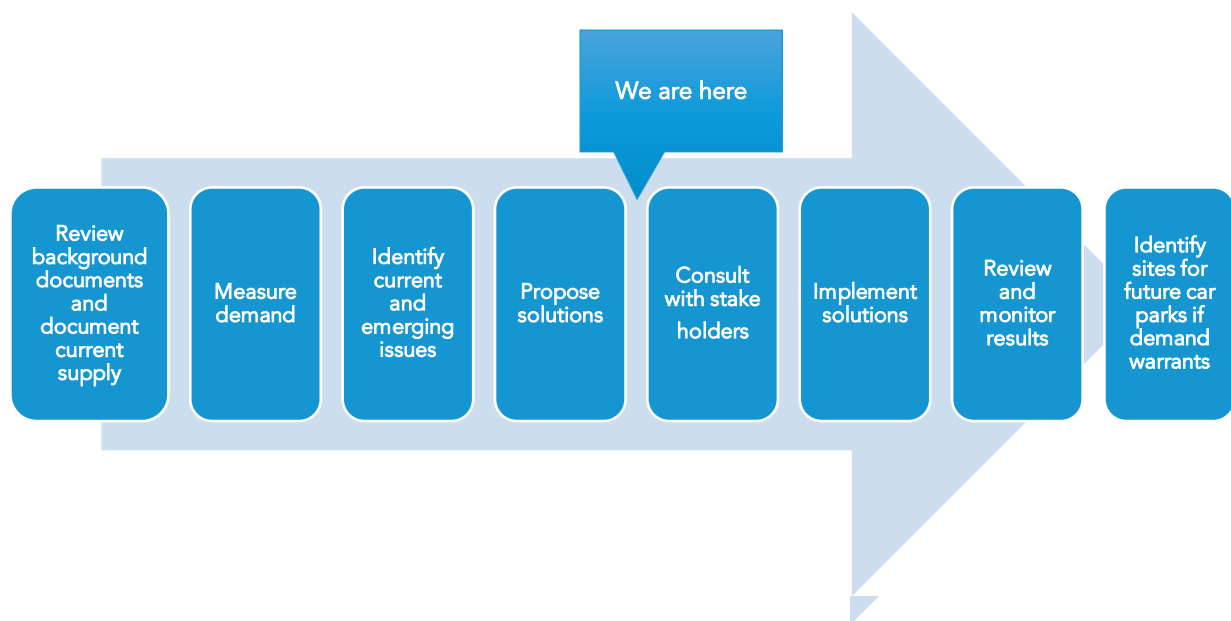


Figure 1 - **ptc.** methodology

The broad findings of the parking study are:

- There is a large proportion of unrestricted parking in the study areas.
- The majority of the study areas were below 85% occupancy at peak; 85% being the generally accepted principle of practical capacity¹. Where peak occupancy was near or exceeded 85% there was always parking available, although not necessarily easy to locate, highlighting the need for improved wayfinding.

¹ Donald Shoup

- There was competition for the limited parking supply between short stay parkers and long stay parkers with short stay demand not necessarily met by the supply of time restricted parking necessitating a review of time restrictions.
- Paid parking was only implemented in two off-street car parks. A revised pricing strategy would assist in managing parking demand, particularly in Kogarah, where competitor car parks are considerably more expensive.
- Technological solutions should be considered to improve the efficiency of parking management (i.e. access control, enforcement, wayfinding etc.).
- Car usage in the LGA is trending downwards as a mode share, however, the introduction of sustainable parking strategies such as car share, a Pedestrian Access and Mobility Plan (PAMP), Bicycle Plan, shuttle buses etc. would ensure this continues in the future.
- Inconsistent DCP parking rates within the LGA due to Council amalgamation necessitates the implementation of new rates, which we propose differentiate between the sizes of the business centres and where applicable limits parking to facilitate a shift towards sustainable transport modes and minimise congestion.
- Opportunities exist to consolidate some off-street car parks, freeing up land for sale, redevelopment or repurposing for public use.

1.2 Detailed Summary

ptc. has been engaged by Georges River Council (Council) to develop a Car Parking Strategy for Business Zoned Land within the LGA.

A review of relevant literature, provided by Council, has been undertaken, the LGA demographic, development planning controls in adjoining LGAs and the existing transport environment informed this study.

In addition, we have collected public parking inventory, by restriction, in areas agreed with Council and have undertaken parking surveys from 8am – 6pm on one weekday (Wednesday) and one weekend day (Saturday) to assess the current parking situation. The surveys are very limited and provide indicative data only to inform the development of the proposed parking strategies. They do not include privately owned car parks within the study areas available for public use.

In the majority of areas more than 50% of the on-street parking supply surveyed was unrestricted at all times. Off-street parking supply was predominantly 3P with 2 ticketed off-street car parks (Pay and Display).

Of the 15 key centres surveyed, 4 centres had weekday peak occupancies greater than 80% between 10-11.00am; and 2 centres on the weekend between 11am-12.00pm. Of the 17 business zones surveyed, 3 had weekday peak occupancies over 80% at varying times during the day and 3 on the weekend.

A high proportion of the parking supply was well within acceptable utilisation levels at peak, which may indicate current strategies are working well.

Generally, in the key centres, weekday peak occupancy was similar or higher than on a weekend; this was not necessarily the case in the smaller business zones.

In a town centre, we would expect to see shorter stay parkers parking in the more conveniently located on-street spaces which would have a higher turnover and longer stay parkers parking off-street in lower turnover spaces.

In most areas, where there is off-street parking provided this was not the case primarily because of the large proportion of unrestricted parking on-street accommodating all day parkers and the majority of the off-street parking being 3P. In most areas, the average length of stay was similar on a weekday and weekend; generally between 2-4 hours.

To determine the effect of future parking demand on parking supply, we have developed a forecasting model to determine the excess or shortfall in parking supply over time, which uses existing data on:

- public parking supply available at peak (excluding reserved spaces for special use, Loading Zones, Mail Zones, Taxi Zones etc.) plus
- peak occupancy data by parking restriction

Our projections for the larger town centres (by surveyed inventory) indicates that if parking demand increases in line with future population growth and there were no change in supply or parking behaviour peak occupancy levels would reach or exceed 85% in the following timeframes.

Table 1 - Summary outcomes of future projections of parking demand

Key Centre	Peak Occupancy >85%	Minimum change in travel mode required every 5 years to maintain peak occupancy at or below 85% to 2038
Hurstville	2028	3%
Kogarah	2018	>5%
Riverwood	After 2038	0%
Beverly Hills	After 2038	0%
Mortdale	2018	>5.5%

The analysis also indicated the minimum change in travel mode required to defer this outcome until 2038 or later was between 0% -> 5.5% every 5 years.

These results indicate there may be the opportunity to consolidate off-street parking in areas such as Riverwood and Beverly Hills freeing up land for sale, redevelopment or repurposing for public use.

1.3 Strategies and Recommendations

The following tables present the key strategies and recommendations based on the findings of this study. Table 2 provides a summary of the key issues, strategies and recommended actions applicable to the overall Georges River LGA. The main findings and recommendations pertaining to a specific centre or business zone have been outlined in Table 3. The findings and recommendations presented within this section are a summary and further details are provided within the report and Attachments.

Table 2 - Summary of issues, strategies and recommended actions

Issue No.	Issue	Proposed strategies	Recommendations
1	Peak occupancy at or above practical capacity (85%)	The closer to the town centre the shorter the restriction. Where occupancy levels exceed 85% on a consistent basis consider changing time restrictions or expanding paid parking.	Review time restrictions. Upgrade access control for paid car parks subject to cost benefit analysis. Review paid parking pricing strategy.
2	Perception regarding parking availability does not align with reality	Provide wayfinding through key centre parking signage plans; patrons may not be aware of the location of parking.	Consider technology solutions such as dynamic signage and mobile apps. Upload parking maps to the Council website.
3	Misalignment of time restrictions with parking demand	Shorter stay parkers should be accommodated on-street and longer stay parkers in off-street car parks on the periphery of the centre.	Review time restrictions. Consult with local businesses to determine demand for parking not met by private parking supply. Limit loading bays to off peak times subject to consultation with businesses.
4	Insufficient accessible spaces	Prioritise competing user groups to improve kerbside road efficiency ensuring the aged and accessible are not disadvantaged.	Accessible spaces to be supplied in convenient locations to meet demand.
5	Effective enforcement of time restrictions	Consider more efficient ways to ensure compliance with time restrictions and apply methodologies and policies consistently across the LGA.	Adopt technological solutions; sensors, cameras etc. subject to a cost/benefit analysis. Install sensors on a trial basis

Issue No.	Issue	Proposed strategies	Recommendations
			<p>before rolling out to wider LGA.</p> <p>Publicise enforcement regime.</p> <p>Upgrade access control for paid car parks subject to cost benefit analysis.</p>
6	Underutilisation of off- street parking	<p>As per item 2.</p> <p>Where possible, parking should be consolidated into larger parking areas and smaller car parks either sold for redevelopment or repurposed as public spaces.</p>	<p>As per item 2.</p> <p>Refer to recommendations in Attachment 14.</p>
7	Car dependency	<p>Support measures to reduce car dependency;</p> <p>Work closely with Transport for NSW (TfNSW) to optimise bus and train services;</p> <p>Promote public transport on Council website and social media platforms;</p> <p>Ensure a safe and accessible environment for pedestrians and cyclists;</p> <p>Ensure provision for car sharing spaces in new developments and /or in parking adjacent to major transport hubs; and</p> <p>Collaborate with local schools to encourage students residing within a suitable walking/cycling distance to use non-motorised forms of transport (e.g. walking and cycling) on their journey to and from school as well as educating students on road</p>	<p>Establish framework to facilitate collaboration with TfNSW.</p> <p>Advertise use of public transport apps on Council website.</p> <p>Update PAMP and Bicycle Plan for the entire LGA.</p> <p>Introduce car sharing zones adjacent to train stations in Hurstville and Kogarah.</p> <p>Work with local schools and businesses to promote travel smart initiatives.</p> <p>Establish Kiss and Ride zones in immediate vicinity of schools.</p> <p>Facilitate negotiations between Hospital, TAFE and other employers in Kogarah and Leagues club to provide all day parking accessed using a shuttle bus service.</p>

Issue No.	Issue	Proposed strategies	Recommendations
		safety.	
8	There may be insufficient parking supply in the future	Refer item 7 and 9.	Refer item 7 and 9.
9	Other demand generators compete with town centres	<p>Adopt sustainable and consistent parking rates across the LGA for future non-residential developments to encourage reduced car dependency and congestion, facilitating a shift towards sustainable transport modes.</p> <p>Off-street parking should be located on the periphery of the town centre to minimise traffic flow within the centre. Where possible parking should be consolidated into larger parking areas and smaller car parks either sold for redevelopment or repurposed as public spaces.</p>	<p>Consider alternative locations for additional parking supply, when and if required.</p> <p>Update parking rates per Table 4 and Table 5.</p>

Table 3 - Summary of Key Findings & Recommendations for Specific Centres & Business Zones

Centre	Key Findings	Recommendations
Hurstville	<ul style="list-style-type: none"> 85% of surveyed spaces were on-street; 59% of those are unrestricted at all times. Peak occupancy of all supply was 78% (weekday), 68% (weekend). There is lower demand for all day parking (7+ hours) on the weekend compared to the weekday, confirming use of these spaces by commuters or local workers. Assuming no change in parking 	<ul style="list-style-type: none"> Introduce time-restricted loading zones, subject to consultation with local businesses and/or restrict access outside peak times to reduce congestion. Replace the current Pay & Display machines at the Woniara car park with ticketed access control system (subject to a cost benefit analysis) and review pricing strategy. Prepare integrated signage plans, considering technology solutions such as dynamic signage and mobile apps to 'find a park'.

Centre	Key Findings	Recommendations
	<p>behaviour, the peak demand is projected to increase from 2,298 spaces to 2,771 spaces by 2038, an increase of 473 spaces. Without the implementation of parking demand strategies and/or changing travel behaviour there will be a shortage of available parking during peak times from 2028.</p> <ul style="list-style-type: none"> • Upon adopting a travel mode shift factor of 5% every 5 years from 2018-2038, the projected parking demand indicates peak demand will remain relatively constant over the next 20 years to 2038 as the change in travel mode equates the rate of population growth adopted (5% every 5 years vs. 4.79%). • Some off-street car parks were found to be under-utilised on the weekend (e.g. Gloucester Road & Woniora car parks) likely due to a lack of wayfinding. 	<ul style="list-style-type: none"> • Introduce additional car sharing zones adjacent to Hurstville Station to provide alternative option for public transport users. Liaise with TfNSW to consider travel incentives. • Convert Palm Court Car Park to a public space to ease traffic flow on Forest Road and incorporate provision in redevelopment of Treacy Street car park. • Redevelop Treacy Street Car Park incorporating lost spaces in Palm Court; recommend signalisation at Treacy St/Forest Rd; propose two – way traffic flow in Treacy St between Ormonde Pde and Alfred St; and install in-ground sensors to help manage time compliance. • MacMahon Street Car Park - Install in-ground sensors to help manage time compliance.
<p>Kogarah</p>	<ul style="list-style-type: none"> • 84% of surveyed spaces were on-street; 16% unrestricted at all times. • The peak occupancy of all supply occurred from 11am-12pm on the weekday and the weekend (84% and 72% respectively). • Unrestricted spaces were close to 100% occupied on the weekday; lower on the weekend. • The off-street car park was more than 85% occupied at peak on both the weekday and weekend. • Assuming no change in travel mode, the peak demand is projected to increase from 1,235 spaces to 1,489 spaces by 2038, an increase of 254 spaces. The peak weekday occupancy 	<ul style="list-style-type: none"> • Convert 2P and unrestricted spaces in Kensington Street to 1P, convert unrestricted spaces in Gladstone Street and Montgomery Street to 2P, consider installation of in ground sensors in 1/2P and 1P spaces to facilitate enforcement (refer Section 11.4). • Provide additional 2 time-restricted (1/2P) accessible spaces along Railway Parade for equitable use, subject to business consultation. • Replace the current Pay & Display machines at the Town Square car park with ticketed access control system (subject to a cost benefit analysis) and review pricing strategy. • Prepare integrated signage plans, considering technology solutions such as dynamic signage and mobile apps to 'find a park'.

Centre	Key Findings	Recommendations
	<p>for all spaces is projected to increase from 87% to 104%, and for the category of parking with the greatest number of spaces, on-street restricted, peak occupancy is projected to increase from 84% to 101% by 2038. Without the implementation of parking demand strategies and/or changing travel behaviour there will be insufficient parking supply in the future to meet demand at peak times.</p> <ul style="list-style-type: none"> • Upon adopting a travel mode shift factor of 5% every 5 years from 2018-2038, peak demand by 2038 will equate practical capacity of 85%, remaining relatively constant over the 20 period. If this change in travel mode is not achieved it will be difficult for drivers to locate available parking at peak times and it will be necessary to supply more parking. • The Town Square car park is difficult to locate for drivers who are unfamiliar with the area. 	<ul style="list-style-type: none"> • Subject to a cost/benefit analysis, we recommend as a first step, in-ground sensors be installed in a trial area such as the streets with 1/2P and 1P time restrictions in Kogarah to assess the effectiveness of the time restrictions and assist with enforcement. • Introduce additional car sharing zones adjacent to Kogarah Station to provide an alternative option for public transport users. Liaise with TfNSW to consider travel incentives. • Establish Kiss & Ride zones, particularly in the immediate vicinity of schools, to provide designated areas for parents to drop off their children and assist in mitigating risky parking behaviours. • Investigate the use of alternate locations for long-term parking with the introduction of an employee shuttle bus to provide a convenient transport connection to assist in freeing up on-street parking spaces in the Kogarah town centre (e.g. St George Leagues Club).
<p>Riverwood</p>	<ul style="list-style-type: none"> • 80% of surveyed spaces were on-street; 71% of those are unrestricted at all times. • 85% of the off-street spaces surveyed were 3P parking. • Peak occupancy of all supply was 68% (weekday) and 59% (weekend). • The off-street car parks to the north of the railway line were well utilised whilst the car parks south of the railway line, Webb Street South in particular had lower levels of occupancy. • There is lower demand for all day parking (7+ hours) on the weekend compared to the weekday, confirming use of these spaces by commuters or 	<ul style="list-style-type: none"> • Convert Loading Zones to additional on-street accessible spaces (2) and public parking due to low utilisation (subject to business consultation). • Convert 3P spaces in Belmore Lane car park to 2P to increase turnover and install in ground sensors to help manage time compliance. • Install in ground sensors in Belmore Road car park to help manage time compliance. • Webb Street North car park is a potential redevelopment site for Riverwood Plaza car park; displaced parkers can be relocated to Webb Street South car park and/or incorporated into the plaza car park if enlarged.

Centre	Key Findings	Recommendations
	<p>local workers.</p> <ul style="list-style-type: none"> Projected parking demand indicates peak demand by 2038 will remain below 85% assuming no change in supply or travel mode. 	<ul style="list-style-type: none"> Retain Webb Street South car park. Littleton St South car park is a potential redevelopment site if the Webb Street North car park is retained or increased parking provided as part of a Riverwood Plaza redevelopment.
Beverly Hills	<ul style="list-style-type: none"> 86% of surveyed spaces were on-street; 74% of those are unrestricted at all times. 92% of the off-street spaces surveyed were 3P parking. Peak occupancy of all supply was 65% (weekday) and 47% (weekend). There is lower demand for all day parking (7+ hours) on the weekend compared to the weekday, confirming use of these spaces by commuters or local workers. Projected parking demand indicates peak demand by 2038 will remain below 85% assuming no change in supply or travel mode. The loss of parking spaces on King Georges Road due to the recently changed clearway periods will have minimal impact on parking in Beverly Hills. 	<ul style="list-style-type: none"> Provide additional 2 accessible spaces west of King Georges Road – preferably in Edgbaston Road given the greater road width and proximity to businesses and 2 within the Edgbaston car park, subject to consultation with local business. Retain Tooronga Terrace car park unchanged. If the Edgbaston Road car park is redeveloped to provide a 400-600 space commuter car park, Council will need to consider extending parking restrictions on street next to the shops and station to encourage use of the car park as current weekday all day demand (7+ hours) is only 400 vehicles. Propose redeveloping Beresford Avenue car park; displaced parkers to use Edgbaston Road car park.
Mortdale	<ul style="list-style-type: none"> 81% of surveyed spaces were on-street; 49% of those are unrestricted at all times. 93% of the off-street spaces surveyed were 3P parking. Peak occupancy of all supply was 86% (weekday) and 88% (weekend). There is lower demand for all day parking (7+ hours) on the weekend compared to the weekday, confirming 	<ul style="list-style-type: none"> A proportion of parkers parking in unrestricted spaces are short stay parkers (<2 hours). Recommend extending on-street time restrictions as they are most likely parking in less convenient locations as all day parkers fill unrestricted spaces first. Engage with local businesses to determine the adequacy of Loading Zones. If expansion plans for the Cook Lane car park proceed, recommend incorporating provision for spaces currently provided in the Cook

Centre	Key Findings	Recommendations
	<p>use of these spaces by commuters or local workers.</p> <ul style="list-style-type: none"> Assuming no change in travel mode, the peak demand is projected to increase from 489 spaces to 590 spaces by 2038, an increase of 101 spaces. The peak weekday occupancy for all spaces is projected to increase from 87% to 105%, and for the categories of parking with the greatest number of spaces, on-street restricted and on-street unrestricted, peak occupancies are projected to increase from 80% to 97% and from 97% to 117% respectively by 2038. Without the implementation of parking demand strategies and/or changing travel behaviour there will be insufficient parking supply in the future to meet demand at peak times. Upon adopting a travel mode shift factor of 5% every 5 years from 2018-2038, peak demand by 2038 will be slightly higher than practical capacity of 85%, remaining relatively constant over the 20 period. A change in travel mode of at least 5.5% every 5 years must be achieved for peak demand in 20 years to be at or below practical capacity (85%). 	<p>Street car park.</p> <ul style="list-style-type: none"> Redevelop the Cook Street car park to subsidise the car park expansion in Cook Lane.
Oatley	<ul style="list-style-type: none"> 91% of surveyed spaces were on-street; 59% of those are unrestricted at all times. 64% of the off-street parking spaces surveyed were unrestricted and 33% were 3P spaces. Peak occupancy of all supply was 86% (weekday) and 71% (weekend). The off-street car park was at or near full capacity for the survey period. 	<ul style="list-style-type: none"> Relocate some on-street accessible spaces to Oatley Parade to better service the train station. Introduce time restricted Loading Zones to increase turnover; other times clearways to improve traffic flow, subject to consultation with local businesses. Convert unrestricted spaces in Letitia car park to 3P.

Centre	Key Findings	Recommendations
	<ul style="list-style-type: none"> There is a lower demand for all day parking (7+ hours) on the weekend compared to the weekday, confirming use of these spaces by commuters or local workers. 	
Carlton	<ul style="list-style-type: none"> All surveyed spaces were on-street; 67% of those are unrestricted at all times. Peak occupancy of all supply was 85% (weekday) and 63% (weekend). There is lower demand for all day parking (7+ hours) on the weekend compared to the weekday, confirming use of these spaces by commuters or local workers. 	<ul style="list-style-type: none"> Relocate accessible space closer to the train station, possibly on Railway Parade between Winchester Street and Jubilee Avenue and add an additional space. Replace the Loading Zone adjacent to the station entrance with an accessible space (subject to business consultation). Extend time restricted area as unrestricted spaces were only 50% occupied by all day parkers (>7 hours).
B16 Shops on Carwar Ave, Carss Park	<ul style="list-style-type: none"> 56% of surveyed spaces were on-street; 68% (21 spaces) of those were unrestricted. Peak occupancy of all supply was 91% (weekday), 65% (weekend). There is lower demand for all day parking (7+ hours) on the weekend compared to the weekday, confirming use of these spaces by commuters or local workers. 	<ul style="list-style-type: none"> Extend time restricted on-street parking during the week – 3 times the number of all-day parkers on a weekday vs. weekend. Retain the car park Convert Carwar Ave unrestricted spaces to 1P to match other on-street parking restrictions
B21 Cheesecake Shop, Carlton	<ul style="list-style-type: none"> 92% (69 spaces) of the on-street spaces were unrestricted. Peak occupancy of on-street supply was 89% (weekday), 65% (weekend). There is lower demand for all day parking (7+ hours) on the weekend compared to the weekday, confirming use of these spaces by commuters or local workers. 	<ul style="list-style-type: none"> Extend time restricted on-street parking during the week – 6 times the number of all-day parkers on a weekday vs. weekend.

Centre	Key Findings	Recommendations
B1 Forest Rd shops, Lugarno	<ul style="list-style-type: none"> 94% (46 spaces) of all spaces were 1P. Peak occupancy of all supply was 84% (weekday), 92% (weekend). 	<ul style="list-style-type: none"> Consider extending time restrictions into Grandview Crescent and/or Chivers Ave.
B8 Shops on Ogilvy St, Peakhurst	<ul style="list-style-type: none"> 70% (35 spaces) of the on-street spaces were time restricted (30% for 1/2P, 24% for 1P and 16% for 2P). Peak occupancy occurred at 5pm on the weekday (79%); 4pm on the weekend (92%) which was later than observed in other survey areas; potentially due to the local swimming pool. 	<ul style="list-style-type: none"> Extend time restrictions on a Saturday to 6pm
B17 Coffee Shop, Kyle Bay	<ul style="list-style-type: none"> 93% (69 spaces) of the on-street spaces were unrestricted. Peak occupancy of on-street supply was 47% (weekday), 96% (weekend). 	<ul style="list-style-type: none"> Peak at 9am Saturday – less than 80% other times of the day. No action required.

Our recommendations for the amendments to the existing DCP car parking rates are detailed in Table 4 and Table 5.

Table 4 – Summary of Existing and Recommended DCP Car Parking Rates in Key Centres (Hurstville & Kogarah)

Type of Development	Existing Minimum Parking Rate - Hurstville	Existing Minimum Parking Rate - Kogarah	Recommended DCP Parking Rate (Minimum)	Recommended DCP Parking Rate (Maximum)
Business and Office Premises	1 per 66.7m ² GFA	1 per 40m ² GFA	1 per 60m ² GFA	1 per 40m ² GFA
Retail Premises (shops)	1 per 40m ² GFA	1 per 40m ² GFA	1 per 60m ² GFA	1 per 40m ² GFA
Restaurants/ Cafes	1 per 13.3m ² GFA	1 per 40m ² GFA	1 per 60m ² GFA	1 per 40m ² GFA
Medical Centre	3 per consulting room	1 per 40m ² GFA	1 per 50m ² GFA	1 per 30m ² GFA

Table 5 - Summary of Existing & Recommended DCP Car Parking Rates for Other Centres (Georges River LGA excluding Hurstville & Kogarah Town Centres)

Type of Development	Existing Minimum Parking Rate – Hurstville (outside City Centre)	Existing Minimum Parking Rate – Kogarah (outside City Centre)	Recommended DCP Parking Rate (Minimum) ≤ 800m Walking Distance from Railway Station	Recommended DCP Parking Rate (Minimum) > 800m Walking Distance from Railway Station
Business and Office Premises	1 per 60 m ² GFA	1 per 40m ² GFA	1 per 60m ² GFA	1 per 40m ² GFA
Retail Premises (shops)	1 per 50m ² GFA	1 per 33.3m ² GFA	1 per 60m ² GFA	1 per 40m ² GFA
Restaurants/ Cafes	1 per 50m ² GFA	1 per 5m ² GFA ²	1 per 60m ² GFA	1 per 30m ² GFA
Medical Centre	1 space per practitioner + 1 space per consulting room	1 per 40m ² GFA	1 per 40m ² GFA	1 per 30m ² GFA

1.4 Next Steps

As the next stage in the development of the parking strategy we recommend Council develop:

- a communication strategy to engage with the community, and
- an implementation plan prioritising recommended actions.

Furthermore, we recommend a staged approach for implementing change.

1.5 Stakeholder Feedback

As part of our study, we engaged key stakeholders in two workshops; firstly, to present the findings of our document review and parking surveys and secondly to present our proposed strategies and recommendations.

Feedback from the workshops is attached as Attachment 12.

² Current parking rate for Entertainment Facilities as per Kogarah DCP 2013

2. Introduction

2.1 Background

ptc. has been engaged by Georges River Council (Council) to develop a Parking Strategy for Business Zoned Land within the local government area (LGA). The Georges River LGA comprises major residential, employment, commercial and retail centres in Sydney's south. The Greater Sydney Region Plan and South District Plan, the overarching strategic framework for Sydney's growth, identifies considerable growth for this area being 35,000 new homes and 29,000 new jobs from 2011-2031. The Georges River Council LGA is approximately 15-20 km from Sydney's CBD and is located less than 10km from Sydney Airport and 15km from Port Botany. The precincts within the Council are fairly well serviced by road connections with major Sydney roads (M5 motorway) in close proximity, as well as good access to regional roads and rail corridors (T4 & T2 lines).

A map of the Georges River LGA boundary and its location relative to the Sydney CBD, Airport and Port Botany is presented in Figure 2.

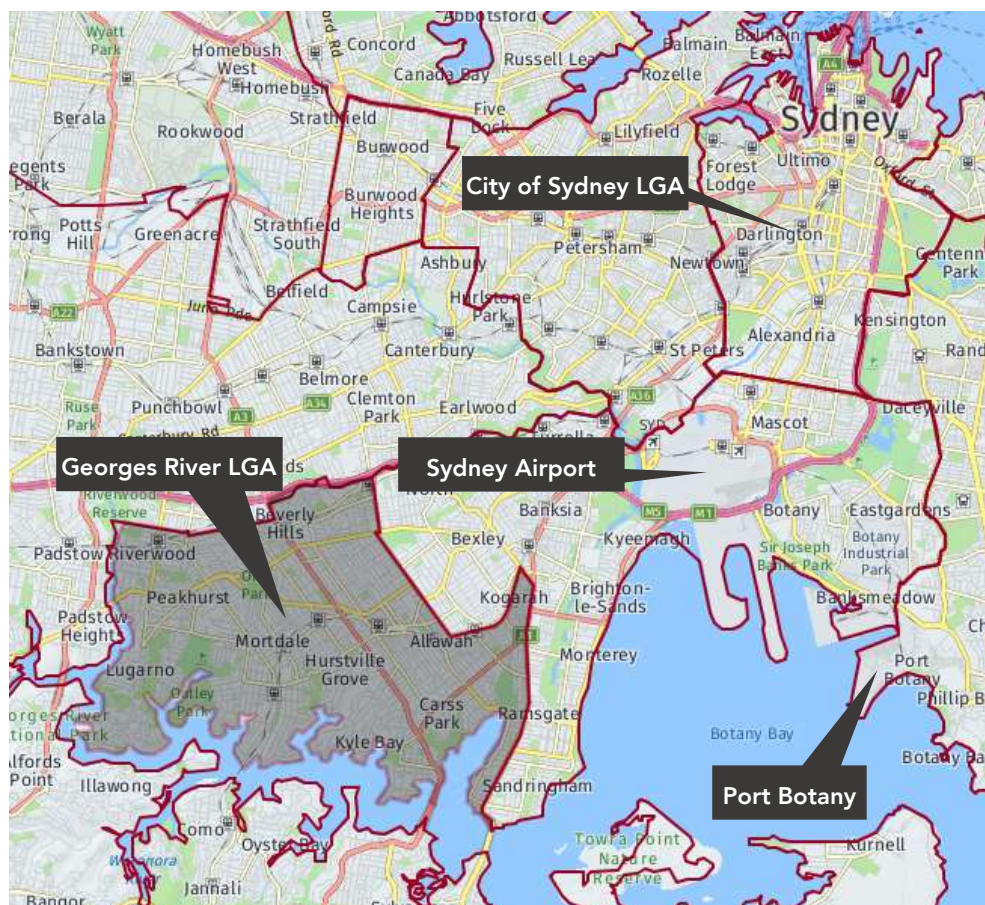


Figure 2 - Georges River LGA Boundary (Source: id. Profile – Georges River Council Area)

It is essential that projected future residential and employment growth in the Sydney South District be supported by adequate public transport infrastructure and access to minimise issues of congestion and car dependency which will require collaboration with TfNSW. There is also a need to ensure that future planning documents and environmental planning instruments assist the development of a balanced transport mode share using equitable and accepted development and parking controls. Therefore, one of

the primary objectives of this study is to review current parking demand and inform the preparation of parking controls for growth within the Georges River LGA.

The study is based on a new survey of parking volumes, conditions and availability in a range of Georges River Council's business centres. This information, including stakeholder consultation, has been used to assess the current parking supply, future parking demand, and possible locations for additional parking. A critical part of identifying the future parking requirements includes the recommendation of parking provision rates for new development within the commercial centres, which recognise the current economic interests of the stakeholders in the area as well as ensuring that the future strategic land use planning and sustainability objectives align with those of state and local government agencies.

2.2 Scope of the Report

The study reviews the specific context of the Georges River Council area, current and anticipated future employment, land use patterns and related development growth. The other key focus points of the study are:

- Provide Council with up to date information on the location, quantum and category of existing public parking (both on & off-street);
- Examine the current status of parking in terms of capacity and demand in each commercial centre, which may lead to developing future demand for parking to manage the anticipated long-term future growth of the precincts;
- Identify the best strategy for the management of on-street parking by various methods such as effective parking restrictions to maximise the turn-over of spaces, enforcement techniques, etc.;
- Ensure that the parking provision in each precinct is equitable and caters for the needs for all users (e.g. people with disability, seniors, kiss & ride, taxi zones and service vehicles etc.);
- Explore corresponding mechanisms by which constraints to available parking in commercial centres can encourage increased public transport usage, where there is an effective transport choice (e.g. the introduction of paid parking);
- Explore effective means by which improved public transport can influence parking demand either now or in the future in any commercial centre;
- Identify any potential future changes to planning controls which will impact on the provision of parking in the commercial centres (e.g. implementation of appropriate parking rates in the DCP, consideration in the Section 7.11 (formerly Section 94) plan and identification of suitable sites for any additional parking required etc.); and finally,
- Explore urban design, planning and other considerations likely to impact on the provision of parking in the commercial centres.

2.3 Study Areas

The scope of this Parking Strategy encompasses 36 town centres and business zoned land within the Georges River LGA. The location of each centre analysed as part of this study is illustrated in Figure 3 (refer to Section 5.2 for definition of the area codes). Detailed plans of the study area for each centre as agreed with Council are presented in Attachment 1.

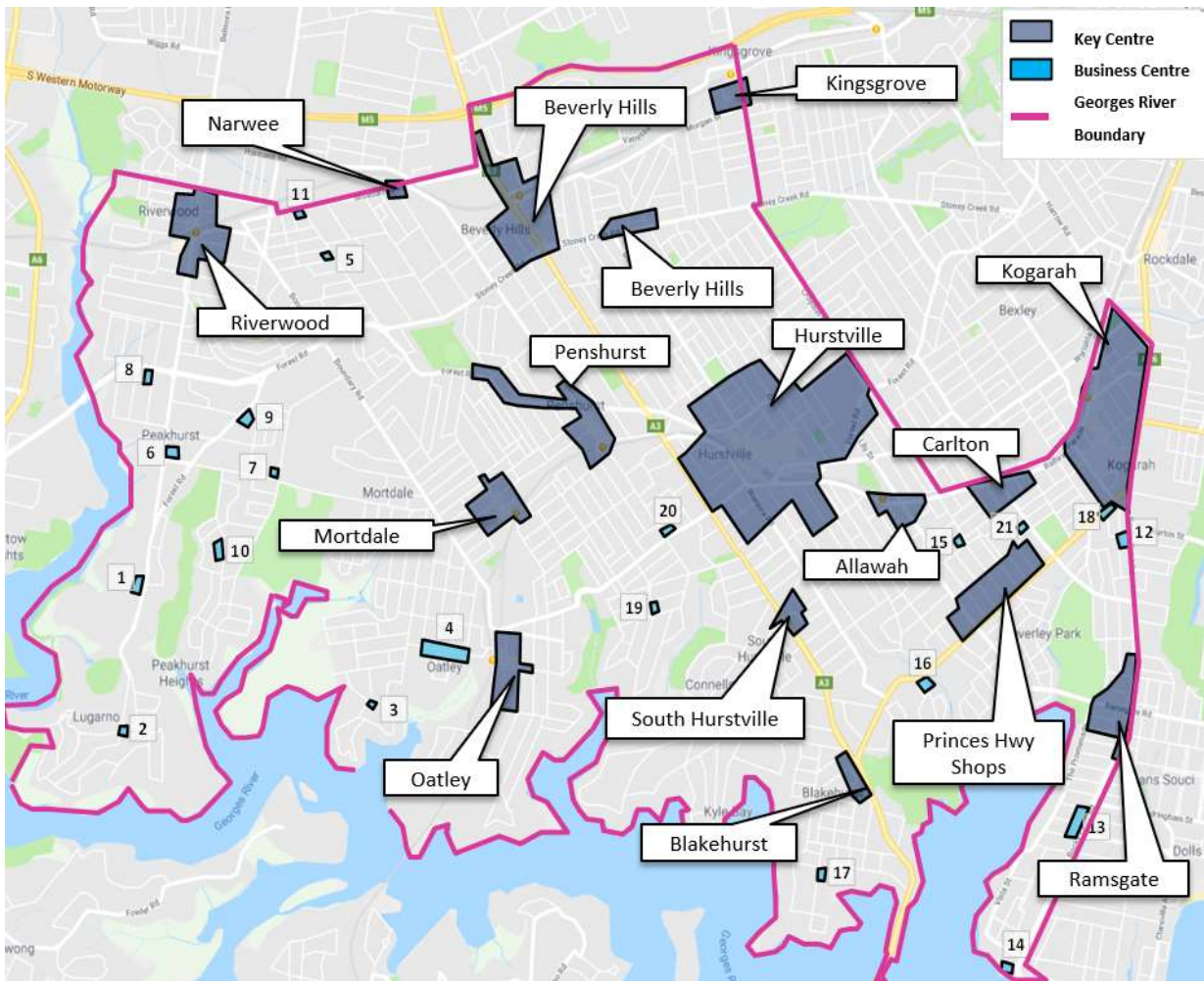


Figure 3 - Study Area

Each centre has its own characteristics and parking demand. Whilst strategies have been proposed which can be adopted across the entire LGA, one universal solution will not necessarily apply to all.

3. Document Review

In addition to the background summarised in Section 2, **ptc.** has undertaken a review of the relevant literature provided by Council to ensure a comprehensive understanding of the context of the study. We have reviewed Council's planning documents, policies and any relevant reports to understand their relevance and impact on the commercial centres and inform the development of the proposed strategies.

Outcomes of our research are detailed as Attachment 2 and summarised below.

3.1 Previous Parking Studies and Council Reports

As part of the literature review, we have reviewed the following documents which have examined the existing traffic and parking issues relevant to this study:

- Hurstville CBD Parking Strategy, Jacana 2004;
- Hurstville City Centre Traffic Report, Arup 2007;
- Oatley Shopping Centre Parking Study, Gennaoui Consulting Pty Ltd, 2008;
- Kogarah Parking Study, Gennaoui Consulting Pty Ltd 2008;
- Draft Hurstville City Centre Parking Rate Review 2009;
- Draft Hurstville Parking Rate Review, 2010;
- Hurstville Transport Management and Accessibility Plan and Study, 2013;
- Former Kogarah Council's Residential Parking Permit Policy 2015;
- Greater Sydney Commission South District Plan 2018;
- St George Bike Plan 1991;
- Kogarah PAMP 2009;
- Kogarah DCP, 2013 – Kogarah & Hurstville Town Centres (Parts E1 & E2) and DCP No. 2 – Hurstville City Centre;
- Georges River Employment Lands Study, JLL 2017;
- Kogarah LEP 2012 (Amendment No. 2) – New City Plan; and
- Relevant environmental planning and policy instruments within the NSW Department of Planning and Environment.

Further to the above, we have reviewed the relevant State and Federal transport infrastructure proposals (e.g. WestConnex Stage 2), which may have a direct impact on the commercial centres.

Travel mode information including ID data (community profile) and ABS (Australian Bureau of Statistics) Census Data have been reviewed to determine the existing mode share to each commercial centre.

A brief chronological summary of the key findings and recommendations from the previous studies is presented in Figure 4.

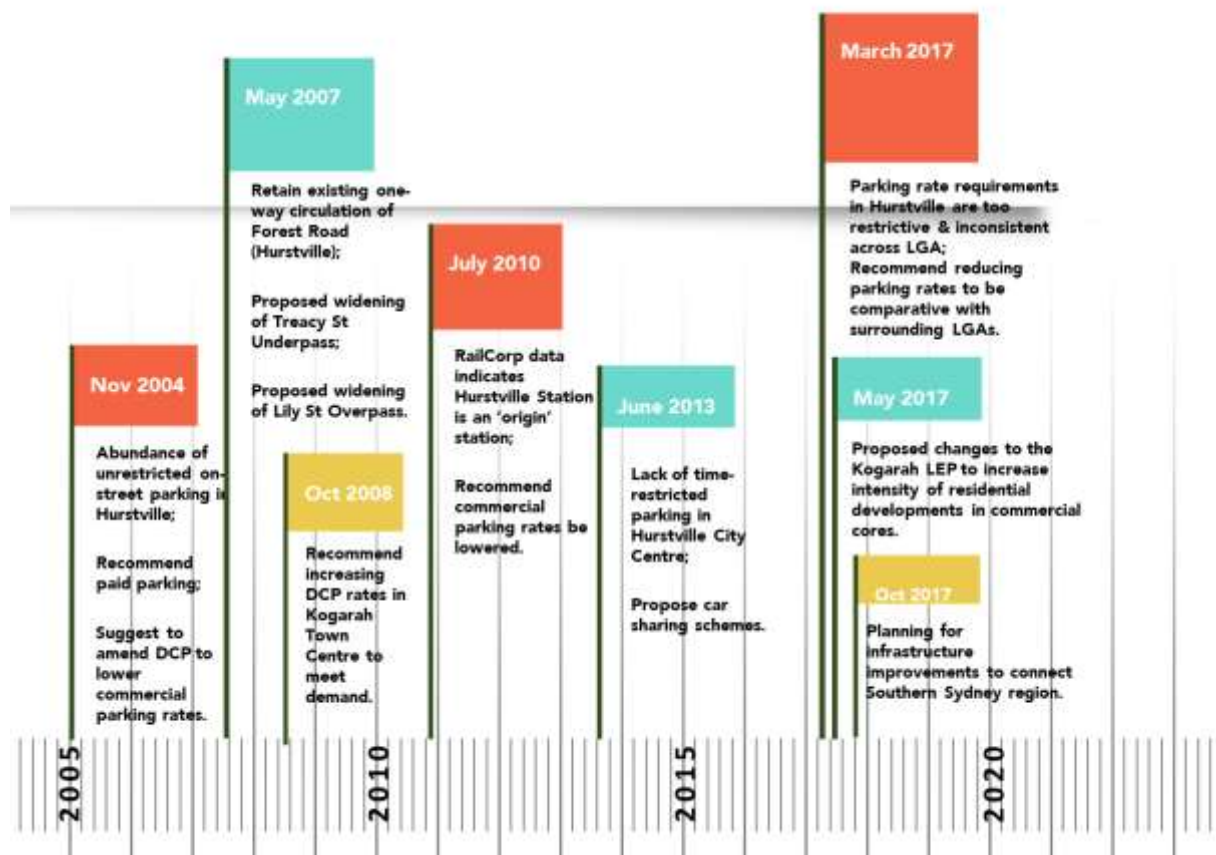


Figure 4 - Timeline Summary of Document Review

3.2 DCP Parking Provision Requirements Review

ptc. has conducted a review of the parking provision requirements associated with new commercial developments in the LGA, as stipulated within the Council DCPs which govern parking in the study area.

It is noted that while Hurstville and Kogarah Councils were amalgamated in 2016, separate DCPs are currently applicable to the former Council areas. For the purposes of our analysis, the Hurstville City Centre has been adopted as the benchmark, as this represents the largest town centre within the study area. A comparison of the parking requirements has been undertaken for the following land uses:

- Commercial;
- Retail;
- Restaurant/Entertainment Facility; and
- Medical Centre.

In all cases, the parking requirements quoted are minimum parking rates.

A summary of the corresponding parking provision rates within the major town centres of adjoining local government areas is presented in Table 6. All areas in the table represent the Gross Floor Area (GFA) as defined within the current Hurstville Local Environmental Plan (LEP) 2012.

Table 6 - DCP Parking Rate Comparison Summary

Land Use / Town Centre	Hurstville – Georges River LGA [^] (Benchmark)	Kogarah – Georges River LGA	Bankstown	Canterbury*	Sutherland Shire	Rockdale	Botany Bay
Business and Office Premises	1 per 66.7m ²	1 per 40m ²	1 per 80m ²	1 per 60m ²	1 per 30m ²	1 per 40m ²	1 per 40m ²
Retail Premises (Shops)	1 per 40m ²	1 per 40m ²	1 per 40m ²	1 per 33m ²	1 per 30m ²	1 per 40m ²	1 per 25m ²
Restaurants / Cafes ³	1 per 13.3m ²	1 per 40m ²	Parking Study Required	1 per 30m ²	1 per 6.67m ² (RMS Rate)	1 per 40m ²	1 per 10m ²
Medical Centre	3 per consulting room	1 per 40m ²	1 per 25m ²	2 per consulting room	1 per 30m ²	1 per 40m ²	2 per consulting room

* For developments with 120m² to 1000m² GFA

[^] Rates converted from GLFA to GFA for comparison, assuming GLFA = 75% x GFA (RMS Guide to Traffic Generating Developments, 2002)

- Rates are minimum parking rates

Legend:

- Benchmark rate
- Less than benchmark rate
- Greater than benchmark rate
- Non-comparable rate

The parking provision rates for the Hurstville City Centre have been converted from Gross Leasable Floor Area (GLFA) to Gross Floor Area (GFA). In accordance with the *RMS Guide to Traffic Generating Developments 2002*, approximately 75% of the GFA is deemed to be the GLFA. Based on this information, the equivalent parking rate in terms of GFA has been derived to allow for a like-for-like comparison.

It is acknowledged that some parking rates were non-comparable (e.g. medical centre rates) due to the different methods used to determine the parking provision (i.e. based on the number of consulting rooms vs. gross floor areas).

³ Including entertainment facilities

As indicated in Table 6, the parking requirements for the Hurstville City Centre are generally lower than the majority of town centres located within adjoining LGAs with the exception of Kogarah, Bankstown and Rockdale. Further details of the recommended DCP car parking provision rates are outlined in Section 13.2.

3.3 Council Section 7.11 Development Contributions Plan Review

ptc. has conducted a review of Council Section 7.11 (S7.11) (formerly Section 94) and Section 7.12 (S7.12) (formerly Section 94A) Development Contribution Plans (effective from 1 February 2017). It is noted that the 'Georges River Council S94A Development Contributions Plan 2017' is applicable to the entire amalgamated Georges River LGA with exceptions where an existing Section 94 Development Contributions Plan is in place (i.e. Hurstville Section 94 Development Contributions Plan 2012).

Furthermore, the existing Section 94 Development Contributions Plans of neighbouring LGAs were also reviewed, inclusive of the following:

- Hurstville – Hurstville S94 Development Contributions Plan 2012 (updated June Quarter 2017);
- Bankstown – Bankstown Section 94A Development Contributions Plan 2009 (amended 2017);
- Canterbury – Canterbury Town Centre Development Contributions Plan 2011;
- Sutherland Shire – Sutherland Shire Section 94A Development Contributions Plan 2016;
- Rockdale – Rockdale Section 94 Contributions Plan 2004 (amended 2010); and
- Botany Bay – City of Botany Bay S94 Development Contributions Plan 2016.

As per the DCP parking rate analysis, the Hurstville City Centre has been adopted as the benchmark for comparison, which is presented in Table 7. Further details of the relevant S7.11 contributions are presented in Attachment 2.

The review of the relevant S7.11 plans indicate that contributions associated with parking deficiencies within new developments in the Hurstville City Centre are high relative to adjoining town centres and LGAs.

Table 7 - Section 7.11 Development Contributions Summary

Type of Contribution	Hurstville S94 Plan 2012 - Hurstville City Centre (Benchmark)	Hurstville S94 Plan 2012 – Penshurst, Mortdale, Beverly Hills, Riverwood Commercial Centres	Kogarah Section 94 Plan No. 8 – Kogarah Town Centre	Bankstown	Canterbury	Sutherland Shire	Rockdale	Botany Bay
Non-residential Development Parking Deficiency	\$54,556.91 per deficient space	\$31,717.97 per deficient space	\$32,814.07 per deficient space	N/A	N/A	N/A	\$19,990 - \$24,790 (varies depending on suburb)	N/A
Levy Rate based on Cost of Development	Refer to calculation method in Appendix	Refer to calculation method in Appendix	Refer to calculation method in Appendix	Refer to calculation method in Appendix	N/A	Refer to calculation method in Appendix	N/A	Refer to calculation method in Appendix
Alternative S94 Contribution Rate (For Developments in a Local Town Centre)	\$162 per m ² GFA	N/A	N/A	N/A	\$150 per m ² GFA	N/A	N/A	N/A

Legend:

- Benchmark rate
- Less than benchmark rate
- Greater than benchmark rate
- Not Applicable

3.4 Former Kogarah City Council Residential Parking Scheme Policy, 2015

The only Residential Parking Scheme (RPS) policy currently in operation within the LGA was introduced by the former Kogarah City Council in 2015 to prioritise residents disadvantaged by others parking in the limited available parking spaces within proximity of their property (i.e. locations close to shops, public transport and recreational areas).

It is understood that Council does not plan on extending the scheme at this point in time.

3.5 Former Rockdale City Council Business Parking Scheme Policy

The only Business Parking Scheme (BPS) policy currently in operation within the LGA was introduced by the former Rockdale City Council to prioritise business owners disadvantaged by others parking in the limited available parking spaces within proximity of their business premises. These businesses are between Railway Parade and the railway line and not capable of providing off-street parking. Other businesses in the area have access to rear lanes and therefore are not eligible under the scheme.

It is understood that the BPS applies only to a very limited area along Railway Parade adjacent to Kogarah Train Station (see Figure 5) and Council does not plan to extend the area any further.



Figure 5 - Business Parking Scheme Map (Source: Georges River Council)

3.6 State Significant Projects

A desktop review of proposed State Significant Infrastructure projects within the Georges River LGA has been undertaken using the NSW Department of Planning and Environment online portal. The key State Significant Infrastructure (SSI) project identified to be relevant to this study is the WestConnex (Stage 2) which involves upgrading the interchange between King Georges Road and the M5 East Motorway and construction of the New M5 linking Beverly Hills to St Peters.

A potential implication of the WestConnex (Stage 2) is the possible diversion of westbound traffic at the intersection of King Georges Road and the M5 East Motorway as tolls commence at this location. While the WestConnex project will likely change the traffic characteristics within the LGA, it is primarily a state level road project (to facilitate regional traffic), which is unlikely to impact on the localised parking demand or usage throughout the majority of the LGA.

3.7 Sydney Clearways Strategy

In December 2013, the NSW Minister for Roads and Ports introduced the Sydney Clearways Strategy (SCS) which aims to improve the performance of the State road network by implementing new clearways to restrict kerbside parking on major arterial roads during the morning and evening peak commuter periods. Due to increasing congestion levels experienced during the weekends, RMS has extended the clearway operation to also include the weekends.

Following the introduction of the new and extended clearways, it is anticipated that the loss of on-street parking may result in a displacement of the kerbside parking to the surrounding streets adjacent to King Georges Road. These spaces are likely occupied by business owners and visitors to the retail shops along King Georges Road and the displaced parking will likely impact the available parking supply within the neighbouring residential streets. The estimated impact of the displaced parking within our survey areas amounted to a minimal loss of parking. Further details of the Sydney Clearways Strategy are presented in Attachment 2.

3.8 Greater Sydney Region Plan & South District Plan

ptc. has undertaken a review of the Greater Sydney Region Plan and South District Plan. The main drivers of traffic generation in the town centres within the southern district are the current occupations of the population which will in turn experience significant growth by 2036.

Furthermore, the ageing population across the Sydney South District will also result in a change in the prioritisation of the various user groups, where the demand for seniors and disability parking will likely increase over time.

By 2036, Hurstville and Kogarah town centres are expected to accommodate significantly more jobs which will subsequently increase the demand for parking within the centres unless public transport infrastructure is provided or expanded.

3.9 Georges River Employment Lands Study

In September 2014, JLL prepared an Employment Lands Study within the former Hurstville LGA (inclusive of all B1 Neighbourhood Centres, B2 Local Centres & IN2 Light Industrial zones). In March 2017, Council engaged JLL to expand the study to include the former Kogarah LGA.

The study confirms the Georges River demographic profile shows an ageing population. As such, one of the primary strategies for future planning in the LGA is to attract a younger, educated and skilled workforce. The study identified that the younger workforce tends to have a lower car ownership rate and relies more heavily on public transport than any earlier generation; this serves as opportunity to reduce the growing congestion in the LGA.

The key findings of the study are summarised below:

- Feasibility testing of several scenarios reveals that the continuing application of current parking rates will result in significant developments within the Hurstville centres being unfeasible, due to the high cost of providing on-site parking.
- Common barriers across the commercial centres include:
 - High car parking rate requirement discourages development;
 - Minimum non-residential floor space allocation of 0.5:1 is considered to be excessive, inhibiting redevelopment; and

- Inconsistent parking rates across the LGA.

3.10 Kogarah LEP (Amendment No. 2) - New City Plan

The New City Plan (Amendment No. 2) to the Kogarah Local Environmental Plan was gazetted on 26 May 2017 and provides an update to the framework that will deliver housing in Kogarah to accommodate the increasing population and demographic changes into the future.

The New City Plan includes the amendments by the NSW Department of Planning & Environment to the land zoning, building height and floor space ratio (FSR) requirements under the Kogarah LEP. The amendments will allow for increased density of residential uses across the Kogarah precinct. Specifically, the amended Kogarah LEP permits developments within the precinct up to a maximum building height of 39m and FSR of 4.5:1 (applicable to B4 Mixed Use zones). A detailed summary of the building height and FSR amendments to the LEP is included in Attachment 2.

Other changes including the introduction of new land use zones are outlined below:

- **R4 High Density Residential Zone** – the New City Plan proposes to increase the residential density of land within the Kogarah and Hurstville Town Centres where public transport is readily accessible. This aligns with the strategy outlined within the Georges River Employment Lands Study whereby the introduction of high-density residential developments in these areas will assist in promoting employment growth and attract a younger workforce.
- **B6 Enterprise Corridor Zone** – this zone is applicable to the section of the Princes Highway between Jubilee Avenue & Westbourne Street, Carlton to encourage multi-unit residential developments and improve employment offerings.

Following these changes to the planning controls, the increased population in Kogarah will likely act as a key driver for increased parking demand in commercial areas. Managing this demand will be considered when developing the parking strategy, in particular the adoption of suitable parking provision rates for new non-residential developments to meet this demand whilst controlling congestion.

4. Existing Transport & Accessibility

4.1 Public Transport Network

The existing train and bus network originating from the Hurstville and Kogarah town centres are illustrated in Figure 6. As shown in the figure, the northern and southern suburbs are considered relatively well connected via the bus network. It is recognised, however, that the connectivity between Hurstville and Kogarah and the eastern and western suburbs is limited. Patrons wishing to travel to these areas would be required to utilise the Sydney Trains network which may require transfers due to indirect train lines.

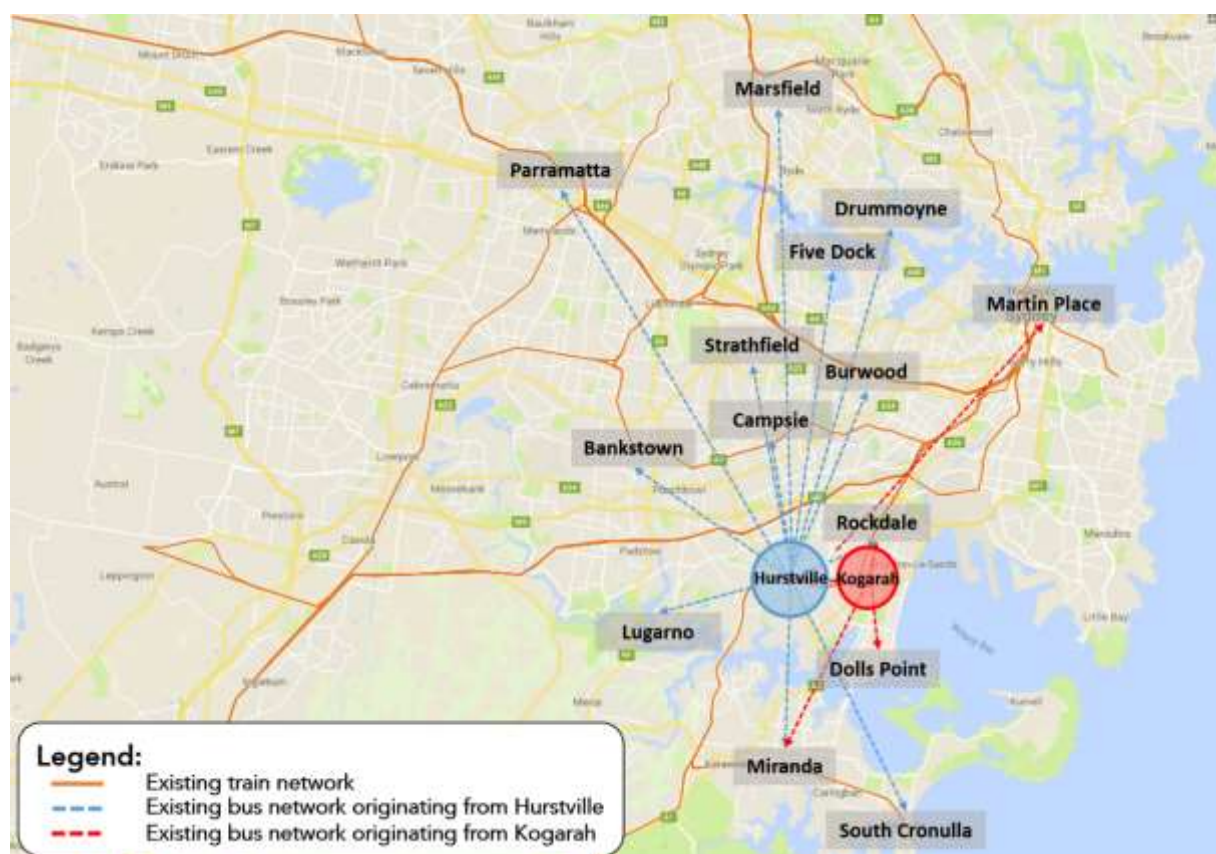


Figure 6 – Public Transport Transit Network of Hurstville and Kogarah as Origin Stations

4.2 ABS Method of Travel to Work Data

A review of the ABS Census 2016 data found that a majority of the residents in Hurstville and Kogarah either use the train or car to travel to work. When compared with the entire Georges River LGA as a benchmark, the utilisation of trains within these centres is higher than the overall LGA. It has also been identified that car usage in Hurstville and Kogarah is also comparatively lower than the LGA as a whole. It is noted that bus utilisation is significantly lower than that of trains, which may be attributed to indirect bus routes which increase overall journey times.

A comparison of the method of travel to work for 2011 and 2016 in the Hurstville and Kogarah town centres (as residents and employees) are shown in Table 8 and Table 9. The detailed statistical summary is presented in Attachment 2.

Table 8 - ABS Method of Travel to Work Summary (Residents)

Method of Travel to Work	Residents of Hurstville	Residents of Kogarah
Train	45.9% (*25.8%) in 2011	39.1% (*25.8%) in 2011
	50.1% (*29.7%) in 2016 ↑	41.5% (*29.7%) in 2016 ↑
Car as driver	32.3% (*50.7%) in 2011	33.4% (*50.7%) in 2011
	27.7% (*47.9%) in 2016 ↓	31.0% (*47.9%) in 2016 ↓

*compared to the Georges River LGA as a whole

Table 9 - ABS Method of Travel to Work Summary (Employees within Georges River LGA)

Method of Travel to Work	Workers residing in Sutherland Shire LGA	Workers residing in Canterbury-Bankstown LGA	Workers residing in Rockdale LGA
Train	14.1% in 2011, 16.2% in 2016 ↑	17.4% in 2011, 19.6% in 2016 ↑	38.6% in 2011, 43.0% in 2016 ↑
Car as driver	60.8% in 2011, 60.5% in 2016 ↓	57.8% in 2011, 57.3% in 2016 ↓	37.7% in 2011, 34.9% in 2016 ↓

Historically, the general trend identified from the ABS data is that car usage is generally decreasing, whilst the usage of public transport is increasing. Consideration of this trend has been taken into account in the future projections of the parking demand across the LGA (refer Section 7).

4.3 Opal Data

Opal data from one weekday (Wednesday 7 February 2018) and one weekend day (Saturday 10 February 2018) have been reviewed for public transport travel patterns of commuters travelling on the train and bus network within a 200 metre radius from the train station. It is acknowledged that typically a walking catchment of 400 metres is adopted for access to public transport. However, it should be noted that transfers in travel mode decreases the level of convenience and may act as a deterrent for commuters to utilise public transport. In order to account for the change in travel mode, a decreased walking catchment of 200m has been adopted for the purposes of this analysis.

The weekday Opal data exhibited two peak periods; morning between 6am-9am (AM peak) and afternoon between 4pm-6pm (PM peak) whereas the weekend Opal data exhibited a consistent flow throughout the day between approximately 8am-6pm.

Analysis of the weekday Opal data was undertaken with a focus on the morning and afternoon peaks, which reflect a common trend that Hurstville and Kogarah train stations are 'origin' stations in the morning peak with a greater proportion of 'tap ons' than 'tap offs'. On the contrary, the trend for Hurstville and Kogarah buses displayed that the majority of commuters 'tap off' from buses and are possibly switching travel modes in the morning peak at the train station or simply reaching their destinations in the town centre.

A graphical representation of the train and bus utilisation within the Hurstville and Kogarah town centres has been presented in Attachment 2.

4.4 Council Bike Plan

Urban Arc prepared the *Examination of the Existing St George Bike Plan* in February 2006; the St George Bike Plan was prepared in 1991 and outlines strategies to improve cycling safety in the former Kogarah LGA.

The review of the Bike Plan outlines existing barriers to the uptake of cycling, particularly in relation to cyclist safety and physical constraints of the locality. Safety concerns were identified where there are high volumes of heavy vehicle traffic along major arterial roads, such as King Georges Road.

Physical barriers result from the topographic characteristics of the locality, whereby steep grades in areas surrounding Kogarah Bay, Connells Point and Carss Park make cycling more challenging. It is recognised that the need to cross the Kogarah train line and the lack of bicycle parking at the station also act as barriers for increasing the uptake of cycling as an alternative mode of transport.

4.5 Council Pedestrian Access and Mobility Plan (PAMP)

Council has provided **ptc.** with a copy of the Pedestrian Access and Mobility Plan (PAMP) for the former Kogarah LGA prepared by Arup in October 2009. As part of the study, questionnaires were prepared to identify the key transport modes and travel patterns of residents and employees. The results of the surveys revealed that private car was the primary mode of transport, comprising 33% of the mode share, followed by walking which accounts for 23%.

The route audits conducted as part of the PAMP identified that the existing pedestrian facilities provided within the study area are either in poor condition due to the age of the infrastructure or do not provide pram ramps and tactile warning devices due to out-dated footpath designs. Poor lighting and lack of pedestrian signage including directional and informational signs were also identified.

The PAMP outlines recommended actions to be implemented in relation to pedestrian access throughout the former Kogarah LGA. The proposed actions include installation of new kerb ramps, signalised pedestrian crossings, constructing new footpaths and replacing footpaths with uneven surfacing to improve pedestrian links. Amongst the recommended actions also include upgrades to bus stops, such as providing bus shelters and seating.

5. Data Collection

5.1 Methodology

In order to gain an understanding of the existing parking supply and demand for each study area, we have collected inventory data and conducted parking surveys within the key town centres and business zones identified in Section 2.3.

5.2 Parking Inventory

The existing parking inventory was documented for each study area as agreed with Council in terms of location and number of spaces as well as the applicable restriction as follows:

- On-street by parking restriction;
- Off- street by parking restriction;
- Disability parking;
- Mail Zones;
- Loading Zones;
- Work Zones;
- Taxi Zones; and
- Bus Zones.

To facilitate data collection, the study area was subdivided into 36 separate areas, each assigned with a unique area code. 32 are detailed in Table 10. We agreed with Council 4 areas would not be surveyed (refer Section 5.3).

Table 10 - Area Code Legend (for surveyed areas only)

Area Code	Area Name	Area Code	Area Name	Area Code	Area Name
01A	Kogarah	09A	B16-Shops on Carwar Ave, Carss Park	16C	B9-Shops on Forest Rd, Peakhurst
01B	Carlton	09B	B17-Coffee Shop, Kyle Bay	16D	B10-Shops on Pindari Rd, Peakhurst Heights
02A	B12-Kogarah Shops	10B	B20-Shops Hurstville Grove	17A	Penshurst
02B	B21-Cheesecake Shop Carlton	11A	Oatley	18A	Riverwood
03A	Allawah	12A	B2-Bar&Café Lugarno	19A	B5-Hair Salon Corner Shops, Peakhurst
04A	Princes Hwy Shops	13A	B3-Baker St Office, Oatley	19B	B11-Corner Shops Narwee
05A	Ramsgate	13B	B4-Shops Oatley	20A	Beverly Hills
06A	B13-Shops Rocky	14A	Mortdale	20B	Narwee

Area Code	Area Name	Area Code	Area Name	Area Code	Area Name
	Point Rd				
06B	B14 - Café near Swimming Pool	15A	B1- Forest Rd shops, Lugarno	21A	Kingsgrove
07A	Blakehurst	16A	B7- Café Peakhurst	22A	Hurstville
08A	South Hurstville	16B	B8-Shops on Ogilvy St, Peakhurst	Refer to Section 5.3 Table 15 – areas not surveyed	B6, B15, B18 & B19

The inventory of 10,405 on-street parking spaces was documented, representing 85% of the total capacity (on-street and off-street) as summarised below (in order of number of spaces and type of restriction (weekday)):

Table 11 - Parking inventory – on-street

Key Centre/ Business Zone	Total Spaces	Unrestricted	1P	2P	Other
Hurstville	2,820	59%	9%	3%	30%
Kogarah	1,302	16%	12%	50%	22%
Riverwood	1,067	71%	14%	11%	4%
Beverly Hills	929	74%	9%	3%	14%
Penshurst	477	43%	24%	4%	29%
Mortdale	468	49%	33%	9%	10%
Kogarah Bay (Along Princes Hwy)	460	73%	2%	0%	26%
Oatley	440	59%	16%	17%	8%
Carlton	325	67%	10%	14%	9%
Ramsgate	233	70%	6%	0%	24%
Allawah	202	64%	32%	0%	4%
Kingsgrove	198	38%	20%	17%	25%
South Hurstville	147	64%	22%	0%	14%
Blakehurst	63	81%	0%	0%	19%
Narwee	43	0%	84%	0%	16%
B4 Shops Oatley	218	68%	9%	12%	11%
B20 Shops Hurstville Grove	127	94%	0%	0%	6%
B13 Shops Rocky Pt Rd	103	73%	14%	0%	14%
B9 Shops on Forest Rd, Peakhurst	87	85%	6%	3%	6%
B14 Café near swimming pool	82	90%	10%	0%	0%

Key Centre/ Business Zone	Total Spaces	Unrestricted	1P	2P	Other
B21 Cheesecake Shop, Carlton	75	92%	0%	3%	5%
B17 Coffee Shop, Kyle Bay	74	93%	0%	0%	7%
B12 Kogarah Shops	65	42%	0%	40%	18%
B7 Café, Peakhurst	59	95%	5%	0%	0%
B11 Corner Shops, Narwee	51	100%	0%	0%	0%
B1 Forest Rd shops, Lugarno	49	0%	94%	0%	6%
B8 Shops on Ogilvy St, Peakhurst	50	22%	24%	16%	38%
B3 Baker St Office, Oatley	47	100%	0%	0%	0%
B5 Hair Salon Corner Shops, Peakhurst	47	100%	0%	0%	0%
B10 Shops on Pindari Rd, Peakhurst Heights	37	0%	24%	62%	14%
B16 Shops on Carwar Ave, Carss Park	31	68%	26%	0%	6%
B2 Bar & Café, Lugarno	29	83%	0%	0%	17%
TOTAL	10,405	58%	13%	11%	18%

Note: Percentages have been rounded to the nearest whole number so may not add up to 100%

In the majority of key centres more than 50% of the surveyed on- street parking supply was unrestricted at all times. Exceptions were Kogarah (16%), Peshurst (43%), Mortdale (49%), Kingsgrove (38%) and Narwee (0%).

Similarly, in the 17 business zones, 13 had more than 50% unrestricted on-street spaces at all times, the exceptions being B1, B8, B10 and B12. There was no ticketed parking on-street.

The detailed on-street parking inventory is presented:

- in Excel format containing all the relevant parking restrictions including X Y coordinates and sign pairs to identify the separate categories of parking supply (see Attachment 3), and
- as maps in AutoCAD .dwg and PDF format which illustrate the location of each parking restriction (categories agreed with Council). Each individual sign in the CAD drawings has been allocated a unique identifier (Signage ID) which references to the Excel spreadsheet (Refer to Attachment 4).

The inventory of 1,770 off-street parking spaces (15% of total documented supply) located in the car parks within the following key centres and business zones was also collected and summarised by centre/zone, car park and type of restriction (weekday) in Table 12:

Table 12 - Parking inventory - off-street

Key Centre/ Business Zone	Car Park	Total Spaces	Unrestricted	Restricted	Paid parking
Kogarah	Town Square Car Park	253	0%	14%	86% (3P)
Ramsgate	Ramsgate Rd Car Park	72	100%	0%	0%
Kogarah Bay	Park Rd Car Park	24	100%	0%	0%

Key Centre/ Business Zone	Car Park	Total Spaces	Unrestricted	Restricted	Paid parking
Oatley	Letitia St Car Park	45	64%	36%	0%
Penshurst	Connelly St Car Park	113	0%	100%	0%
Mortdale	Cook Ln Car Park	85	0%	100%	0%
	Cook St Car Park	22	0%	100%	0%
Blakehurst	Water St Car Park	25	100%	0%	0%
	Stuart Ln Car Park	31	87%	13%	0%
Kingsgrove	Morgan St Car Park	57	25%	75%	0%
Riverwood	Belmore Ln Car Park	69	0%	100%	0%
	Belmore Rd Car Park	36	0%	100%	0%
	Webb St Car Park Nth	50	0%	100%	0%
	Webb St Car Park Sth	84	0%	100%	0%
	Littleton St Sth Car Park	28	0%	100%	0%
Beverly Hills	Tooronga Tce Car Park	10	0%	100%	0%
	Edgbaston Rd Car Park	106	0%	100%	0%
	Beresford Ave Car Park	33	0%	100%	0%
Hurstville	Gloucester Rd Car Park	100	14%	86%	0%
	Palm Court Car Park	32	0%	100%	0%
	Park Rd & MacMahon St Car Park	154	0%	100%	0%
	Treacy St Car Park	90	0%	100%	0%
	Woniora Car Park	100	0%	11%	89% (All day)
South Hurstville	Connells Point Rd Car Park	103	0%	100%	0%
	Allen St Car Park	10	0%	100%	0%
B12 Kogarah Shops	Shaw St Car Park	14	0%	100%	0%
B16 Shops Carwar Ave , Carss Park	Carwar Ave Car Park	24	0%	100%	0%
TOTAL		1,770	12%	71%	17%

The majority of restricted spaces are 3P whilst the only ticketed parking (Pay and Display) areas are located in the Town Square Car Park, Kogarah (253 spaces) and Woniora Car Park, Hurstville (100 spaces).

The off-street parking areas by key centre, business zone and restriction are attached in excel format in Attachment 5.

We note inventory was not collected for all off-street car parks within the study areas, for example Westfield Hurstville, TAFE car park Kogarah etc.; which are privately owned but available for public use. The car parks included in the study were agreed with Council prior to collecting the inventory.

5.3 Surveys – Occupancy, Length of Stay & Turnover

Occupancy and length of stay surveys were conducted from 8am-6pm (one weekday and one Saturday) for all key centres and the following business zones to determine the demand profile for parking on a “typical” weekday and weekend day.

Table 13 - Business zones - occupancy and length of stay surveys

Business Zones	Business Zones
1 – Forest Rd Shops, Lugarno	10 – Shops on Pindari Rd, Peakhurst Heights
4 – Shops, Oatley	12 – Shops, Kogarah
7 – Café, Peakhurst	13 - Shops Rocky Point Road
8 – Shops on Ogilvy St, Peakhurst	16 – Shops on Carwar Ave, Carss Park
9 - Shops on Forest Rd, Peakhurst	21 – Cheesecake Shop, Carlton

It is acknowledged that the surveys are very limited and provide indicative data only. They do not include privately owned car parks available for public use. Council should consider preparing a comprehensive survey timeline to collect data on an ongoing basis on different days and at different times of the year and collaborating with private car park owners to understand utilisation levels particularly prior to implementing specific strategies.

Additionally, occupancy surveys were also conducted from 8am-6pm (one weekday and one Saturday) to encompass the majority of the on-street time-restrictions for the following business zones:

Table 14- Business zones - occupancy surveys only

Business Zones	Reason
2 – Bar & Café, Lugarno	Only four 1/4P spaces
3 – Baker St Office, Oatley	No parking restrictions
5 - Hair salon corner shops, Peakhurst	Hair salon with no parking restrictions
11 - Corner shop, childcare, Narwee	Corner shop and childcare with no parking restrictions
14 - Café near swimming pool	Swimming pool with no parking restrictions (except a few time restricted spaces)
17 - Coffee shop, Kyle Bay	5mins parking near the coffee shop, other spaces with no parking restrictions
20 – Shops, Hurstville Grove	15mins parking for Flower shop and Italian restaurant

No surveys were conducted in business zones 6, 15, 18 and 19 for the following reasons:

Table 15 - Business zones - no parking surveys

Business Zone	Reason
6 – Shop on Isaac St, Peakhurst	One corner shop with no parking restrictions
15 – Shops on Andover St, Carlton	Current development site
18 – Worldwide, Kogarah	No stopping on Princes Hwy

Business Zone	Reason
19 – Shop on Seymour St, Hurstville Grove	One corner shop with no parking restrictions

Due to the size of the study area, the parking surveys were conducted over a four-week period (non-school holiday) from Wednesday 7th February to Saturday 3rd March 2018.

6. Data Analysis

The detailed survey results⁴ are attached as Attachment 5 and Attachment 6 for the weekday (Wednesday) and weekend day (Saturday), respectively. These results are sorted by key centre and business zone.

6.1 Key survey findings

6.1.1 Peak occupancy

Generally, parking, particularly on-street, is considered at practical capacity when occupancy is in excess of 85%⁵ as vacant spaces are more difficult to locate without a wayfinding solution. Of the 15 key centres surveyed, 4 centres had weekday peak occupancies greater than 80% between 10am-11am; and 2 centres on the weekend between 11am-12pm. Of the 17 business zones surveyed, 3 had weekday peak occupancies over 80% at varying times during the day and 3 on the weekend.

Conversely a high proportion of the parking supply was well within acceptable utilisation levels, which may indicate current strategies are working well.

The peak occupancy for each key centre and business zone is summarised for Wednesday and Saturday in Table 16 below (highlighted in pink if peak occupancy is over 80%):

Table 16 - Peak occupancy weekday and weekend by key centre and business zone

Key Centre/Business Zone	Total Supply (av no. spaces)		Peak Hour	Peak Occupancy	Peak Hour	Peak Occupancy
	On Street	Off Street	Wednesday	Wednesday	Saturday	Saturday
Mortdale	467	107	11:00	86%	12:00	88%
Oatley	438	45	11:00	86%	8:00	71%
Carlton	325	0	10:00	85%	10:00	63%
Kogarah	1259	253	11:00	84%	11:00	72%
Narwee	42	0	10:00	79%	11:00	86%
Hurstville	2665	476	15:00	78%	12:00	68%
Kingsgrove	181	57	15:00	76%	12:00	55%
South Hurstville	145	113	11:00	75%	12:00	77%
Allawah	198	0	15:00	73%	13:00	65%
Riverwood	1058	267	12:00	68%	13:00	59%
Beverly Hills	882	149	12:00	65%	14:00	47%
Penshurst	441	113	9:00	64%	12:00	60%
Blakehurst	57	56	12:00,13:00	63%	11:00	65%
Ramsgate	214	72	16:00	60%	13:00	60%

⁴ All results are based on survey areas agreed by Council.

⁵ Concept of practical capacity, being the level of utilisation at which potential parkers perceive parking is full

Key Centre/Business Zone	Total Supply (av no. spaces)		Peak Hour	Peak Occupancy	Peak Hour	Peak Occupancy
	On Street	Off Street	Wednesday	Wednesday	Saturday	Saturday
Kogarah Bay (Along Princes Hwy)	433	24	9:00	54%	11:00; 12:00; 15:00	55%
B16 Shops on Carwar Ave, Carss Park	31	24	11:00	91%	8:00	65%
B21 Cheesecake Shop, Carlton	75	0	9:00	89%	13:00	65%
B1 Forest Rd shops, Lugarno	49	0	15:00	84%	10:00	92%
B14 Café near swimming pool	82	0	10:00	79%	13:00	66%
B8 Shops on Ogilvy St, Peakhurst	45	0	17:00	79%	16:00	92%
B10 Shops on Pindari Rd, Peakhurst Heights	37	0	8:00	73%	10:00	62%
B12 Shops, Kogarah	65	14	13:00	68%	14:00	51%
B7 Café, Peakhurst	59	0	11:00	68%	9:00	58%
B4 Shops, Oatley	213	0	10:00	65%	10:00	59%
B13 Shops Rocky Point Road	98	0	17:00	55%	10:00	60%
B9 Shops on Forest Rd, Peakhurst	86	0	12:00	55%	9:00	71%
B20 Shops, Hurstville Grove	127	0	16:00,17:00	52%	8:00	57%
B11 Corner Shop, Narwee	51	0	17:00	49%	17:00	49%
B2 Bare & Café, Lugarno	29	0	12:00,16:00	48%	17:00	52%
B17 Coffee Shop, Kyle Bay	73	0	10:00	47%	9:00	96%
B5 Hair Salon Corner Shops, Peakhurst	47	0	11:00,12:00,13:00	36%	15:00; 16:00	32%
B3 Baker St Office, Oatley	47	0	9:00,16:00,17:00	28%	15:00	51%

6.1.2 Length of Stay (LOS) and Turnover

Average Length of Stay (ALOS) refers to the average period of time a car is parked in a space. The longer a car is parked in a space, the fewer times the space can turnover (i.e. become available for new parkers).

Parking turnover refers to the number of times a car space is used over a day. The greater the turnover the greater the number of vehicles the car space can accommodate. In a town centre we would expect to see shorter stay parkers parking in the more conveniently located on-street spaces which would have a higher turnover and longer stay parkers parking off-street in lower turnover spaces.

In most areas where there was off-street parking provided, this was not the case primarily because of the large proportion of unrestricted parking on-street accommodating all day parkers and the majority of the off-street parking being 3P e.g. Hurstville weekday on-street ALOS 3.73 hours per vehicle vs. off-street primarily 2.02-3.29 hours per vehicle with only the Woniara car park (paid all day parking) having an ALOS of 5.56 hours per vehicle.

In the majority of areas, the ALOS and turnover were similar for the weekday and weekend. Generally, the ALOS was 2-4 hours with the following exceptions:

- Blakehurst on-street (weekday and weekend) and off-street (weekday): approximately 6.5 hours – the greater number of longer stay parkers may be attributed to residents and/or staff of nearby shops.
- Hurstville Woniara Car Park: approximately 5 hours (weekday) – this is an all-day paid car park so longer stay parkers are most likely to be commuters or workers in the area.
- B21-Cheesecake Shop Carlton weekday: approximately 6 hours vs. 3 hours on weekends. It is located close to a public school so longer stay parkers are likely to be work related.
- B7-Café Peakhurst weekday: approximately 5 hours on a weekday vs. 4 hours on a weekend. Potentially longer stay parkers also work related.

The ALOS and turnover analysis for all key centres and business zones for on-street and off-street parking spaces are summarised in Table 17 and Table 18.

Table 17 - ALOS and turnover on-street

Town Centre/Business Zone	Weekday		Weekend	
	ALOS (Hrs/Car)	Turnover (Cars/Space/Day ⁶)	ALOS (Hrs/Car)	Turnover (Cars/Space/Day ⁶)
Hurstville	3.73	1.92	3.42	1.84
Kogarah	2.34	3.34	2.82	2.37
Riverwood	3.49	1.81	2.86	1.82
Beverly Hills	4.59	1.40	3.48	1.28
Penshurst	2.62	2.40	2.65	2.28
Mortdale	2.92	2.75	2.61	3.09
Kogarah Bay (Along Princes Hwy)	3.63	1.40	4.04	1.27
Oatley	3.38	2.24	2.72	2.20
Carlton	4.12	1.94	3.44	1.66
Ramsgate	2.96	1.55	3.16	1.77
Allawah	4.32	1.60	3.43	1.86
Kingsgrove	2.49	2.80	2.32	2.43
South Hurstville	3.28	1.75	3.02	2.09
Blakehurst	6.53	0.78	6.58	0.93
Narwee	1.60	3.71	1.78	3.35

⁶ 'Day' unit refers to the survey period from 8am-6pm (10 hours)

Town Centre/Business Zone	ALOS (Hrs/Car)	Turnover (Cars/Space/Day ⁶)	ALOS (Hrs/Car)	Turnover (Cars/Space/Day ⁶)
B4 Shops, Oatley	2.60	2.16	2.67	1.92
B13 Shops Rocky Point Road	3.03	1.62	3.97	1.34
B9 Shops, Peakhurst	3.30	1.50	3.52	1.70
B21 Cheesecake Shop, Carlton	6.18	1.31	3.01	1.84
B12 Kogarah Shops	3.56	1.71	3.05	1.32
B7 Café, Peakhurst	5.61	0.92	3.78	0.85
B1 Forest Rd Shops, Lugarno	1.08	5.80	1.06	5.90
B8 Shops on Ogilvy St, Peakhurst	2.13	2.17	1.60	4.13
B10 Shops on Pindari Rd, Peakhurst Heights	1.59	2.19	1.36	2.05
B16 Shops on Carwar Ave, Carss Park	3.79	2.03	3.84	1.39

Table 18 - ALOS and turnover off-street

Town Centre/Business Zone	ALOS (Hrs/Car)		Turnover (Cars/Space/Day ⁶)	
	Weekday	Weekend	Weekday	Weekend
Kogarah - Town Square Car Park	2.11	2.85	2.51	2.04
B12 - Shaw St Car Park	2.80	2.14	3.55	0.79
Ramsgate - Ramsgate Rd Car Park	2.59	2.90	2.37	2.39
B16 - Carwar Ave Car Park	3.15	2.21	3.41	1.42
Kogarah Bay (Along Princes Hwy) - Park Rd Car Park	4.67	0.63	4.00	1.67
Oatley - Letitia St Car Park	3.95	2.38	4.37	1.67
Penshurst - Connelly St Car Park	2.13	1.67	1.65	1.92
Mortdale - Cook Ln Car Park	2.49	2.64	3.02	2.81
Mortdale - Cook St Car Park	1.56	5.59	1.27	5.82
Blakehurst - Stuart Ln Car Park	2.69	1.80	2.93	1.84
Blakehurst - Water St Car Park	5.05	1.39	3.95	0.65
Kingsgrove - Morgan St Car Park	2.01	2.81	1.96	1.39
Riverwood - Belmore Ln Car Park	2.76	2.58	2.00	3.03
Riverwood - Belmore Rd Car Park	3.07	3.03	2.30	3.72
Riverwood - Webb St Car Park Nth	1.44	2.52	1.35	3.34
Riverwood - Webb St Car Park Sth	1.71	2.37	1.70	1.82
Riverwood - Littleton St Sth Car Park	1.61	2.86	1.71	1.96
Beverly Hills - Tooronga Tce Car Park	2.41	3.90	2.06	3.60
Beverly Hills - Edgbaston Rd Car Park	2.67	1.90	2.23	1.58
Beverly Hills - Beresford Ave Car Park	1.73	2.82	1.64	1.61

Town Centre/Business Zone	ALOS (Hrs/Car)	Turnover (Cars/Space/Day ⁶)	ALOS (Hrs/Car)	Turnover (Cars/Space/Day ⁶)
Hurstville - Gloucester Rd Car Park	2.17	2.67	2.81	2.00
Hurstville - Palm Court Car Park	2.27	3.03	2.01	4.81
Hurstville - Park Rd & MacMahon St Car Park	2.02	3.81	2.20	3.16
Hurstville - Treacy St Car Park	3.29	2.69	2.38	3.79
Hurstville - Woniora Car Park	5.56	1.47	3.09	0.43
South Hurstville - Connells Point Rd Car Park	1.86	3.58	1.64	4.43
South Hurstville - Allen St Car Park	4.16	1.90	4.72	1.80

Graphs summarising occupancy and LOS at hourly intervals over the time period of the survey for key centres and business zones⁷ and are presented in Attachment 7 (weekday) and Attachment 8 (weekend).

Heat maps illustrating peak occupancy on weekdays and weekends⁸ are also attached as Attachment 9.

6.2 Detailed analysis

Detailed analysis of the survey results for the four largest centres (by inventory size) being Hurstville, Kogarah, Riverwood and Beverly Hills, and other town centres and business zones where peak occupancy levels are approaching or above practical capacity (85%) is attached as Attachment 10 with key findings by survey area summarised below.

6.2.1 Hurstville

- 85% of surveyed spaces were on-street; 59% of those are unrestricted at all times.
- Peak occupancy occurred at 3pm-4pm on the weekday (78%); 12pm-1pm on the weekend (68%). We note this was similar to surveys conducted in 2004. The later than expected peak may be attributed to after school demand.
- On-street 1P-2P spaces were well utilised from 9am – 4pm on the weekday (75%-85% occupancy); with similar or higher occupancy on the weekend.
- There is lower demand for all day parking (7+ hours) on the weekend compared to the weekday, confirming the use of these spaces by local workers or commuters.
- On the weekday, 42% of vehicles surveyed on-street stayed for 1 hour or less (46% on a weekend) and 25% parked in unrestricted spaces (39% on a weekend); most likely they are parking in the less conveniently located unrestricted spaces as all day parkers tend to arrive at a location first and fill those closest to their destination. This potentially indicates a lack of time restricted on-street parking close to the town centre.
- On the weekday, 35% of available spaces at peak were occupied by vehicles staying for 7+ hours; 30% on a weekend.

⁷ For survey areas with peak occupancy greater than 70% - B17 excluded as only occupancy surveys completed.

⁸ For all key centres and the largest Business Zone (B4).

- At peak times there was always parking available in an off-street car park. On the weekday, Gloucester Road car park was less than 50% occupied and, on the weekend, Woniora car park was 21% occupied indicating that visitors to the area may be unaware of the location of available spaces.
- Analysis of overstay indicated a level of noncompliance (weekday 15%-28% on-street, 8-39% off-street; weekend 21%-25% on-street, 5%-20% off-street) which is impacting the availability of the time restricted spaces.

6.2.2 Kogarah

- 84% of surveyed spaces were on-street; 16% unrestricted at all times.
- The peak occupancy occurred from 11am-12pm on the weekday and the weekend (84% and 72% respectively).
- Unrestricted spaces were close to 100% occupied on the weekday; lower on the weekend.
- Occupancy of spaces close to the Hospital was high as it is convenient and free for visitors and outpatients.
- On the weekday, up to 25% of available spaces at peak were occupied by vehicles staying for 7+ hours. This may be attributable to the Resident Parking Scheme operational in and around the Town Centre however more detailed surveys would be required to substantiate this. 57% of vehicles surveyed stayed 1 hour or less (48% on the weekend). Of those staying 1 hour or less, only 2% parked in unrestricted spaces (30% on the weekend).
- The off-street car park was more than 85% occupied at peak on both the weekday and weekend.
- It was difficult to determine if overstay in the 2P parking spaces (17% weekday, 12% weekend) were attributable to non-compliance or residents with parking permits.

6.2.3 Riverwood

- 80% of surveyed spaces were on-street; 71% unrestricted at all times.
- Peak occupancy occurred 12pm-1pm on the weekday (68%); 1pm-2pm on the weekend (59%).
- Occupancy of unrestricted on-street spaces remained consistent between 60%-70% on the weekday; lower on the weekend (40%-60%).
- On the weekday and weekend, the occupancy of 1P off-street parking remained at a high level throughout the survey period (between 80%-100%). The occupancy of off-street 3P parking peaked at 12pm-1pm (approximately 70% on the weekday, 65% on the weekend).
- The off-street car parks to the north of the railway line were well utilised whilst the car parks south of the railway line, Webb Street South in particular had lower levels of occupancy.
- For on-street spaces, 54% of vehicles surveyed stayed for 1 hour or less on the weekday (67% on the weekend), 10% for 1-2 hours (17% on the weekend), and 14% for 9-10 hours (only 2% on the weekend).
- For off-street spaces, 86% stayed for 3 hours or less on the weekday (90% on the weekend). However, of the vehicles which stayed 7+ hours on the weekday 92% parked in the car parks to the north of the railway line which are also the car parks with the highest utilisation. Similar results were observed on the weekend.

- Analysis of overstays indicated a lower level of non-compliance compared to other centres for on-street spaces (weekday 7%-8%, weekend 8%-13%). For off- street spaces non-compliance was similar to other centres (weekday 9%-27%, weekend 6%-21%).

6.2.4 Beverly Hills

- 86% of surveyed spaces were on-street; 74% unrestricted at all times.
- Peak occupancy occurred between 12pm-1pm on the weekday (65%); 2pm-3pm on the weekend (47%).
- Occupancy of unrestricted on-street spaces remained consistent between 70%-75% on the weekday; lower on the weekend (40%-50%). On the weekday, time restricted on-street spaces were less than 55% occupied other than 2P which peaked around 90% between 10am – 11am falling to 70% or lower until 5.00pm. On the weekend the 1P and 2P spaces peaked at 1pm at 65% and 75% respectively.
- On the weekday, the occupancy of off-street 1P parking spaces was high (between 80%-100%) particularly in comparison to the 1P on-street spaces. The occupancy of off-street 3P parking peaked (approximately 60%) between 10am-2pm, with a relatively low occupancy (less than 30%) at 8am.
- On the weekend, the occupancy of 1P off-street spaces fluctuated between 60%-90% during the day while the occupancy of 3P spaces increased gradually from 9% at 8am to 46% (peak occupancy) at 4pm.
- For on-street spaces, 36% of vehicles stayed for 1 hour or less on the weekday (38% on the weekend), 11% for 1-2 hours (19% on the weekend) and 22% for 9-10 hours (11% on the weekend).
- For off-street spaces, 82% stayed for 3 hours or less on the weekday (90% on the weekend).
- Analysis of overstays indicated a lower level of non-compliance compared to other centres for on-street spaces on the weekday 12%. On the weekend it was relatively higher 19%-25% and for off- street spaces 9%-26% on the weekday and 3%-25% on the weekend.

6.2.5 Mortdale

- 81% of surveyed spaces were on-street; 49% unrestricted at all times.
- Peak occupancy occurred from 11am-12pm on the weekday (86%); 12pm-1pm on the weekend (88%).
- On-street 1P-2P spaces had relatively consistent occupancy between 9am-5pm, at 60%-80% on the weekday; and similar or higher occupancy on the weekend between 10am-5pm.
- Unrestricted and 4P on-street spaces had higher occupancy (80%-100%) on the weekday; lower on the weekend.
- Occupancy of off-street 3P spaces was high and relatively consistent between 10am-5pm (70%-90%); higher on the weekend between 10am-5pm (80%-100%). We note the former Hurstville City Council had resolved to compulsorily acquire residential property adjacent to the Cook Lane car park to undertake expansion.
- For on-street spaces, 61% of vehicles stayed for 1 hour or less on the weekday (57% on the weekend), 11% for 1-2 hours (14% on the weekend) and 11% for 9-10 hours (6% on the weekend).
- On the weekday, up to 40% of available spaces at peak were occupied by vehicles staying for 7+ hours (25% on the weekend). 61% of vehicles surveyed stay 1 hour or less (60% on the weekend).

- Analysis of overstays indicated a level of non-compliance (weekday 8%-21% on-street; 11% off-street; weekend 13% - 24% on-street, 29% off-street).

6.2.6 Oatley

- 91% of surveyed spaces were on-street; 59% unrestricted at all times.
- Peak occupancy occurred at 11am-12pm on the weekday (86%); 8am-9am on the weekend (71%).
- The occupancy of unrestricted on-street spaces was high and remained consistent between 9am-3pm (83%-85%); lower on the weekend (48%-63%) suggesting a large proportion is commuter related.
- The off-street car park was at or near full capacity for the survey period; the one accessible space was occupied from 9am-3pm on the weekday and 11am-2pm on the weekend.
- For on-street spaces, 40% of vehicles stayed for 1 hour or less on the weekday, 26% for 1-2 hours, and 13% for 9-10 hours; on the weekend the majority of vehicles stayed for 1 hour or less with 7% staying for 9-10 hours.
- In off-street spaces, 51% of vehicles stayed for 3 hours or less on the weekday and weekend.
- Analysis of overstays indicated a level of non-compliance (weekdays 9%-14% on-street, 17% off-street; weekends 8%-12% on-street, 16% off-street).

6.2.7 Carlton

- All spaces surveyed (325 spaces) are on-street; 67% unrestricted at all times.
- Peak occupancy occurred at 10am-11am on the weekday and weekend (85% occupancy on the weekday and 63% occupancy on the weekend).
- The occupancy of unrestricted, 1P and 2P on-street spaces was relatively consistent, fluctuating between 70%-90% on the weekday.
- On the weekend, the occupancy of unrestricted spaces was lower ranging between 55%-60% between 8am-3pm.
- For on-street spaces, 41% stayed for 1 hour or less (39% on the weekend), 13% for 1-2 hours (17% on the weekend) and 19% for 9-10 hours (11% on the weekend).
- On the weekday 11%-46% of vehicles overstayed the time restriction by more than 1 hour; 8%-17% on the weekend.

6.2.8 Business Zones (peak occupancy approaching or above 85%)

B16 – Shops on Carwar Ave, Carss Park

- A total of 31 on-street and 24 off-street spaces were surveyed; 68% of on-street spaces are unrestricted.
- Peak occupancy occurred at 11am on the weekday (91%); 8am on the weekend (65%).
- There was approximately 3 times the number of all-day parkers on the weekday (LOS > 7 hours) which is contributing to the high occupancy levels; most likely commuters catching the bus or storage for the motor mechanic located in the service station on the Princes Highway.

B21 – Cheesecake Shop Carlton

- A total of 75 on-street spaces were surveyed; 92% are unrestricted.
- Peak occupancy occurred at 9am on the weekday (89%); 1pm on the weekend (65%).
- There was approximately 6 times the number of all-day parkers on the weekday (LOS > 7 hours) most likely associated with local workers; a local primary school is located nearby and/or commuters (train or bus).

B1 – Forest Road shops, Lugarno

- A total of 49 on-street spaces were surveyed; 94% 1P time restricted.
- The spaces are well utilised with peak occupancy at 3pm on the weekday (84%) and 10am on the weekend (92%).
- On the weekday and the weekend approximately 96% of vehicles parked for 1 hour or less in line with the time restrictions.

B8 – Shops on Ogilvy St Peakhurst

- A total of 50 on-street spaces were surveyed; 22% (11 spaces) were unrestricted, 70% were time restricted (30% for 1/2P, 24% for 1P and 16% for 2P), and the remaining 8% were other restricted spaces (4% for accessible, 2% for no parking/unrestricted and 2% for other zones).
- Peak occupancy occurred at 5pm on the weekday (79%); 4pm on the weekend (92%) which was later than observed in other survey areas. We note a swimming pool is located opposite the shops and the swim club meets Saturday afternoons from 3pm which most likely contributes to the higher than expected demand even though off street parking is available adjacent to the club.

B17 – Coffee Shop, Kyle Bay

- A total of 73 on-street spaces were surveyed; 93% were unrestricted.
- Peak occupancy occurred at 10am on the weekday (47%); 9am on the weekend (96%).

7. Future Parking Demand & Supply

To determine the effect of future parking demand on parking supply **ptc.** has developed a forecasting model, which uses existing data on:

- public parking supply available at peak (excluding reserved spaces for special use, Loading Zones, Mail Zones, Taxi Zones etc.) plus
- peak occupancy data by parking restriction to determine the excess or shortfall in parking supply over time.

The model is based on peak occupancy as determined by the surveys outlined in Section 5.3. Peak occupancy is used as it represents the ‘worst’ case scenario with respect to parking demand when estimating the likely excess or shortfall in supply.

Projections have been undertaken for the five key centres with the largest surveyed inventories (Hurstville, Kogarah, Riverwood and Beverly Hills) and the highest peak occupancy (Mortdale), as well as the areas affected by the Sydney Clearways strategy. However, the model can be used by Council for any of the areas surveyed by copying the yellow tabs in the workbook (refer Attachment 11) and inputting the required data in the Assumptions tab of the worksheet.

Firstly, the model uses the survey data to establish the present parking supply and demand. These figures are then extrapolated in 5-year increments (2023, 2028 and 2033) to predict future demand using the population growth data⁹ in Table 19 below, as the factor to determine future parking requirements.

Table 19 – Population Growth Projections – Georges River LGA

Item	Georges River LGA
2018 Population	156,622
2036 Population	185,346
Change	18.34%
Annual increase	0.94%
Increase for each 5 year increment	4.79%

An alternative growth factor can be applied if considered more appropriate (to test different scenarios).

We have also made an allowance for the effect of changes in mode share in response to changes in transport options and or as a result of the implementation of parking demand strategies. For the purpose of the projections two scenarios have been assumed:

- no change in mode share, and
- a mode shift factor of 5% every 5 years (for comparison purposes only).

No allowance has been made for increases of, or changes to, land use or potential changes in vacancy rates of property within the study areas. We have also assumed no change to the parking supply as agreed with Council.

The calculations for projected parking demand are detailed in Attachment 11 and are summarised below.

⁹ <https://forecast.id.com.au/georges-river/about-forecast-areas?WebID=10>

7.1 Hurstville

7.1.1 No change in travel mode

Table 20 and Table 21 below summarise the calculations for the projected parking demand in Hurstville assuming no change in parking behaviour. These tables show that the peak demand will increase from 2,298 spaces to 2,771 spaces by 2038, an increase of 473 spaces. The peak weekday occupancy for all spaces is projected to increase from 78% to 95%, and for the category of parking with the greatest number of spaces, on-street unrestricted, peak occupancy is projected to increase from 83% to 100% by 2038.

It can be concluded, based on this forecast that without the implementation of parking demand strategies and/or changing travel behaviour there will be a shortage of available parking during peak times from 2028.

Table 20 - Projected Weekday parking demand – Hurstville – no change in travel mode

WEEKDAYS	2018			2023		2028		2033		2038	
	# Car Spaces	# Spaces Used	Excess/ Shortfall	# Spaces Used	Excess/ Shortfall	# Spaces Used	Excess/ Shortfall	# Spaces Used	Excess/ Shortfall	# Spaces Used	Excess/ Shortfall
On street Restricted	814	587	227	615	199	645	169	675	139	708	106
On street Unrestricted	1,656	1,380	276	1,446	210	1,515	141	1,588	68	1,664	-8
<i>Subtotal On Street</i>	2,470	1,967	503	2,061	409	2,160	310	2,263	207	2,372	98
Off street Restricted	446	319	127	334	112	350	96	367	79	385	61
Off street Unrestricted	14	12	2	13	1	13	1	14	0	14	0
<i>Subtotal Off Street</i>	460	331	129	347	113	363	97	381	79	399	61
TOTAL	2,930	2,298	632	2,408	522	2,523	407	2,644	286	2,771	159
% Total Supply		78%	22%	82%	18%	86%	14%	90%	10%	95%	5%

Table 21 - Projected Weekday parking demand percentage – Hurstville – no change in travel mode

WEEKDAYS	Occupancy at peak				
	2018	2023	2028	2033	2038
On street Restricted	72%	76%	79%	83%	87%
On street Unrestricted	83%	87%	92%	96%	100%
<i>Subtotal On Street</i>	80%	83%	87%	92%	96%
Off street Restricted	72%	75%	79%	82%	86%
Off street Unrestricted	86%	90%	94%	99%	103%
<i>Subtotal Off Street</i>	72%	75%	79%	83%	87%
TOTAL	78%	82%	86%	90%	95%

7.1.2 Change in travel mode

If a 5%¹⁰ decrease in car usage is achieved every five years from 2018 to 2038 the impact on the demand for parking in Hurstville is summarised in Table 22 and Table 23.

¹⁰ ptc. assumption for the purpose of comparison.

Table 22 - Projected Weekday parking demand - Hurstville - after change in travel mode

WEEKDAYS	2018			2023		2028		2033		2038	
	# Car Spaces	# Spaces Used	Excess/ Shortfall	# Spaces Used after Adj in Travel Mode	Excess/ Shortfall after Adj in Travel Mode	# Spaces Used after Adj in Travel Mode	Excess/ Shortfall after Adj in Travel Mode	# Spaces Used after Adj in Travel Mode	Excess/ Shortfall after Adj in Travel Mode	# Spaces Used after Adj in Travel Mode	Excess/ Shortfall after Adj in Travel Mode
On street Restricted	814	587	227	584	230	582	232	579	235	576	238
On street Unrestricted	1,656	1,380	276	1,374	282	1,368	288	1,361	295	1,355	301
<i>Subtotal On Street</i>	2,470	1,967	503	1,958	512	1,949	521	1,941	529	1,932	538
Off street Restricted	446	319	127	318	128	316	130	315	131	313	133
Off street Unrestricted	14	12	2	12	2	12	2	12	2	12	2
<i>Subtotal Off Street</i>	460	331	129	330	130	328	132	327	133	325	135
TOTAL	2,930	2,298	632	2,288	642	2,277	653	2,267	663	2,257	673
% Total Supply		78%	22%	78%	22%	78%	22%	77%	23%	77%	23%

Table 23 - Projected Weekday parking demand percentage - Hurstville - after change in travel mode

WEEKDAYS	Occupancy at peak				
	2018	2023	2028	2033	2038
On street Restricted	72%	72%	71%	71%	71%
On street Unrestricted	83%	83%	83%	82%	82%
<i>Subtotal On Street</i>	80%	79%	79%	79%	78%
Off street Restricted	72%	71%	71%	71%	70%
Off street Unrestricted	86%	85%	85%	85%	84%
<i>Subtotal Off Street</i>	72%	72%	71%	71%	71%
TOTAL	78%	78%	78%	77%	77%

These tables show that the peak demand will remain relatively constant over the twenty year period as the change in travel mode equates the rate of population growth used in the model (5% ever 5 years vs. 4.79%).

The change in travel mode could be as low as 3% every 5 years before peak demand in 20 years would reach practical capacity (85%).

7.2 Kogarah

7.2.1 No change in travel mode

Table 24 and Table 25 summarise the calculations for the projected parking demand in Kogarah assuming no change in parking behaviour. These tables show that the peak demand is projected to increase from 1,235 spaces to 1,489 spaces by 2038, an increase of 254 spaces. The peak weekday occupancy for all spaces is projected to increase from 87% to 104%, and for the category of parking with the greatest number of spaces, on-street restricted, peak occupancy is projected to increase from 84% to 101% by 2038.

It can be concluded, based on this forecast that without the implementation of parking demand strategies and/or changing travel behaviour there will be insufficient parking supply in the future to meet demand at peak times as is currently the case from our limited surveys.

Table 24 - Projected parking demand – Kogarah – no change in travel mode

WEEKDAYS	2018			2023		2028		2033		2038	
	# Car Spaces	# Spaces Used	Excess/ Shortfall	# Spaces Used	Excess/ Shortfall	# Spaces Used	Excess/ Shortfall	# Spaces Used	Excess/ Shortfall	# Spaces Used	Excess/ Shortfall
On street Restricted	992	834	158	874	118	916	76	960	32	1,006	-14
On street Unrestricted	209	206	3	216	-7	226	-17	237	-28	248	-39
<i>Subtotal On Street</i>	1,201	1,040	161	1,090	111	1,142	59	1,197	4	1,254	-53
Off street Restricted	224	195	29	204	20	214	10	224	0	235	-11
Off street Unrestricted	0	0	0	0	0	0	0	0	0	0	0
<i>Subtotal Off Street</i>	224	195	29	204	20	214	10	224	0	235	-11
TOTAL	1,425	1,235	190	1,294	131	1,356	69	1,421	4	1,489	-64
% Total Supply		87%	13%	91%	9%	95%	5%	100%	0%	104%	-4%

Table 25 - Projected parking demand percentage – Kogarah – no change in travel mode

WEEKDAYS	Occupancy at peak				
	2018	2023	2028	2033	2038
On street Restricted	84%	88%	92%	97%	101%
On street Unrestricted	99%	103%	108%	113%	119%
<i>Subtotal On Street</i>	87%	91%	95%	100%	104%
Off street Restricted	87%	91%	96%	100%	105%
Off street Unrestricted	N/A	N/A	N/A	N/A	N/A
<i>Subtotal Off Street</i>	87%	91%	96%	100%	105%
TOTAL	87%	91%	95%	100%	104%

7.2.2 Change in travel mode

If a 5%¹¹ decrease in car usage is achieved every five years from 2018 to 2038 the impact on the demand for parking in Kogarah is summarised in Table 26 and Table 27 below.

The modelling indicates that the peak demand by 2038 will equate practical capacity of 85%, remaining relatively constant over the twenty year period. If this change in travel mode is not achieved it will be difficult for drivers to locate available parking at peak times and it will be necessary to supply more parking.

Table 26 - Projected parking demand - Kogarah - after change in travel mode

WEEKDAYS	2018			2023		2028		2033		2038	
	# Car Spaces	# Spaces Used	Excess/ Shortfall	# Spaces Used after Adj in Travel Mode	Excess/ Shortfall after Adj in Travel Mode	# Spaces Used after Adj in Travel Mode	Excess/ Shortfall after Adj in Travel Mode	# Spaces Used after Adj in Travel Mode	Excess/ Shortfall after Adj in Travel Mode	# Spaces Used after Adj in Travel Mode	Excess/ Shortfall after Adj in Travel Mode
On street Restricted	992	834	158	830	162	826	166	823	169	819	173
On street Unrestricted	209	206	3	205	4	204	5	203	6	202	7
<i>Subtotal On Street</i>	1,201	1,040	161	1,035	166	1,031	170	1,026	175	1,021	180
Off street Restricted	224	195	29	194	30	193	31	192	32	192	32
Off street Unrestricted	0	0	0	0	0	0	0	0	0	0	0
<i>Subtotal Off Street</i>	224	195	29	194	30	193	31	192	32	192	32
TOTAL	1,425	1,235	190	1,229	196	1,224	201	1,218	207	1,213	212
% Total Supply		87%	13%	86%	14%	86%	14%	85%	15%	85%	15%

Table 27 - Projected parking demand percentage - Kogarah - after change in travel mode

WEEKDAYS	Occupancy at peak				
	2018	2023	2028	2033	2038
On street Restricted	84%	84%	83%	83%	83%
On street Unrestricted	99%	98%	98%	97%	97%
<i>Subtotal On Street</i>	87%	86%	86%	85%	85%
Off street Restricted	87%	87%	86%	86%	85%
Off street Unrestricted	N/A	N/A	N/A	N/A	N/A
<i>Subtotal Off Street</i>	87%	87%	86%	86%	85%
TOTAL	87%	86%	86%	85%	85%

¹¹ ptc. assumption for the purpose of comparison

7.3 Riverwood

7.3.1 No change in travel mode

Table 28 and Table 29 below summarise the calculations for the projected parking demand in Riverwood assuming no change in parking behaviour. These tables show that the peak demand is projected to increase from 898 spaces to 1,083 spaces by 2038, an increase of 185 spaces. The peak weekday occupancy for all spaces is projected to increase from 69% to 83%, and for the category of parking with the greatest number of spaces, on-street unrestricted, peak occupancy is projected to increase from 70% to 84% by 2038.

It can be concluded, based on this forecast that there will be sufficient available parking (on street and off street) at peak times to meet parking demand in the future.

Table 28 - Projected parking demand – Riverwood – no change in travel mode

WEEKDAYS	2018			2023		2028		2033		2038	
	# Car Spaces	# Spaces Used	Excess/ Shortfall	# Spaces Used	Excess/ Shortfall	# Spaces Used	Excess/ Shortfall	# Spaces Used	Excess/ Shortfall	# Spaces Used	Excess/ Shortfall
On street Restricted	282	177	105	185	97	194	88	204	78	213	69
On street Unrestricted	761	529	232	554	207	581	180	609	152	638	123
<i>Subtotal On Street</i>	1,043	706	337	740	303	775	268	812	231	851	192
Off street Restricted	267	192	75	201	66	211	56	221	46	232	35
Off street Unrestricted	0	0	0	0	0	0	0	0	0	0	0
<i>Subtotal Off Street</i>	267	192	75	201	66	211	56	221	46	232	35
TOTAL	1,310	898	412	941	369	986	324	1,033	277	1,083	227
% Total Supply		69%	31%	72%	28%	75%	25%	79%	21%	83%	17%

Table 29 - Projected parking demand percentage – Riverwood – no change in travel mode

WEEKDAYS	Occupancy at peak				
	2018	2023	2028	2033	2038
On street Restricted	63%	66%	69%	72%	76%
On street Unrestricted	70%	73%	76%	80%	84%
<i>Subtotal On Street</i>	68%	71%	74%	78%	82%
Off street Restricted	72%	75%	79%	83%	87%
Off street Unrestricted	N/A	N/A	N/A	N/A	N/A
<i>Subtotal Off Street</i>	72%	75%	79%	83%	87%
TOTAL	69%	72%	75%	79%	83%

7.3.2 Change in travel mode

If a 5%¹² decrease in car usage is achieved every five years from 2018 to 2038 the impact on the demand for parking in Riverwood is summarised in Table 30 and Table 31 below.

The modelling indicates that the peak demand will remain relatively constant over the twenty year period.

As noted in Section 7.3.1 if there was no change in travel mode over the 20 year period parking demand at peak would still be below 85% in 2038.

Table 30 - Projected parking demand - Riverwood - after change in travel mode

WEEKDAYS	2018			2023		2028		2033		2038	
	# Car Spaces	# Spaces Used	Excess/ Shortfall	# Spaces Used after Adj in Travel Mode	Excess/ Shortfall after Adj in Travel Mode	# Spaces Used after Adj in Travel Mode	Excess/ Shortfall after Adj in Travel Mode	# Spaces Used after Adj in Travel Mode	Excess/ Shortfall after Adj in Travel Mode	# Spaces Used after Adj in Travel Mode	Excess/ Shortfall after Adj in Travel Mode
On street Restricted	282	177	105	176	106	175	107	175	107	174	108
On street Unrestricted	761	529	232	527	234	524	237	522	239	520	241
<i>Subtotal On Street</i>	1,043	706	337	703	340	700	343	696	347	693	350
Off street Restricted	267	192	75	191	76	190	77	189	78	189	78
Off street Unrestricted	0	0	0	0	0	0	0	0	0	0	0
<i>Subtotal Off Street</i>	267	192	75	191	76	190	77	189	78	189	78
TOTAL	1,310	898	412	894	416	890	420	886	424	882	428
% Total Supply		69%	31%	68%	32%	68%	32%	68%	32%	67%	33%

Table 31 - Projected parking dempercentage - Riverwood - after change in travel mode

WEEKDAYS	Occupancy at peak				
	2018	2023	2028	2033	2038
On street Restricted	63%	62%	62%	62%	62%
On street Unrestricted	70%	69%	69%	69%	68%
<i>Subtotal On Street</i>	68%	67%	67%	67%	66%
Off street Restricted	72%	72%	71%	71%	71%
Off street Unrestricted	N/A	N/A	N/A	N/A	N/A
<i>Subtotal Off Street</i>	72%	72%	71%	71%	71%
TOTAL	69%	68%	68%	68%	67%

¹² ptc. assumption for the purpose of comparison

7.4 Beverly Hills

7.4.1 No change in travel mode

Table 32 and Table 33 below summarise the calculations for the projected parking demand in Beverly Hills assuming no change in parking behaviour. These tables show that the peak demand is projected to increase from 693 spaces to 836 spaces in 2038, an increase of 143 spaces. The peak weekday occupancy for all spaces is projected to increase from 66% to 79%, and for the category of parking with the greatest number of spaces, on-street unrestricted, peak occupancy is projected to increase from 74% to 90% by 2038.

It can be concluded, based on this forecast that there will be sufficient parking (on street and off street) at peak times in the future even without the implementation of parking demand strategies and/or changing travel behaviour. However, the occupancy of on-street unrestricted spaces is projected to be over 85% by 2033.

Table 32 - Projected parking demand – Beverly Hills – no change in travel mode

WEEKDAYS	2018			2023		2028		2033		2038	
	# Car Spaces	# Spaces Used	Excess/ Shortfall	# Spaces Used	Excess/ Shortfall	# Spaces Used	Excess/ Shortfall	# Spaces Used	Excess/ Shortfall	# Spaces Used	Excess/ Shortfall
On street Restricted	218	86	132	90	128	94	124	99	119	104	114
On street Unrestricted	690	513	177	538	152	563	127	590	100	619	71
<i>Subtotal On Street</i>	908	599	309	628	280	658	250	689	219	722	186
Off street Restricted	149	94	55	99	50	103	46	108	41	113	36
Off street Unrestricted	0	0	0	0	0	0	0	0	0	0	0
<i>Subtotal Off Street</i>	149	94	55	99	50	103	46	108	41	113	36
TOTAL	1,057	693	364	726	331	761	296	797	260	836	221
% Total Supply		66%	34%	69%	31%	72%	28%	75%	25%	79%	21%

Table 33 - Projected parking demand percentage – Beverly Hills – no change in travel mode

WEEKDAYS	Occupancy at peak				
	2018	2023	2028	2033	2038
On street Restricted	39%	41%	43%	45%	48%
On street Unrestricted	74%	78%	82%	86%	90%
<i>Subtotal On Street</i>	66%	69%	72%	76%	80%
Off street Restricted	63%	66%	69%	73%	76%
Off street Unrestricted	N/A	N/A	N/A	N/A	N/A
<i>Subtotal Off Street</i>	63%	66%	69%	73%	76%
TOTAL	66%	69%	72%	75%	79%

7.4.2 Change in travel mode

If a 5%¹³ decrease in car usage is achieved every five years from 2018 to 2038 the impact on the demand for parking in Beverly Hills is summarised in Table 34 and Table 35.

Table 34 - Projected parking demand - Beverly Hills - after change in travel mode

WEEKDAYS	2018			2023		2028		2033		2038	
	# Car Spaces	# Spaces Used	Excess/ Shortfall	# Spaces Used after Adj in Travel Mode	Excess/ Shortfall after Adj in Travel Mode	# Spaces Used after Adj in Travel Mode	Excess/ Shortfall after Adj in Travel Mode	# Spaces Used after Adj in Travel Mode	Excess/ Shortfall after Adj in Travel Mode	# Spaces Used after Adj in Travel Mode	Excess/ Shortfall after Adj in Travel Mode
On street Restricted	218	86	132	86	132	85	133	85	133	84	134
On street Unrestricted	690	513	177	511	179	508	182	506	184	504	186
Subtotal On Street	908	599	309	596	312	594	314	591	317	588	320
Off street Restricted	149	94	55	94	55	93	56	93	56	92	57
Off street Unrestricted	0	0	0	0	0	0	0	0	0	0	0
Subtotal Off Street	149	94	55	94	55	93	56	93	56	92	57
TOTAL	1,057	693	364	690	367	687	370	684	373	681	376
% Total Supply		66%	34%	65%	35%	65%	35%	65%	35%	64%	36%

Table 35 - Projected parking demand percentage - Beverly Hills - after change in travel mode

WEEKDAYS	Occupancy at peak				
	2018	2023	2028	2033	2038
On street Restricted	39%	39%	39%	39%	39%
On street Unrestricted	74%	74%	74%	73%	73%
Subtotal On Street	66%	66%	65%	65%	65%
Off street Restricted	63%	63%	63%	62%	62%
Off street Unrestricted	N/A	N/A	N/A	N/A	N/A
Subtotal Off Street	63%	63%	63%	62%	62%
TOTAL	66%	65%	65%	65%	64%

These tables show that the peak demand will remain relatively constant over the twenty year period.

As noted in Section 7.4.1 if there was no change in travel mode over the 20 year period parking demand at peak would still be below 85% in 2038.

¹³ ptc. assumption for comparison purposes

7.5 Mortdale

7.5.1 No change in travel mode

Table 36 and Table 37 summarise the calculations for the projected parking demand in Mortdale assuming no change in parking behaviour. These tables show that the peak demand is projected to increase from 489 spaces to 590 spaces by 2038, an increase of 101 spaces. The peak weekday occupancy for all spaces is projected to increase from 87% to 105%, and for the categories of parking with the greatest number of spaces, on-street restricted and on-street unrestricted, peak occupancies are projected to increase from 80% to 97% and from 97% to 117% respectively by 2038.

It can be concluded, based on this forecast that without the implementation of parking demand strategies and/or changing travel behaviour there will be insufficient parking supply in the future to meet demand at peak times as is currently the case from our limited surveys.

Table 36 - Projected parking demand – Mortdale – no change in travel mode

WEEKDAYS	2018			2023		2028		2033		2038	
	# Car Spaces	# Spaces Used	Excess/ Shortfall	# Spaces Used	Excess/ Shortfall	# Spaces Used	Excess/ Shortfall	# Spaces Used	Excess/ Shortfall	# Spaces Used	Excess/ Shortfall
Onstreet Restricted	225	181	44	190	35	199	26	208	17	218	7
Onstreet Unrestricted	229	223	6	234	-5	245	-16	257	-28	269	-40
<i>Subtotal On Street</i>	454	404	50	423	31	444	10	465	-11	487	-33
Off street Restricted	107	85	22	89	18	93	14	98	9	102	5
Off street Unrestricted	0	0	0	0	0	0	0	0	0	0	0
<i>Subtotal Off Street</i>	107	85	22	89	18	93	14	98	9	102	5
TOTAL	561	489	72	512	49	537	24	563	-2	590	-29
% Total Supply		87%	13%	91%	9%	96%	4%	100%	0%	105%	-5%

Table 37 - Projected parking demand percentage – Mortdale – no change in travel mode

WEEKDAYS	Occupancy at peak				
	2018	2023	2028	2033	2038
On street Restricted	80%	84%	88%	93%	97%
On street Unrestricted	97%	102%	107%	112%	117%
<i>Subtotal On Street</i>	89%	93%	98%	102%	107%
Off street Restricted	79%	83%	87%	91%	96%
Off street Unrestricted	N/A	N/A	N/A	N/A	N/A
<i>Subtotal Off Street</i>	79%	83%	87%	91%	96%
TOTAL	87%	91%	96%	100%	105%

7.5.2 Change in travel mode

If a 5%¹⁴ decrease in car usage is achieved every five years from 2018 to 2038 the impact on the demand for parking in Mortdale is summarised in Table 38 and Table 39 below.

The modelling indicates that the peak demand by 2038 will be slightly higher than practical capacity of 85%, remaining relatively constant over the twenty year period.

Table 38 - Projected parking demand - Mortdale - after change in travel mode

WEEKDAYS	2018			2023		2028		2033		2038	
	# Car Spaces	# Spaces Used	Excess/ Shortfall	# Spaces Used after Adj in Travel Mode	Excess/ Shortfall after Adj in Travel Mode	# Spaces Used after Adj in Travel Mode	Excess/ Shortfall after Adj in Travel Mode	# Spaces Used after Adj in Travel Mode	Excess/ Shortfall after Adj in Travel Mode	# Spaces Used after Adj in Travel Mode	Excess/ Shortfall after Adj in Travel Mode
Onstreet Restricted	225	181	44	180	45	179	46	179	46	178	47
Onstreet Unrestricted	229	223	6	222	7	221	8	220	9	219	10
<i>Subtotal On Street</i>	454	404	50	402	52	400	54	399	55	397	57
Off street Restricted	107	85	22	85	22	84	23	84	23	83	24
Off street Unrestricted	0	0	0	0	0	0	0	0	0	0	0
<i>Subtotal Off Street</i>	107	85	22	85	22	84	23	84	23	83	24
TOTAL	561	489	72	487	74	485	76	482	79	480	81
% Total Supply		87%	13%	87%	13%	86%	14%	86%	14%	86%	14%

Table 39 - Projected parking demand percentage - Mortdale - after change in travel mode

WEEKDAYS	Occupancy at peak				
	2018	2023	2028	2033	2038
On street Restricted	80%	80%	80%	79%	79%
On street Unrestricted	97%	97%	97%	96%	96%
<i>Subtotal On Street</i>	89%	89%	88%	88%	87%
Off street Restricted	79%	79%	79%	78%	78%
Off street Unrestricted	N/A	N/A	N/A	N/A	N/A
<i>Subtotal Off Street</i>	79%	79%	79%	78%	78%
TOTAL	87%	87%	86%	86%	86%

Therefore, a change in travel mode of at least 5.5% every 5 years must be achieved for peak demand in 20 years to be at or below practical capacity (85%).

If this change in travel mode is not achieved it will be difficult for drivers to locate available parking at peak times and it will be necessary to supply more parking.

¹⁴ ptc. assumption for the purpose of comparison

7.6 Future Parking Demand & Supply Conclusion

Our projections for the larger town centres (by surveyed inventory) indicates that if parking demand increases in line with future population growth and there was no change in supply or parking behaviour peak occupancy levels would reach or exceed 85% in the following timeframes.

Table 40 - Summary outcomes of future projections of parking demand

Key Centre	Peak Occupancy >85%	Minimum change in travel mode required every 5 years to maintain peak occupancy at or below 85% to 2038
Hurstville	2028	3%
Kogarah	2018	>5%
Riverwood	After 2038	0%
Beverly Hills	After 2038	0%
Mortdale	2018	>5.5%

The analysis also indicated the minimum change in travel mode required to defer this outcome until 2038 or later was between 0% -> 5.5% every 5 years.

These results indicate there may be the opportunity to consolidate off-street parking in areas such as Riverwood and Beverly Hills freeing up land for sale, redevelopment or repurposing for public use.

7.7 Survey areas impacted by Sydney Clearways Strategy

To relieve the level of congestion along King Georges Road during weekdays and weekends, RMS has implemented a new clearway strategy as discussed in Section 3.7 and Attachment 2.

Due to the introduction of new clearway periods, the loss of parking spaces on King Georges Road in the survey areas is illustrated below:

Table 41 - Beverly Hills and South Hurstville Loss of Spaces

Survey Area	Section	Loss of Spaces
Beverly Hills	Between Stoney Creek Road and Young Street	12
South Hurstville	Between Connells Point Road and Grosvenor Road	17
Total		29

In Beverly Hills, these spaces were not occupied during any of the surveyed periods; therefore, there will be minimal impact on parking in the area.

In South Hurstville, based on the survey results, 9 of these 17 spaces are occupied on weekday peak (11 are occupied on weekend peak). These spaces are likely to be used by shoppers as they are all 1/2P spaces outside the current clearway hours. If these parkers are displaced to other nearby streets due to the loss of parking on King Georges Road, the overall on-street peak occupancy in the survey area will increase from 67%¹⁵ to 76%¹⁶ on weekday and from 71%¹⁷ to 80%¹⁸ on weekend, however, will still be lower than practical capacity (85% of total on-street capacity). Therefore, the impact of losing these spaces is considered minimal.

Other sections of the roadway along King Georges Road between Beverly Hills and South Hurstville were not included in our parking survey therefore we are unable to assess the impact. However, these sections are predominantly residential areas with private garages for parking. Therefore, the loss of on-street spaces is only likely to affect visitor parking which will be displaced to the side streets.

¹⁵ Per ptc. survey – weekday peak at 11:00-12:00, 99 occupied spaces / 147 on-street spaces = 67%

¹⁶ Assume weekday peak parking demand remains unchanged, 99 occupied spaces / 130 on street spaces (147-17) = 76%

¹⁷ Per ptc. survey – weekend peak at 10:00-11:00, 104 occupied spaces / 147 on-street spaces = 71%

¹⁸ Assume weekend peak parking demand remains unchanged, 104 occupied spaces / 130 on street spaces (147-17) = 80%

8. Stakeholder Workshops

A key component in developing a Parking Strategy is consultation with stakeholders. Two workshops were held with stakeholders agreed with Council to raise concerns in relation to parking and exchange ideas with respect to future parking management controls and strategies.

8.1 Stakeholder Workshop 1

The first stakeholder workshop was held at the Georges River Council Chambers on Tuesday, 20th March 2018. Details of feedback received is included in Attachment 12 and key items summarised below:

Table 42 - Summary of Stakeholder Workshop 1 Comments

Key Centre	Key Comments
Hurstville	<ul style="list-style-type: none"> • High availability of unrestricted parking • More paid parking/ticket machines required within town centre • Consider wayfinding strategy (e.g. colour-coding of parking restrictions)
Kogarah	<ul style="list-style-type: none"> • Competing demand drivers from hospital and TAFE– need to prioritise user groups • Lack of parking enforcement - abuse of time-restricted spaces • Steep topography & heavy vehicle traffic act as barriers to an increased uptake of cycling • Insufficient parking for hospital staff and patients in medical precinct
Overall LGA	<ul style="list-style-type: none"> • Attract new customers through good parking experiences • Lack of end of trip facilities to support cycling • Provide infrastructure to support shift in travel modes • Better communication of public transport smart -scheduling apps and Opal transfer discounts

8.2 Stakeholder Workshop 2

The second stakeholder workshop was held at the Georges River Council Chambers on 14 June 2018. Items raised during the workshop are summarised in Attachment 12. It is acknowledged that only one public stakeholder attended the second workshop.

8.3 Councillor Presentations

ptc. presented the key findings of the parking surveys as well as proposed strategies for parking management at a Councillor meeting held at the Georges River Council Chambers on 16th April 2018. The objective of the meeting was to obtain feedback and support from Council in relation to the proposed future recommendations to ensure they align with Council’s overall vision for the LGA.

A subsequent presentation to Councillors was also held on 16th July 2018 to present the recommended draft parking strategies.

9. Current & Emerging Issues

All the components of work and analysis undertaken and described in the previous Sections has identified the following current and emerging issues with respect to parking within the study areas:

Table 43 - Existing & Emerging Issues

Issue No.	Issue	ptc. comment
1	Peak occupancy at or above practical capacity (85%)	Mortdale, Oatley, Carlton, Kogarah, Narwee (weekend) and selected business zones (B1-Forest Rd Shops, Lugarno; B8-Shops on Ogilvy St, Peakhurst; B16-Shops on Carwar Ave, Carss Park; B17-Coffee Shop, Kyle Bay; and B21-Cheesecake Shop, Carlton).
2	Perception regarding parking availability does not align with reality	In the majority of areas parking was available at peak times; however, the location may be unknown
3	Misalignment of time restrictions with parking demand	Shorter stay parkers should be accommodated on-street and longer stay parkers in off-street car parks on the periphery of the centre
4	Insufficient accessible spaces	To improve or maintain social equity accessible spaces to be supplied in convenient locations to meet demand.
5	Effective enforcement of time restrictions	Limitations due to the size of the LGA and the number of parking officers.
6	Underutilisation of off-street parking	Some off-street car parks were at or above practical capacity whilst others were below 50% occupied at peak – may indicate insufficient wayfinding.
7	Car dependency	High percentage of car use; however, trend towards public transport is in the right direction.
8	There may be insufficient parking supply in the future	With expected population growth, areas which currently have sufficient supply may not in the future unless demand strategies are implemented.
9	Other demand generators compete with town centres	Hospitals, schools and commuters compete for limited spaces

10. Parking strategy goals and framework

10.1 Policy and Strategic Framework

The strategic vision of creating a vibrant and thriving community will require consideration of numerous factors to support Council’s LGA-wide strategy of achieving a reduction in car usage and encourage the uptake of public transport within its town centres.

To ensure parking caters for the expected increase in the ageing population, priority for this user group will need to be achieved through the provision of additional seniors and disability parking spaces within the commercial cores.

Effective parking enforcement to maximise the intent of time restrictions (i.e. to ensure equitable use by the community) will need to be implemented in areas where there are a significant number of drivers overstaying, which impacts on the turnover of parking.

There is also a balance required between the need to minimise congestion within the commercial centres, particularly during the commuter peak periods, and the need to satisfy parking demand. In order to achieve these objectives, a strong focus is required on creating safe pedestrian and active centres where users can work, shop and dine.

10.2 Goals

The main goals of the proposed parking strategies are as follows:

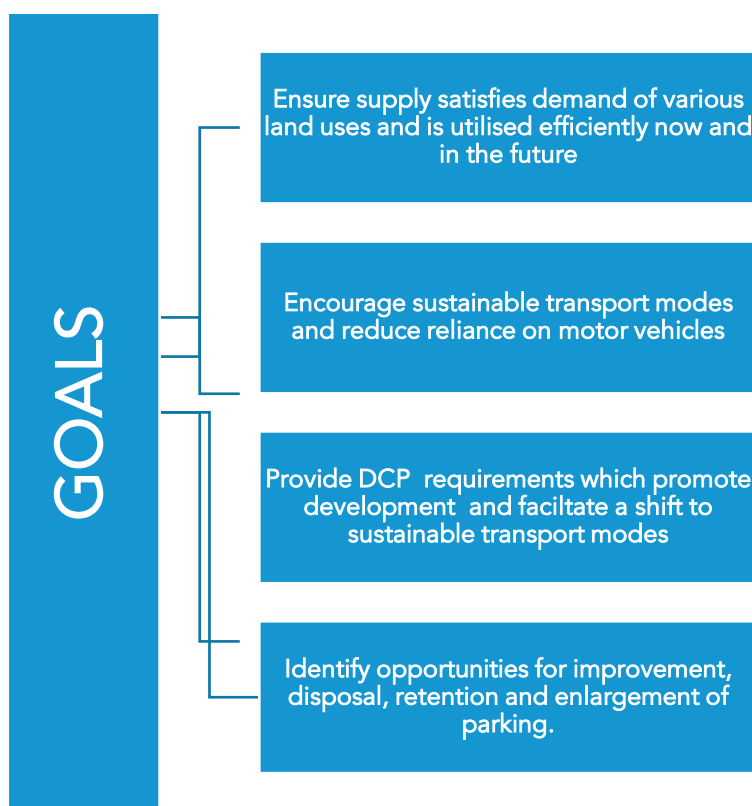


Figure 7 - Main goals of parking strategies

10.3 Change Framework

To achieve these goals and address the issues outlined in Section 9, Council should implement a robust framework to manage change. We recommend Council follows the framework detailed in Figure 8 before implementing any change.



Figure 8 - Strategy Framework

- Document Supply – Following our inventory collection Council now has up to date records of the parking supply in the key centres and business zones (both on street and off street), showing category (e.g. Loading Zone, accessible parking etc.) and time restrictions (restricted vs., unrestricted parking etc.). This provides a base position from which to manage future change.
- Measure Demand – Regular occupancy and length of stay surveys are required to measure demand at different times of the day and days of the week to ensure appropriate parking controls and compliance thereof. The surveys undertaken within the scope of this project were on one weekday and one weekend day only and additional surveys over different periods (other days and times of the year) are required to build a more robust demand profile for the areas where changes are proposed.
- Identify Solutions – Solutions for improving the use of current supply and encouraging non-car trips should be pursued before considering increasing supply as parking is costly to provide.
- Implement Solutions – As parking occupancy in a given area approaches 85%, being practical capacity, proposed solutions are to be implemented in a controlled manner after community consultation. Supply records are to be updated for any change.
- Review and Monitor results – it is important to monitor the outcome of any change through regular data collection to ensure appropriate parking controls are in place.
- Identify Sites for Future Car Parks (if required) – the Council will incorporate potential sites for off-street car parks into their overall development masterplan to ensure appropriate planning controls are in place when the need arises. The feasibility of building new parking needs to be completed well in advance due to the timeframes required to purchase land, develop plans and construct the car park.

All changes should be referenced back to the current situation (as outlined in Section 6 of this report) to measure success. It is also proposed that community consultation is incorporated as part of the above framework and that information about parking strategies and implementation plans are incorporated into the Council’s website, social media, local newspaper/s, and any other communication tools as appropriate.

The collection of parking data and information on an ongoing basis is imperative to enable Council to measure the success of implemented strategies. To ensure this is undertaken in a cost-effective manner Council should:

- Prepare a procedure for updating parking inventory inclusive of number of spaces and type of restrictions subsequent to any change and resource accordingly, and
- Develop a program and/or explore technology options to collect occupancy and average length of stay data in accordance with an agreed timetable encompassing different times of day, days of the week and with regard to seasonal impacts, and
- Develop a reporting package incorporating graphs for use in future reporting of parking demand and the effects of implementing change.

10.4 Options

Strategies available to manage parking primarily fall under three main categories which are discussed in further detail in the following sections of this Report:

- Improve the use of existing supply (refer Section 11).
- Encourage more non-car trips (refer Section 12), and
- Increase supply (refer Section 13).

11. Improve the use of existing supply

11.1 User Group Allocation

STRATEGY: *The Council to consider the needs and priorities of the various user groups to create a safe environment and improve kerbside road efficiency whilst fostering a vibrant environment in the key centres and business zones and to ensure that the aged and people with a disability are not disadvantaged.*

As in many commercial centres and business zones, there is strong competition for the parking supply from a number of user groups, as illustrated in Figure 9 below:

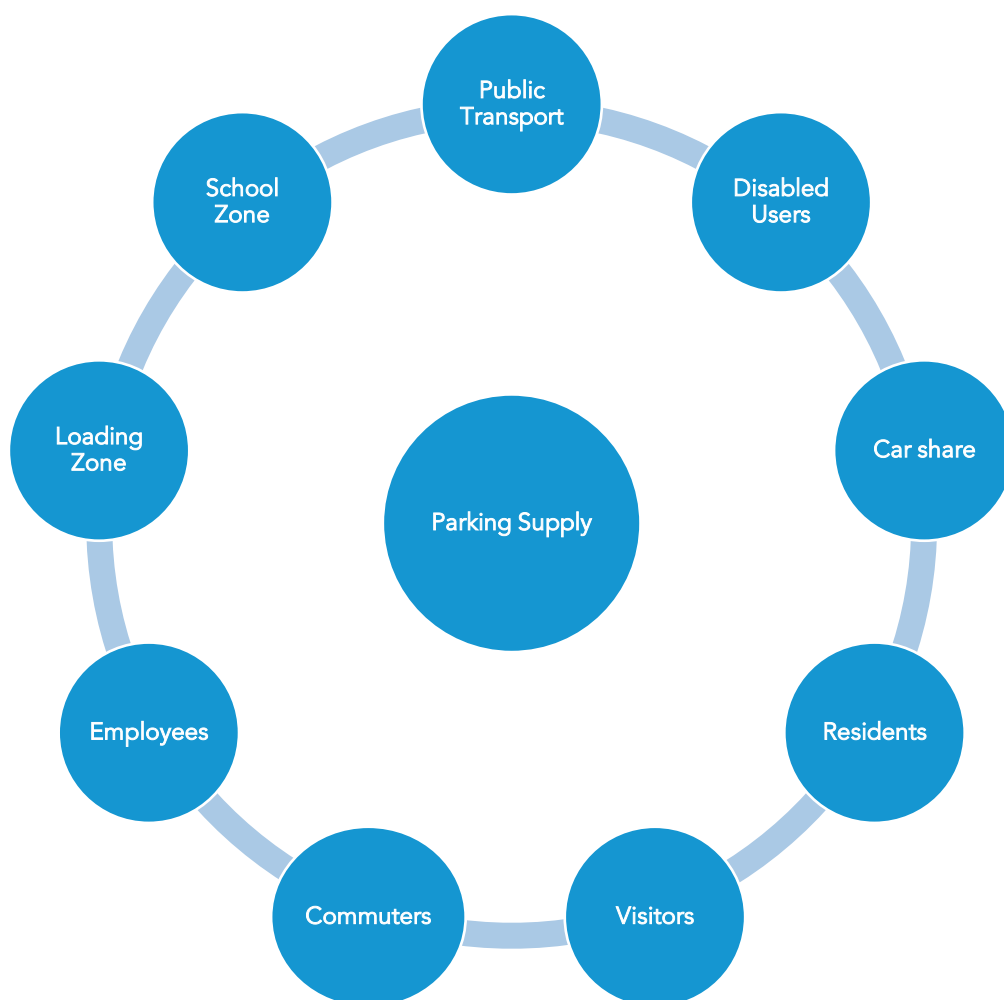


Figure 9 - User Groups

The hierarchy illustrated in Figure 10 is a guideline for use in developing an action plan to prioritise user groups, noting that the priority may vary depending on the centre:

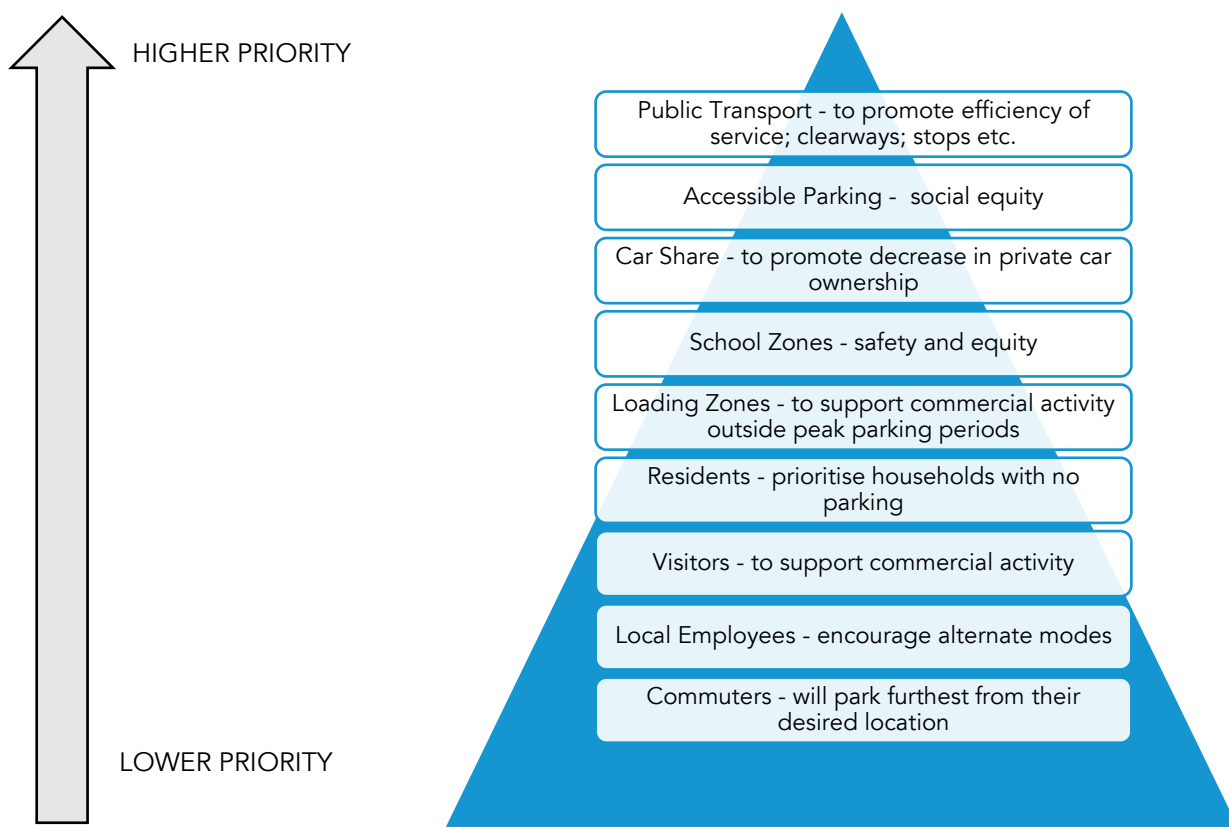


Figure 10 - Kerbside Hierarchy

An objective of the proposed Strategy should be to promote alternate modes of transport and therefore public transport access and car share are given high priorities in the hierarchy. Accessible parking for people with a disability and school zones are also prioritised to promote social equity and safety. Loading Zones to support retail and commercial activity are given the next priority; however, Council should promote loading access outside peak parking/traffic times, particularly in key centres where appropriate.

Residents with no off-street parking and short-term visitors to the area are the next priority. Local employees and commuters are ranked lowest priority as the strategy should be designed to promote alternate modes of transport where possible and they, being all day parkers, are the user groups most likely to park furthest from their destination.

RECOMMENDED ACTIONS:

11.1.1 Consult with user groups

Consult with special needs groups such as those representing people with a disability, school, senior, bicycle groups as well as delivery/transport companies to determine the demand and locations for parking for these groups.

11.1.2 Improve Accessible Parking

A detailed analysis of accessible parking spaces by location and utilisation (see Attachment 13) identified the following opportunities for consideration by Council:

Table 44 - Opportunities to consider accessible parking

Location	Opportunity
Kogarah	Additional 1- 2 time-restricted (1/2P) accessible spaces along Railway Parade subject to consultation with local business. 1/2P limit allows permit holders to park for up to 2 hours.
Riverwood	Conversion of loading zones to additional on-street accessible spaces (2) and public parking subject to consultation with local business; Loading zones 6am – 9am and 3pm - 6pm; accessible or public parking 9am – 3pm.
Beverly Hills	Additional 2 spaces west of King Georges Road - preferably Edgbaston Road given the greater road width and proximity to businesses and 2 within the Edgbaston car park.
Oatley	Relocate some on-street accessible spaces to Oatley Parade to better service the train station.
Carlton	Relocate accessible space closer to the train station, possibly on Railway Parade between Winchester Street and Jubilee Avenue and add an additional space; replace the loading zone adjacent to the station entrance with an accessible space.
Blakehurst	No current provision – recommend the addition of 1 space to improve amenity. The location of the accessible parking bay will be subject to consultation with local businesses.
Penshurst	We recommend reducing the off-street accessible parking provision to 4 spaces and reallocating the other spaces to public use.
Kogarah Bay	No current provision – recommend the addition of 1- 2 spaces to improve amenity. The location of the accessible parking bays will be subject to consultation with local businesses.
South Hurstville	Reallocate 1 off-street space to public parking in the Connells Point Road car park.
Kingsgrove	Additional space recommended on Kingsgrove Road.
B4 Shops Oatley	Relocate the underutilised space near Woronora Street further west up Mulga Road.

B13 Shops Rocky Point Road	Recommend providing 2 spaces along Newcombe Street close to Rocky Point Road. Provision on Bonney Street is not recommended due to the narrow road width.
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In implementing the strategy, the Australian Standards for Access (AS 2890.5 -1993) with respect to accessible parking should be considered. Where necessary, time restricted accessible parking should be considered to increase turnover and reduce misuse of the accessible spaces. In accordance with the RMS Mobility Parking Scheme (MPS), permit holders are eligible to park for longer periods in time-restricted spaces as outlined below.

- More than 30 minutes: the vehicle can park for an unlimited time
- 30 minutes: the vehicle can park for up to two hours
- Less than 30 minutes: the vehicle can park for a maximum of 30 minutes.

11.1.3 Limit Loading Zones to off-peak times

A detailed analysis of Loading Zones by location and utilisation (details in Attachment 13) identified the following opportunities for consideration by Council, subject to consultation with local businesses:

Table 45 - Recommendations Loading Zones

Opportunity	Location
Time restricted Loading Zones to increase turnover; other times clearways to improve traffic flow	Hurstville, Oatley
Restricted access to times outside peak hours to reduce congestion	Hurstville
Reallocate Loading Zones to accessible parking due to low utilisation (subject to business consultation)	Riverwood, Carlton, Kogarah Bay
Engage with local businesses to determine the adequacy of Loading Zones	Mortdale, Oatley, South Hurstville, B2 Bar & Café Lugarno

11.1.4 All day parking

Consult with local businesses to determine the demand for all day parking (staff working in the area) not satisfied by the private parking provision and where staff currently park. Also, to understand the utilisation of private car parks and whether there is scope to increase utilisation at non-peak times by making the spaces available for others to use.

This will enable Council to better determine the parking demand profile within the study areas and better inform required parking ratios for future developments. It will also help determine if there is insufficient parking adjacent to local businesses because their staff are parking in the most conveniently located spaces that should be used by short term parkers.

11.2 Review Time Restrictions

The utilisation of existing supply can be improved by maximising turnover, by matching supply to demand, by ensuring in general that shorter term stays are satisfied on-street closest to the town or business centre and longer stays off-street or in the on-street spaces on the periphery of the town centre. By providing wayfinding and capacity signage for off-street car parks available spaces can be fully utilised.

The specific strategies proposed are as follows:

STRATEGY: *The closer the parking supply is to the key centres and business zones the shorter the time restriction.*

An example of recommended time restrictions based on the distance from commercial centres is as follows:

- 0-50m: ½ P
- 50-150m: 1P
- 150-300m: 2P
- 300m-500m 4P
- +500m unrestricted

Allowance needs to be made concerning specific locations (e.g. pick up and drop off in front of medical centres, schools, etc.) to be determined on a case by case basis (e.g. ¼ P). Further, consideration should be given to areas of special need as required.

Council to provide motorcycle parking in areas deemed inappropriate for parking cars to increase kerbside and off-street supply.

STRATEGY: *Shorter time restrictions should apply to on- street parking supply vs off street parking supply. Available on-street parking should support high turnover users*

The general principle, recognised across Australian local government areas as well as overseas is that only those drivers who want to make a short stop at a particular location should park in the street, whilst drivers who want to spend longer periods (or even all day) should park in off street car parks. Off-street car parks in the LGA generally comply with this principle; the majority are 3P whilst the majority of time restricted parking is 2P or less.

STRATEGY: *Where occupancy levels exceed 85%¹⁹ on a consistent basis, consider a change in time restrictions to manage parking demand.*

The following process should be undertaken on a regular basis to maximise supply by encouraging turnover. As a parking area approaches practical capacity, deemed 85%, consideration should be given to reducing the time restriction and, ultimately, introducing paid parking therefore managing supply through a pricing strategy.

¹⁹ Concept of practical capacity; being the level of utilisation at which potential parkers perceive parking is full

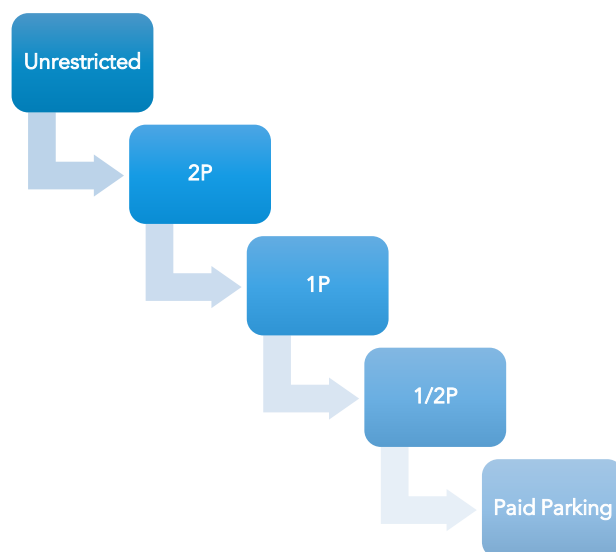


Figure 11 – Typical process for managing demand using time restrictions

Following the framework discussed in Section 10.3, parking data from either regular occupancy surveys or smart parking solutions (e.g. access control equipment or sensors) should be analysed to measure parking demand and where appropriate consider changing time restrictions to manage demand i.e. reduced time restrictions will increase turnover and therefore supply. Conversely, if areas record low levels of occupancy the Council may increase or remove time restrictions.

RECOMMENDED ACTIONS:

11.2.1 Use parking surveys to inform changes to time restrictions

While some key centres and business zones may have the correct time restrictions in place, the recommendation is for all streets and car parks to be reviewed with regard to the appropriate time restrictions for off-street and on-street parking. The review should be informed by the parking surveys undertaken as part of this study, which indicated occupancy exceeds (or was close to) 85% at peak times as summarised in Table 46 below.

Table 46 - Key centres and business zones with peak occupancy > (or close to) 85%

Key Centre/ Business Zone	Total Supply (av no. bays)		Peak Occupancy		Recommendation
	On-Street	Off-Street	Wednesday	Saturday	
Mortdale	467	107	86%	89%	The high occupancy relates mainly to unrestricted spaces. A proportion of parkers in these spaces are short stay parkers (<2 hours). Recommend extending time restrictions.
Oatley	438	45	86%	71%	Convert unrestricted spaces in the Letitia car park to 3P
Carlton	325	0	85%	63%	Extend time restricted area as 67% of supply unrestricted spaces and only 50% occupied by all day parkers (>7hrs).
Kogarah	1,259	253	84%	72%	Convert 2P and unrestricted spaces in Kensington Street to 1P, convert unrestricted spaces in Gladstone Street and Montgomery Street to 2P, consider

Key Centre/ Business Zone	Total Supply (av no. bays)		Peak Occupancy	Peak Occupancy	Recommendation
					installation of in ground sensors in 1/2P and 1P spaces to facilitate enforcement (refer Section 11.4).
Narwee	42	0	79%	86%	Extend 2P time restrictions in Mercury Street to Berrille Road
B16 - Shops Carwar Ave, Carss Park	31	24	91%	65%	Extend time restricted on-street parking – 3 times the number of all-day parkers on a weekday vs. weekend.
B21 – Cheesecake Shop, Carlton	75	0	89%	65%	Extend time restricted on-street parking – 6 times the number of all-day parkers on a weekday vs. weekend
B1 – Forest Road Shops, Lugarno	49	0	84%	92%	94% supply 1P; 96% of vehicles parking for 1 hour or less. Consider extending time restrictions into Grandview Crescent and/or Chivers Ave.
B8 – Shops Ogilvy Street, Peakhurst	45	0	79%	92%	Extend time restrictions on a Saturday to 6pm.
B17 – Coffee Shop, Kyle Bay	73	0	47%	96%	Peak at 9am Saturday – less than 80% other times of the day. No action required.

These results may have been impacted by the size of the survey area (e.g. Mortdale and Oatley one third the size of Kogarah) or the exclusion of some off-street car parks (e.g. TAFE car park in Kogarah).

Where time restrictions are extended this may displace all-day parkers to residential streets further from the town centre.

Even if the overall peak occupancy was less than 85% at peak there may be some areas within a centre or zone with peak occupancy greater than 85%. For example, in Hurstville overall peak occupancy was 78% on a weekday at 3 pm however two of the off-street car parks had occupancy levels in excess or close to 85% at this time as summarised below:

Table 47 – Occupancy of off-street car parks in Hurstville

CAR PARK CODE	CAR PARK NAME	TOTAL CAPACITY	% OCCUPANCY AT 3PM (WEEKDAY)
22AHU1	GLOUCESTER RD CAR PARK	100	45%
22AHU2	PALM COURT CAR PARK	32	69%
22AHU3	PARK RD & MACMAHON ST CAR PARK	154	75%
22AHU4	TREACY ST CAR PARK	90	86%
22AHU5	WONIORA CAR PARK	100	84%

Similarly, in Riverwood the two off-street car parks to the north of the railway line, Belmore Lane Car Park and Belmore Road Car Park, had occupancy levels greater than 85% at peak whilst the off-street car parks to the south of the railway had lower occupancies. Recommendations with respect to off-street car parks are detailed in Section 13.3.

Details relating to the former Kogarah City Council Resident Parking Scheme and the former Rockdale City Council Business Parking Scheme have been previously outlined in Section 3.4 and Section 3.5, respectively.

11.2.2 Paid Parking

It is an economic principle that there is no such thing as “Free Parking”:

- Parking involves costs to build and maintain as well as lost opportunity (earnings) associated with alternative uses of the land dedicated to it,
- “Free” time restricted parking is expensive to enforce (refer to Section 11.4)
- Parkers who overstay the time limit risk incurring fines, and
- Free parking penalises people who use public transport and other alternative modes, which are in fact the more environmentally sustainable means of transport.

The implementation of paid parking allows for the User Pays mechanism, which has been successfully adopted by many councils and is currently implemented in two Council off-street car parks in the LGA; Woniora car park, Hurstville and Town Square car park, Kogarah as follows:

Table 48 - Paid Parking in the LGA

Car Park	No. spaces	Operating hours	Weekday	Weekend	Control
Woniora car park	100	6am – 8pm Mon – Sun 6am – 10pm Thurs	0-1hr \$1 1-3hr \$2ph >3hr \$8 Free after 6pm	Free	Pay and Display
Town Square car park	253	6am – midnight Sun – Thurs 6am – 2am Fri- Sat	3P time limited First half hour free \$2.10 per hour thereafter up to 3 hours.	Free	Pay and Display

At both car parks Pay and Display parking meters have been installed to collect fees. Whilst easy to use and relatively inexpensive compared to a ticketed access control system there is generally revenue leakage of approximately 5-10% based on our experience at other car parks as enforcement officers are still required to patrol the car park to ensure compliance.

Where paid parking is in place in off-street car parks Council to consider replacing the current Pay and Display machines with a ticketed access control system (subject to a cost benefit analysis) which has the following advantages:

- Car park no longer requires enforcement by parking officers reducing workload and level of non-compliance,
- Minimises revenue leakage and if installed with license plate recognition cameras can manage abuse of free parking periods, and

- Data available from the car park management system with respect to length of stay and occupancy for Council analysis on an ongoing basis.

Pricing strategy to be reviewed on a regular basis; particularly where there are competing car parks in the area. We note at peak the occupancy the Town Square car park is at or above practical capacity (85%). The cost of a 2 hour stay in this car park is approximately \$3 (ALOS 2.1hr-2.5hr). Competitor car parks are charging from \$8 (2 hrs TAFE car park managed by Wilson Parking) to \$19 (2 hours St George Hospital).

11.3 Signage & Wayfinding

One of the most common problems in town centres is that the location of off-street car parks is not always well known. Even for residents, some car parks may have a higher profile than others.

Furthermore, within each car park, there is available capacity at certain times of the day and days of the week and in some instances, physical areas where there is low utilisation most of the time.

Maximising the use of the current car park supply entails the provision of reliable and up to date information to drivers as to the location and availability of parking within the area.

STRATEGY: *Provide wayfinding through key centre parking signage plans where applicable for the main off-street car parks. Alternatively, or in conjunction with the signage, Council could consider mobile based apps to promote efficient use of available space.*

This would direct drivers to available parking, reducing traffic circulation and congestion. In implementing a signage strategy, it is important to consider that street signs compete with many other visual stimuli for drivers and there is a fine line to walk between good signage and signage clutter. For this reason, the location of signs at key decision points as well as the size and content of the sign are of extreme importance.

RECOMMENDED ACTIONS:

11.3.1 Prepare integrated signage plans

Integrated signage plans should be prepared for the key centres with off-street parking, considering technology solutions such as dynamic signage (similar to that installed at Westfield Hurstville), and mobile apps /web based real time data to "find a park". Examples of where these signs would improve utilisation are as follows:

- Hurstville ; at peak on a weekday the Gloucester Road car park is less than 50% occupied; similarly on a weekend the Woniara car park is less than 50% occupied. The Woniara car park in particular is difficult to locate as it is a basement car park with laneway access.
- Similarly the entrance to the Town Square car park in Kogarah is difficult to locate for drivers who are unfamiliar with the area. The pictures below compare the signage visible from Kensington Street for the Town Square car park , the TAFE car park and Hospital public car park.



Figure 12 - Town Square Car Park Signage, Kogarah



Figure 13 - TAFE Car Park Signage, Kogarah



Figure 14 – Hospital Car Park, Kogarah.

Dynamic signage at the entrance to a car park can relieve traffic congestion as it prevents cars entering a car park and circulating the aisles when no spaces are available. Examples of dynamic signage at the entrance to an at-grade car park and basement car park are illustrated below:



Figure 15 - Examples dynamic signage²⁰

During the inventory collection we noted the sign at the entrance to the Town Square car park has provision for recording available bays; however, the sign was not operational.

11.3.2 Update Council website with parking information

Load maps showing the location of various parking areas on the Council website so that people can check the location of car parks and where parking is available prior to undertaking a visit (especially if they only do so occasionally).

11.4 Enforcement Policy

The success of any strategy to increase the availability of parking through the management of time restrictions is dependent upon the consistent application of an enforcement regime. Given the size of the LGA, an economically viable solution requires the adoption of technology in conjunction with appropriate resourcing.

STRATEGY: *Consider more efficient ways to ensure that time restrictions are complied with to maximise turnover of spaces. The selected methodologies and polices are to be applied consistently across all streets and car parks.*

The principal purposes of parking management are to:

- Assist in ensuring the safety of pedestrians, drivers of motor vehicles and all other road users,
- Ensure the equitable use of the limited available parking spaces in an environment where demand for such spaces reaches capacity at peak times,
- Ensure effective traffic flow within the area,
- Provide a general service to the community, and
- Promote environmentally sustainable motor vehicle use.

²⁰ <https://mosman.nsw.gov.au/residents/transport/public-parking-and-carparks>

In seeking to maximise the utilisation of available parking supply the role of the Enforcement Officer is crucial to the extent that unless the parking time limits are enforced, drivers will tend to abuse them by staying longer thus impacting on turnover. This applies in both on street and off-street parking areas.

RECOMMENDED ACTIONS:

11.4.1 Adopt technology solutions

Investigate and action technology solutions for improving the efficiency and productivity of the enforcement team. It should be noted that the shorter the time restrictions (anything less than 2 hours) the more time consuming, expensive and ineffective manual enforcement activity is as the Enforcement Officer is required to patrol their area more frequently to check for infringements and may not have the bandwidth to do so.

Examples of the technology solutions available to improve the efficiency of the enforcement team are as follows:

Table 49 - Enforcement Technology Options

Method	Advantages	Disadvantages
Licence Plate Recognition Cameras can be mounted on vehicles or placed in fixed locations.	<ul style="list-style-type: none"> • Increased coverage and productivity of enforcement team • Can be integrated with mobile apps for paid parking by license plate • Increased compliance therefore increased turnover and increased parking supply. • Data can be transmitted to dynamic signage or parking apps/ web applications to provide real time parking availability 	<ul style="list-style-type: none"> • Data capture is not 100% accurate at the current time
In-ground sensors Relay information to car park management system which identifies overstays. In Europe there are suppliers (e.g. AlPark based in Germany) which can provide a single sensor to cover up to 30 spaces which is mounted on a lamp post and can be solar powered. It has a cloud-based engine that can provide extensive predictive and usage data to a central location or to users through smart devices	<ul style="list-style-type: none"> • Targeted enforcement reducing patrols and increasing productivity • Increased compliance therefore increased turnover and increased parking supply • Data can be transmitted to dynamic signage or parking apps/ web applications to provide real time parking availability • Collect information on occupancy and LOS to assess effectiveness of time restrictions 	<ul style="list-style-type: none"> • Accuracy can be impacted by debris over sensor • Generally, battery operated with a life of 3-5 years maximum although solar powered sensors are available. • Individual bays must be line marked.

Subject to a cost/benefit analysis, we recommend as a first step, sensors are installed in a trial area such as the streets with 1/2P and 1P time restrictions in Kogarah and off-street car parks in Riverwood (Belmore Lane and Belmore Road) to assess the effectiveness of the time restrictions and assist with enforcement.

Should the trial be successful, there may be opportunity to extend to other on-street areas and free CBD car parks and other car parks with a capacity of more than 50 spaces within the key centres.

11.4.2 Publicise the benefits of time restricted parking

Conduct a publicity campaign utilising the local newspaper, the Council website and social media to inform the community of the enforcement regime and the importance of enforcing time restrictions in managing parking availability.

12. Active & Sustainable Transport

12.1 Public Transport

Reduced car dependency must be supported by an efficient and convenient public transport network and as such to achieve this objective the Council is reliant on the support of the State in developing the bus and rail network in the LGA.

STRATEGY: *Reduce car dependency by working closely with Transport for NSW (TfNSW) in optimising bus and train connections, improving bus stops and increasing the regularity of services.*

The introduction of the new train timetable in November 2017 has resulted in the removal of all express services stopping at Kogarah Station during the AM and PM commuter peak periods of 7am-9am and 4pm-6pm (on a typical weekday). A review of the number of train services at Kogarah Station has been conducted to determine the proportion of 'all-stops' to express services which stop at or by-pass the station, summarised in Table 50.

Table 50 - Trains Service Summary at Kogarah Station

Time Period	No. Trains Stopping at Kogarah – All Stops Only	No. Trains by-passing Kogarah – Express	Total
AM Peak (7am – 9am)	12 (34%)	23 (66%)	35
PM Peak (4pm – 6pm)	12 (36%)	21 (64%)	33

The data presented in Table 50, indicates that there is a significant proportion of train services (approximately 64-66%) that by-pass Kogarah Station during the commuter peak periods, despite Kogarah remaining the largest employment zone within the Southern Sydney region. Furthermore, the trains which stop at the station are 'all-stops' services which would result in longer journey times. The combination of these factors may act as a deterrent for commuters to utilise public transport in Kogarah.

During Stakeholder Workshop 1, it was identified that the bus and train connection times may be too short to provide sufficient time for passengers alighting from a train and transferring to a bus service at major transport hubs including Hurstville Station.

A high-level review of the train arrival times and connecting bus services at the Hurstville Station Bus Interchange (Ormonde Parade) has revealed that the average connection times between a train arriving at the station and the next bus service at the interchange varies between four minutes and 13 minutes. A summary of the connection times is presented in Table 51.

Table 51 - Average Connection Times between Train arriving at Hurstville Station & Bus Services²¹

Time Period	Hurstville Station Interchange, Ormonde Pde Stand H	Hurstville Station Interchange, Ormonde Pde Stand J	Hurstville Station Interchange, Ormonde Pde Stand K	Hurstville Station Interchange, Ormonde Pde Stand L
AM Peak (7am – 9am)	13 min	13 min	6 min	10 min
PM Peak (4pm – 6pm)	9 min	12 min	4 min	11 min

Generally, a connection time of 10 minutes is considered ideal to allow for sufficient transfer time; as such, the bus and train connections appear to be fairly consistent with this figure, with the exception of bus services at Stand K where the connection times are considerably lower during both peak periods.

The observations raised within the stakeholder workshop align with this particular finding. However, it is highlighted that the reliability of bus services is a key contributing factor which impacts upon the actual connection times experienced by commuters. Smart-scheduling apps which provide real-time timetabling data play a major role in assisting patrons with their trip planning and keeping them informed of any service delays.

RECOMMENDED ACTIONS:

12.1.1 Collaborate with TfNSW

We recommend Council establish a framework to facilitate collaboration with TfNSW aimed at optimising routes and improving amenity and frequency of services ensuring that all train stations and bus stops are fully accessible to patrons with a disability or mobility impairment.

STRATEGY: *Ensure the Council website and social media platforms promote public transport including smart scheduling apps.*

In order to reduce private car usage, the alternative transport options available should be promoted by Council to encourage the uptake of public transport. There are currently a number of smartphone applications available in the market which can be used to better inform the public of their next connecting service. Mobile apps such as TripView, Moovit and TripGo provide real-time data of the estimated times of the next scheduled service as well as updated information regarding any services which may be experiencing delays.

RECOMMENDED ACTIONS:

12.1.2 Update Council website to promote use of public transport

Council to advertise the use of transport apps on their website and social media platforms (i.e. Facebook, Twitter) to assist in changing the behaviour of the community by allowing the public to make more informed decisions with regards to their next trip.

²¹Scheduled train and bus service times obtained from TfNSW (current as of April 2018)

12.2 Walking and Cycling Considerations

STRATEGY: *Ensure a safe and accessible environment for pedestrians and cyclists.*

In order to provide a safe and accessible environment for the community, improvements to pedestrian and cycling amenity within the LGA will need to be considered. Streetscape design is required to incorporate shared use by pedestrians, cyclists etc. including speed reductions where appropriate.

RECOMMENDED ACTIONS:

12.2.1 Update Council Website

Alternative travel modes such as cycling and walking can be promoted through Council's website. Currently the website provides information regarding popular walkways and cycle routes within the LGA however it could be improved by including the walkways and cycle routes within an easy-to-read map. Public reserves and recreational areas within the locality can be promoted on Council's social media platforms to further encourage walking and cycling.

12.2.2 Update Bike Plan

The existing St George Bike Plan was prepared in 1991 and it is recommended that an updated Bike Plan be developed which expands across the entire Georges River LGA and takes into account the barriers raised in the Stakeholder Workshop 1: high volumes of heavy vehicle traffic impacting cycling safety, limited bicycle parking, lack of end of trip facilities at major train stations and steep topography.

The updated Bike Plan should be prepared so as to align with the key objectives of the state-wide *NSW Bike Plan (2010)* and the *RMS How to Prepare a Bike Plan (2012)* guideline. The development of a cycling strategy should also be made in consultation with community cycling groups such as the St George Bicycle User Group (BUG) and updated periodically, say every 5 years.

12.2.3 Update PAMP

The existing PAMP for the former Kogarah LGA was prepared in 2009. It is recommended this document is also updated to better reflect the current pedestrian infrastructure within the Georges River LGA. The primary focus of the PAMP should be to establish new pedestrian links to improve connection between key pedestrian attractors and generators. As each town centre has unique characteristics, individual route audits should be conducted to identify areas where pedestrian access may be restricted and explore improvements to existing facilities such as the introduction of new refuge islands and footpaths.

Council should also explore the potential pedestrianisation of streets closest to the commercial core, taking into consideration the likely user groups within the locality. For example, Forest Road in Hurstville carries the major thoroughfare through the town centre and the removal of parking between Woodville Street and Ormonde Parade, allowing access to buses and taxis only may assist in reducing congestion.

We also recommend Council consider as an overall strategy the introduction of a lower speed environment near retail areas (40km/hour) to improve the general safety of pedestrians. The revised PAMP should be prepared in accordance with the *RMS How to Prepare a Pedestrian Access and Mobility Plan (2002)* and should be updated periodically, say every 5 years.

12.3 Car Share Schemes

STRATEGY: *Ensure provision for car sharing spaces in any new development and /or in existing on-street and off-street car parks adjacent to major transport hubs.*

Car share is an inexpensive and sustainable means of transport for the community 24/7, which should be considered for future developments. Dedicated car share parking spaces should not take up more than 5% of the available parking spaces in a given street or off-street car park and should be located close to public transport hubs and high density residential and commercial areas. The provision of car sharing allows the community to use public transport or car-pooling for day to day trips whilst having the safety net of access to a vehicle in the event of an emergency.

A Car Share Review undertaken by the Future Melbourne Committee²² found a car share's primary impact is:

- Reduced car ownership, and
- Reduced car use, whilst maintaining convenient access to a motor vehicle.

These findings are supported by GoGet statistics in a suburban Council in Sydney, where the following was found:

- Of the 78% of members who used the service and did not own a car 66% indicated they would buy a car if the area was not serviced by a car scheme provider, and
- 57% would occupy an on-street car space.

Limited car sharing spaces currently exist in the LGA.

RECOMMENDED ACTIONS:

12.3.1 Introduce car share zones where appropriate and incentivise use

Introduce additional car sharing zones adjacent to major train stations such as Hurstville & Kogarah to provide an alternative option for public transport users. When used in conjunction with smart scheduling apps which communicate to the user the estimated arrival time of their next service, it allows for more options when switching between services. For example, if a train user arrives at Kogarah and checks that their next connecting bus service is delayed on a smart-scheduling app, they can opt for car sharing to complete the final leg of their journey.

Council to liaise with TfNSW and car sharing service providers to consider travel incentives such as the Opal transfer discounts for commuters who utilise multiple transport modes as part of their journey. It should be highlighted that the introduction of car sharing services within a town centre and available travel incentives should be well publicised to encourage uptake.

12.4 Kiss & Ride

STRATEGY: *Collaborate with local schools to encourage students residing within a suitable walking/cycling distance to use non-motorised forms of transport (e.g. walking and cycling) on their journey to and from school as well as educating students on road safety.*

²² <http://www.melbourne.vic.gov.au/about-council/committees-meetings/future-melbourne-committee-meetings/Pages/future-melbourne-committee.aspx>

The safety of school students is paramount to ensure safe travel between home and school. A reduction in car traffic associated with pick-up and drop-off activity near schools will improve the overall safety of these roads. Council may assist in promoting key road safety initiatives, such as the National Walk Safely to School Day and the National Ride2School Day.

It is acknowledged that travel by non-motorised forms of transport may not be feasible for students residing outside of a comfortable walking catchment from their school. Where travel by private vehicle is necessary, Council can collaborate with local schools to develop travel smart initiatives which encourage the use of car-pooling and public transport services.

RECOMMENDED ACTION:

12.4.1 Work with local schools and businesses to promote alternate travel modes

Council should work with local schools and businesses to promote travel smart initiatives (e.g. public transport, car-pooling, walking and cycling etc.).

Establishment of Kiss & Ride zones, particularly in the immediate vicinity of schools (e.g. within the educational precinct in Kogarah) to provide designated areas for parents to drop off their children and assist in mitigating risky parking behaviours (e.g. double-parking) as well as streamline traffic circulation within the frontage roads to local schools.

12.5 Shuttle Bus Operation

STRATEGY: *Explore alternative locations for all day parking to alleviate parking demand within the town centres.*

The relocation of existing long-term parking and the introduction of employee shuttle buses to provide a convenient transport connection may assist in freeing up on-street parking spaces in areas such as the Kogarah town centre.

As stated previously, it is recommended Council maximise utilisation of the existing parking supply (such as the supply available within neighbouring sites) prior to the creation of more parking supply. During Stakeholder Workshop 1, it was identified that the St George Leagues Club car park may be under-utilised during the day (to be confirmed with the club). Due to the large employment precinct associated with the local hospitals in Kogarah including St George Hospital and St George Private Hospital and the TAFE, there is a high demand for parking in the area by all day workers.

RECOMMENDED ACTIONS:

12.5.1 Introduce a shuttle bus service to access underutilised parking if demand warrants

Facilitate negotiations between the Hospital, TAFE and other employers in Kogarah and the Leagues Club to provide all day parking. If the demand warrants it, a shuttle bus service could be provided between the Leagues Club and Kogarah town centre to provide a convenient connection for those who require a parking space (subject to a cost benefit analysis).

13. Development of Planning Tools

13.1 Influence of Land Use Planning

In order to support the reduction on car usage within the LGA, as discussed in Section 12, the future parking provision rates for new commercial developments in the town centres will need to reflect this objective.

As analysed in Section 7 the population within the Southern Sydney precinct is expected to grow over the next 20-30 years, placing increasing demand on the road network if effective parking management strategies are not implemented. Numerous strategies have been presented in Sections 11 and 12 to address this growth into the future whilst encouraging non-motorised forms of transport.

Increasing the public parking supply should only be considered by Council as part of its overall strategic development plan for the area as it can be costly and may lead to increased traffic demand. It should be noted that increasing supply would only be required if all other strategies have been exhausted without achieving the desired outcome.

The following section outlines the potential locations for additional parking supply, if deemed necessary in the future to meet parking demand, as well as present the recommended car parking requirements for new developments for the prescribed land uses within the key commercial cores.

13.2 Recommended DCP Rates

STRATEGY: *Adopt sustainable and consistent parking rates across the LGA for future non-residential developments to encourage reduced car dependency and congestion, facilitating a shift towards sustainable transport modes.*

Based on our review of the existing parking rates as well as the review of the previous parking and traffic studies, there is opportunity for the parking requirements for future non-residential developments within the Georges River LGA to be adjusted to align with rates in adjoining LGAs. Reference has also been made to the *RMS Guide to Traffic Generating Developments 2002* (RMS Guide) which prescribes minimum parking rates for various land uses.

Future DCP parking rates are recommended based on the following parameters:

- Capacity of the Road Network;
- Market Demand;
- Cost of Providing Parking; and
- Access to Public Transport.

Parking rates should be applied consistently across the Georges River LGA (which combines the former Council areas) with adjustments within the commercial centres and areas well served by public transport. The rates should also consider the future growth of large employment precincts such as Hurstville and Kogarah, being two of the largest centres within the LGA. The recommended changes presented within this section aim to simplify the DCP parking requirements to ensure that the rates are easy to understand, competitive, transparent and robust, whilst being consistent across the LGA.

The DCP rates presented within this section should be determined in conjunction with the previous strategy recommendations outlined within the report to provide a holistic framework for achieving the key objectives of the study. It is recommended that an amendment be made to the existing parking requirement structure

currently provided within the DCPs as well as consolidation of the parking requirements across the LGA to simplify parking requirements.

A review of current DCPs from other comparable LGAs including Hornsby Shire Council and City of Parramatta Council has been undertaken for benchmarking purposes. Hornsby Shire Council currently specifies parking requirements based on the location of the development site (i.e. whether it is located within a town centre or areas outside of the key centres). For development sites situated within a major town centre, the DCP provides a concession in the amount of parking required due to the proximity to public transport infrastructure and accessibility to more frequent train and bus services. The DCP stipulates a range within which parking is to be provided, with a minimum and a maximum parking rate applicable to developments within town centres. A similar approach has been adopted within the Parramatta DCP which is applicable to the Parramatta, Granville and Harris Park Town Centres.

For developments outside of the town centres, both the Hornsby and Parramatta DCPs stipulate minimum parking rates. The Hornsby DCP outlines different parking requirements on the basis of whether the site is located within 800m of a railway station. However, the parking rates within the Parramatta DCP only specifies minimum parking rates, irrespective of distance to public transport services.

The review of these Council DCPs have been undertaken whilst developing the appropriate parking rates for the Georges River LGA. The recommended parking rates reflects a similar structure to the Hornsby DCP, on the basis that accessibility to public transport has been incorporated into the required parking provision.

13.2.1 Recommended DCP Rates for Key Centres

As outlined in Section 3.2, a comparison of the existing parking provision rates within the major town centres of adjoining local government areas is presented in Table 6. All areas in the table represent the Gross Floor Area (GFA) as defined within the current Hurstville Local Environmental Plan (LEP) 2012.

Table 52 – Existing DCP Parking Rate Comparison

Land Use / Town Centre	Hurstville – Georges River LGA [^] (Benchmark)	Kogarah – Georges River LGA	Bankstown	Canterbury*	Sutherland Shire	Rockdale	Botany Bay
Business and Office Premises	1 per 66.7m ²	1 per 40m ²	1 per 80m ²	1 per 60m ²	1 per 30m ²	1 per 40m ²	1 per 40m ²
Retail Premises (Shops)	1 per 40m ²	1 per 40m ²	1 per 40m ²	1 per 33m ²	1 per 30m ²	1 per 40m ²	1 per 25m ²
Restaurants / Cafes	1 per 13.3m ²	1 per 40m ²	Parking Study Required	1 per 30m ²	1 per 6.67m ² (RMS Rate)	1 per 40m ²	1 per 10m ²
Medical Centre	3 per consulting room	1 per 40m ²	1 per 25m ²	2 per consulting room	1 per 30m ²	1 per 40m ²	2 per consulting room

* For developments with 120m² to 1000m² GFA

[^] Rates converted from GLFA to GFA for comparison, assuming GLFA = 75% x GFA (RMS Guide to Traffic Generating Developments, 2002)

- Rates are minimum parking rates

Legend:

- Benchmark rate
- Less than benchmark rate
- Greater than benchmark rate
- Non-comparable rate

A summary of the recommended parking rates applicable to Hurstville and Kogarah is presented in Table 53.

Table 53 – Summary of Existing and Recommended DCP Car Parking Rates in Key Centres (Hurstville & Kogarah)

Type of Development	Existing Minimum Parking Rate - Hurstville	Existing Minimum Parking Rate - Kogarah	Recommended DCP Parking Rate (Minimum)	Recommended DCP Parking Rate (Maximum)
Business and Office Premises	1 per 66.7m ² GFA	1 per 40m ² GFA	1 per 60m ² GFA	1 per 40m ² GFA
Retail Premises (shops)	1 per 40m ² GFA	1 per 40m ² GFA	1 per 60m ² GFA	1 per 40m ² GFA
Restaurants/ Cafes	1 per 13.3m ² GFA	1 per 40m ² GFA	1 per 60m ² GFA	1 per 40m ² GFA
Medical Centre	3 per consulting room	1 per 40m ² GFA	1 per 50m ² GFA	1 per 30m ² GFA

These parking rates are provided as a range with a minimum and maximum rate for non-residential developments. This provides greater flexibility for Council to manage parking supply within the LGA by imposing an upper limit, whilst a minimum rate will ensure that opportunistic developers do not abuse the maximum rates by not providing any parking which results in increased strain on the available on-street parking. It is essential to establish a mechanism for controlling the parking supply within the key centres (e.g. Hurstville and Kogarah) due to the following reasons:

- Increased parking supply could result in associated traffic congestion on the road network which is already at capacity;
- In the long term, the population and employment growth within the key centres will result in increasing pedestrian generation in these centres. Therefore, it would be necessary to separate the vehicular and pedestrian traffic to ensure pedestrian safety. Pedestrian safety would be a challenge with increased traffic generation in Kogarah and Hurstville town centres;
- Due to traffic congestion within the road network, greater accessibility would be required for buses to Kogarah and Hurstville train stations as buses play a vital role in allowing transfers between connecting services at transport interchanges (e.g. Hurstville Interchange which provides connecting train services to the Sydney CBD);
- As Hurstville and Kogarah grow over time, an increasing number of loading and waste collection vehicles would need to serve these centres. In addition, access by taxi/Uber and disability parking would be required to serve the ageing demographic. As such, it is imperative to ensure that the parking supply

and its associated traffic are carefully considered as increased supply can impact upon accessibility to the key centres by certain user groups; and

- The overall vision of the key centres is to establish a vibrant and economically thriving environment which prioritises the safety of pedestrians. For example, the closure of George Street within the Sydney CBD to vehicular traffic and pedestrianisation of the street will help facilitate a shift in travel mode towards non-car travel modes and encourage active transport when conducting everyday tasks such as business, shopping and dining.

The key centres including Hurstville and Kogarah²³ are proposed to adopt lower minimum parking rates to align with Council's strategy to reduce car usage within these congested precincts. The lower parking rates provide a concession for non-residential developments within the key centres to reflect the greater level of accessibility to public transport services. As outlined in Section 4, Hurstville and Kogarah are well served in terms of public transport; trains and buses should be promoted as alternative travel modes accordingly to help facilitate the shift in mode away from the private car (refer Section 12 for suggested strategies). The proposed maximum parking rates have been recommended to align with the current minimum rates for Hurstville and Kogarah, as well as the parking requirements of neighbouring LGAs.

For example, business and office premises are recommended to adopt a minimum parking rate of 1 space per 60m² which aligns with the Canterbury DCP, being an intermediate rate in the neighbouring LGAs (refer to Table 6 in Section 3 or Table 52 for the DCP rate comparison). The maximum parking rate of 1 space per 40m² aligns with the current minimum rate for the Kogarah, Rockdale and Botany Bay DCPs. Similarly, the minimum parking rates for restaurants, retail premises and medical centres have been lowered due to the proximity to public transport infrastructure, with a proposed reduction of approximately 33% when compared to the existing Kogarah parking rates. The existing minimum parking rates for Kogarah have been adopted as the recommended maximum rates to support the reduced dependence on car usage.

It is noted however, that for particular uses such as medical centres, driving may be necessary due to accommodate patients who may be mobility impaired and require pick-up and drop-off by a family member. The higher parking demand associated with such uses has been reflected in the prescription of higher maximum rates permitted for medical centre developments. For medical centres, the RMS Guide presents a parking requirement of 1 space per 25m² GFA. The recommended maximum rate of 1 space per 30m² GFA for the Hurstville/Kogarah town centres has been adopted with consideration of the RMS rates and the existing Bankstown DCP rate of 1 space per 25m².

These amended rates will have an effect of reducing the overall parking required for non-residential developments, thus making the centres more attractive to developers due to the significant costs associated with providing off-street parking. A lower parking provision within future non-residential developments will also assist in controlling congestion levels during peak commuter periods, providing a safer environment for pedestrians and non-motorised transport users such as cyclists.

The costs associated with providing parking in new developments are considerable and may impact on the viability of the development. Reducing the parking rates would provide an incentive for developers to bring new developments into the precinct as the added flexibility in parking requirements would make new developments more economically favourable.

Market demand has been considered through a comparison of the existing parking provision rates within the neighbouring LGAs. The future parking rates have been recommended such that Georges River remains

²³ B2, B3 & B4 zones as defined in the Hurstville LEP 2012 and B4 zone as defined in the Kogarah LEP 2012

a competitive precinct for attracting new developments, as well as serves as a prime locality to attract future residents and a skilled workforce. This is in line with the key planning objective of the Georges River Employment Lands Study for attracting a younger, educated workforce and managing the precinct's ageing population.

13.2.2 Recommended DCP Rates for Other Centres (excluding Key Centres)

A summary of the existing parking rates applicable to developments located outside of the key centres in Hurstville, Kogarah and adjoining LGAs is presented in Table 54.

Table 54 – Existing Minimum DCP Parking Rate Summary (Developments outside key centres)

Land Use / Town Centre	Hurstville	Kogarah	Bankstown	Canterbury	Sutherland Shire	Rockdale	Botany Bay
Business and Office Premises	1 per 60 m ² GFA	1 per 40m ² GFA	1 per 40m ² GFA	1 per 40m ² GFA	1 per 30m ² GFA	1 per 40m ² GFA	1 per 40m ² GFA
Retail Premises (shops)	1 per 50m ² GFA	1 per 33.3m ² GFA	1 per 40m ² GFA	1 per 40m ² GFA	1 per 30m ² GFA	1 per 40m ² GFA	1 per 25m ² GFA
Restaurants / Cafes	1 per 50m ² GFA	1 per 5m ² GFA ²⁴	0.15 per m ² in excess of 100m ²	1 per 40m ² GFA	Parking Study Required	1 per 40m ² GFA	1 per 10m ² GFA
Medical Centre	1 space per practitioner + 1 space per consulting room	1 per 40m ² GFA	1 per 25m ² GFA	2 spaces per health consulting room	1 per 30m ² GFA	1 per 40m ² GFA	3 spaces per consulting room

A summary of the recommended parking rates for other centres within the Georges River LGA is presented in Table 55.

²⁴ Current parking rate for Entertainment Facilities as per Kogarah DCP 2013

Table 55 - Summary of Existing & Recommended DCP Car Parking Rates for Other Centres (Georges River LGA excluding Hurstville & Kogarah Town Centres)

Type of Development	Existing Minimum Parking Rate – Hurstville (outside City Centre)	Existing Minimum Parking Rate – Kogarah (outside City Centre)	Recommended DCP Parking Rate (Minimum) ≤ 800m Walking Distance from Railway Station	Recommended DCP Parking Rate (Minimum) > 800m Walking Distance from Railway Station
Business and Office Premises	1 per 60 m ² GFA	1 per 40m ² GFA	1 per 60m ² GFA	1 per 40m ² GFA
Retail Premises (shops)	1 per 50m ² GFA	1 per 33.3m ² GFA	1 per 60m ² GFA	1 per 40m ² GFA
Restaurants/ Cafes	1 per 50m ² GFA	1 per 5m ² GFA ²⁵	1 per 60m ² GFA	1 per 30m ² GFA
Medical Centre	1 space per practitioner + 1 space per consulting room	1 per 40m ² GFA	1 per 40m ² GFA	1 per 30m ² GFA

For other centres within the LGA (excluding key centres such as Hurstville and Kogarah), the parking requirements have been assessed based on accessibility to public transport, whereby the criterion adopted is the proximity of the development site to the nearest railway station. Furthermore, reference is made to the *NSW Planning Guidelines for Walking & Cycling* which states that 800m is a suitable walking catchment for access to public transport. In light of this, two separate rates based on proximity to the closest railway station are recommended for each development type. In general, the parking requirements for the greater Georges River LGA are higher than those within the key centres to reflect the reduced accessibility via public transport.

Minimum parking rates are proposed for other centres as access to public transport within these zones are limited and provide less frequent train and bus services, resulting in a higher utilisation of private vehicles as the main transport mode. In order to accommodate this higher demand, the minimum parking rates will help to ensure adequate parking supply is provided in new developments whilst minimising the potential for parking overflow onto neighbouring residential streets. The recommended parking rates for the other centres have been proposed by achieving a balance between the existing minimum rates for centres outside the Hurstville and Kogarah town centres, taking into consideration the distance to the nearest railway station.

²⁵ Current parking rate for Entertainment Facilities as per Kogarah DCP 2013

Business premises are recommended to retain the existing minimum parking rate of 1 space per 60m². The corresponding minimum rate for developments situated greater than 800m from a railway station is 1 space per 40m² which aligns with the existing rate for Kogarah business zones (outside of the town centre) and the RMS Guide. Similarly, the recommended rates for retail premises and restaurants have reduced when compared to existing parking rates within the Hurstville and Kogarah DCPs to reduce the reliance on private car usage.

Standalone retail premises (shops) are more likely to be visited by people living locally to the area which may lead to higher levels of walking and cycling, resulting in a lower demand for parking. It is noted that the current rate of 1 space per 5m² for restaurants stipulated within the Kogarah DCP is very high. The recommended rate of 1 space per 30m² (>800m from railway station) has been adopted to align more closely with the existing rates for Canterbury and Rockdale (1 space per 40m²).

It is noted that the existing minimum rate for medical centres within the Hurstville DCP is determined based on the number of consulting rooms which is inconsistent with the Kogarah DCP. Furthermore, a parking rate based on the number of consulting rooms is variable as the size of consultant rooms can vary depending on the site. For simplicity, it is recommended to adopt a parking rate which is calculated based on gross floor areas for consistency. In light of this, the proposed parking rate for medical centres located outside the key centres adopts a parking requirement based on the gross floor area and aligns with the existing Kogarah parking rate of 1 space per 40m². The recommended rate is also reflective of the current rate for developments in the Sutherland Shire (1 space per 30m²) and Rockdale (1 space per 40m²) areas. Furthermore, the RMS Guide recommends a parking provision rate of 1 space per 25m². In light of this, the recommended rate of 1 space per 30m² aims to achieve a balance between the neighbouring Council DCPs as well as the provisions outlined within the RMS Guide.

The proposed minimum rates for developments located further than 800m from a railway station have generally adopted the proposed maximum rates corresponding to developments located within the key centres. As such, the proposed parking rates for other centres account for the reduced accessibility to public transport services. Comparison with neighbouring LGAs also indicates that the proposed parking provision rates align with the existing rates required by adjoining Councils to ensure competitiveness.

In addition to the parking provision rates recommended within this section, Council is recommended to investigate their existing residential parking rates to accommodate the growing density of residential developments within the key centres which are anticipated as a result of the amendment to the Kogarah LEP 2012 (New City Plan) in May 2017.

13.3 Review Off-street parking supply

STRATEGY: *Consider alternative locations for additional parking supply, when and if required. Off-street parking should be located on the periphery of the town centre to minimise traffic flow within the centre. Where possible parking should be consolidated into larger parking areas and smaller car parks either sold for redevelopment or repurposed as public spaces.*

A review of all off-street car parks surveyed as part of our parking study is included as Attachment 14.

Car parks proposed for change are summarised below:

Table 56 - Recommendations off-street car parks

Town Centre	Car Park	Recommendation	Comments
Hurstville	Gloucester Road Refer to page 2, Attachment 1 – Study Area for location Ref Code: HU1	<ul style="list-style-type: none"> Retain Change UR to 3P 730-9 MF, 8-4 SAT 	<ul style="list-style-type: none"> Peak occupancy of the car park is close to practical capacity. Weekday peak occupancy (83%) and weekend peak occupancy (84%). Refer to Attachment 14. Introduce time-restricted parking to increase turnover.
Hurstville	Palm Court Refer to page 2, Attachment 1 – Study Area for location Ref Code: HU2	<ul style="list-style-type: none"> Convert to a public space to ease traffic flow on Forest Road and incorporate provision in redevelopment of Treacy Street car park 	<ul style="list-style-type: none"> Existing site can be reclaimed for public recreational use if redevelopment of the Treacy Street car park proceeds. The displaced parking spaces can be incorporated into the expanded Treacy Street car park to maintain current supply.
Hurstville	Park Road & MacMahon Street	<ul style="list-style-type: none"> Retain Install in-ground sensors to help 	<ul style="list-style-type: none"> Car park operating at full capacity.

Town Centre	Car Park	Recommendation	Comments
	Refer to page 2, Attachment 1 – Study Area for location Ref Code: HU3	manage time compliance.	<ul style="list-style-type: none"> Introduce time-restricted parking to increase turnover.
Hurstville	Treacy Street Refer to page 2, Attachment 1 – Study Area for location Ref Code: HU4	<ul style="list-style-type: none"> Increase as part of redevelopment incorporating lost spaces in Palm Court Recommend signalisation at Treacy St/Forest Rd Propose two – way traffic flow in Treacy St between Ormonde Pde and Alfred St Install in-ground sensors to help manage time compliance. 	<ul style="list-style-type: none"> Expansion of the Treacy Street car park as part of the future development allows the site to be redeveloped whilst maintaining parking supply (to be negotiated with future developer). Incorporation of spaces currently within Palm Court car park to offset loss in supply. Proposed two-way traffic flow on Treacy St between Ormonde Pde & Alfred St allows car park users to enter the car park from the south by turning right onto Treacy Street from Forest Road. This will provide greater accessibility for users of the car park as well as associated future developments at the site. Signalisation of intersection provides pedestrian

Town Centre	Car Park	Recommendation	Comments
			connection to the public space at the Palm Court site and allows more streamlined access into the new Treacy St car park from the south.
Hurstville	Woniara Refer to page 2, Attachment 1 – Study Area for location Ref Code: HU5	<ul style="list-style-type: none"> Install new access control to manage parking 	<ul style="list-style-type: none"> Installation of access control equipment and provision of wayfinding signage to guide users to this car park which is currently difficult to find.
Kogarah	Town Square Refer to page 3, Attachment 1 – Study Area for location Ref Code: KO1	<ul style="list-style-type: none"> Install new access control to manage parking and review pricing 	<ul style="list-style-type: none"> Pricing review recommended as there may be potential to increase prices (existing prices comparatively lower than surrounding paid car parks). Low utilisation may be attributed to difficulty in finding this car park. Access control to manage paid parking and wayfinding required to guide users to car park.
Riverwood	Belmore Lane Refer to page 6, Attachment 1 – Study Area	<ul style="list-style-type: none"> Convert 3P spaces to 2P Install in ground sensors to help manage time compliance 	<ul style="list-style-type: none"> Amend time restriction to increase turnover within the car park

Town Centre	Car Park	Recommendation	Comments
	for location Ref Code: RI1		(currently at 100% peak occupancy during weekday and 91% during weekend) <ul style="list-style-type: none"> In-ground sensors are recommended to enforce time restrictions as overstays have been identified.
Riverwood	Belmore Road Refer to page 6, Attachment 1 – Study Area for location Ref Code: RI2	<ul style="list-style-type: none"> Install in ground sensors to help manage time compliance 	<ul style="list-style-type: none"> In-ground sensors are recommended to enforce time restrictions as overstays have been identified.
Riverwood	Webb Street North Refer to page 6, Attachment 1 – Study Area for location Ref Code: RI5	<ul style="list-style-type: none"> Potential redevelopment site for Riverwood Plaza 	<ul style="list-style-type: none"> Potential for Council to negotiate with Riverwood Plaza to expand the shopping centre car park. Displaced parkers can be relocated to Webb Street South car park and/or incorporated into plaza car park if enlarged.
Riverwood	Webb Street South Refer to page 6, Attachment 1 – Study Area for location Ref Code: RI6	<ul style="list-style-type: none"> Retain 	<ul style="list-style-type: none"> Peak occupancy of 55% during weekday and 52% during weekend. No change proposed. Will accommodate parkers from Webb

Town Centre	Car Park	Recommendation	Comments
			Street North car park if it is redeveloped.
Riverwood	<p>Littleton St South</p> <p>Refer to page 6, Attachment 1 – Study Area for location</p> <p>Ref Code: RI8</p>	<ul style="list-style-type: none"> Potential redevelopment site if Webb Street Car Park North retained or increased parking provided as part of Riverwood Plaza redevelopment 	<ul style="list-style-type: none"> Should there be a car park expansion at Riverwood Plaza the existing supply within the Littleton car park can be incorporated into the redevelopment. The site can later be redeveloped for alternative uses
Beverly Hills	<p>Tooronga Terrace</p> <p>Refer to page 6, Attachment 1 – Study Area for location</p> <p>Ref Code: BH1</p>	<ul style="list-style-type: none"> Retain 	<ul style="list-style-type: none"> No change proposed.
Beverly Hills	<p>Edgbaston Rd car park</p> <p>Refer to page 6, Attachment 1 – Study Area for location</p> <p>Ref Code: BH2</p>	<ul style="list-style-type: none"> Proposed development of 400-600 space commuter car park – current weekday all day demand (7+hours) 400 vehicles. Would need to extend parking restrictions on-street next to shops and station to encourage use of car park. 	<ul style="list-style-type: none"> Occupancy of existing at-grade car park 70% (weekday) and 51% (weekend) indicates spare capacity. The car park is currently 3P time-restricted. On-street parking indicates peak occupancy of 93% (both weekday and weekend). High occupancy attributed to unrestricted parking. Conversion of

Town Centre	Car Park	Recommendation	Comments
			<p>current unrestricted on-street parking to restricted parking will facilitate higher turnover.</p> <ul style="list-style-type: none"> Objective is to push all-day parkers into the proposed 400-600 space commuter car park (subject to approval by TfNSW) and free up on-street spaces for visitors to local businesses.
Beverly Hills	<p>Beresford Ave</p> <p>Refer to page 6, Attachment 1 – Study Area for location</p> <p>Ref Code: BH3</p>	<ul style="list-style-type: none"> Proposed redevelopment site Displaced parkers to use Edgbaston Road car park 	<ul style="list-style-type: none"> Displaced parkers can utilise the Edgbaston Road car park and the site can be redeveloped.
Mortdale	<p>Cook Ln</p> <p>Refer to page 5, Attachment 1 – Study Area for location</p> <p>Ref Code: MO2</p>	<ul style="list-style-type: none"> Council previously resolved to compulsorily acquire 23 and 25 Cook Street to undertake car park expansion. Recommend incorporate provision currently provided in Cook Street car park in the expansion plans 	<ul style="list-style-type: none"> Cook Street car park can be redeveloped upon acquisition of additional lots for Cook Lane car park expansion. Existing parking spaces within the Cook Street car park are to be incorporated into the extended car park to accommodate current users.

Town Centre	Car Park	Recommendation	Comments
Mortdale	Cook St Refer to page 5, Attachment 1 – Study Area for location Ref Code: MO1	<ul style="list-style-type: none"> Potential re development site to subsidise car park expansion in Cook Lane car park. 	<ul style="list-style-type: none"> Existing parking spaces are to be incorporated into the extended Cook Lane car park to accommodate current users.
Oatley	Letitia St Refer to page 9, Attachment 1 – Study Area for location Ref Code: OA1	<ul style="list-style-type: none"> Convert unrestricted spaces to 3P 8:30am-6pm MF, 8:30am-12:30pm Sat 	<ul style="list-style-type: none"> Car park at full capacity during weekday and weekend. Introduce time restriction to increase turnover
Ramsgate	Ramsgate Road Refer to page 12, Attachment 1 – Study Area for location Ref Code: RA1	<ul style="list-style-type: none"> Convert unrestricted spaces to 3P 8am-6pm MF 	<ul style="list-style-type: none"> High peak occupancy level during weekday (93%). Introduce time restriction to increase turnover during weekdays.
Kogarah Bay (Along Princes Hwy)	Park Road Refer to page 11, Attachment 1 – Study Area for location Ref Code: KB1	<ul style="list-style-type: none"> Retain 	<ul style="list-style-type: none"> No changes proposed.
Penshurst	Connelly St Refer to page 4, Attachment 1 – Study Area for location Ref Code: PE1	<ul style="list-style-type: none"> Convert some 3P time restricted spaces to unrestricted (e.g. 50% unrestricted and 50% 3P) – encourage all day parkers to park off-street If required, extend time restricted area on-street to meet short term parking demand – e.g. Connelly Street 	<ul style="list-style-type: none"> Currently weekday peak occupancy level of 63% (relatively low). Short term parking should be accommodated on-street whilst all-day parkers accommodated within off-street

Town Centre	Car Park	Recommendation	Comments
			facility.
Blakehurst	Stuart Lane Refer to page 10, Attachment 1 – Study Area for location Ref Code: BL1	<ul style="list-style-type: none"> Convert unrestricted spaces to 3P 8am-6pm M-F 	<ul style="list-style-type: none"> 96% peak occupancy during weekday and weekend. Introduce time restriction to increase turnover
Blakehurst	Water Street Refer to page 10, Attachment 1 – Study Area for location Ref Code: BL2	<ul style="list-style-type: none"> Potential redevelopment site 	<ul style="list-style-type: none"> Located away from shops with high length of stay and low turnover (potentially used by residents)
Kingsgrove	Morgan St Refer to page 7, Attachment 1 – Study Area for location Ref Code: KI1	<ul style="list-style-type: none"> Convert unrestricted spaces to 2P First half closest to shops to be 1P 8.30am-6pm MF Second half away from shops to be 2P 8.30am-6pm-MF Convert some time-restricted spaces to unrestricted spaces on Saturdays (weekend occupancy is currently low). For example, 50% unrestricted, 50% to retain current restriction. 	<ul style="list-style-type: none"> Provide time restricted parking to increase overall turnover, with restriction dependent on distance to shops.
South Hurstville	Connells Point Road Refer to page 8, Attachment 1 – Study Area for location Ref Code: SH1	<ul style="list-style-type: none"> Retain 	<ul style="list-style-type: none"> No changes proposed.
South Hurstville	Allen St Refer to page 8, Attachment 1 – Study Area for location Ref Code: SH2	<ul style="list-style-type: none"> Extend restrictions to weekend 	<ul style="list-style-type: none"> 100% peak occupancy identified during weekend. Extend time restrictions to manage parking

Town Centre	Car Park	Recommendation	Comments
			during weekend period.
B12-Kogarah Shops	Shaw St Refer to page 3, Attachment 1 – Study Area for location Ref Code: KO2	<ul style="list-style-type: none"> Retain 	<ul style="list-style-type: none"> No changes proposed.
B16-Shops Carwar Ave, Carss Park	Carwar Ave Refer to page 17, Attachment 1 – Study Area for location Ref Code: 16	<ul style="list-style-type: none"> Retain Convert Carwar Ave unrestricted spaces to 1P to match other on-street parking restrictions 	<ul style="list-style-type: none"> Operating at 100% capacity during weekday, 79% weekend. Provide time restricted parking to increase overall turnover

13.4 Recommended Section 7.11 (formerly S94) Development Contributions

Currently Georges River Council levies development contributions under the 'Hurstville Section 94 Contributions Plan 2012' within the former Hurstville LGA. This plan levies contributions where there is a deficiency in the provision of car parking for non-residential development in the Hurstville City Centre or in the local commercial centres of Penshurst, Mortdale, Beverly Hills and Riverwood.

Also, the 'Section 94 Plan No. 8 – Kogarah Town Centre' levies a parking contribution of approximately \$32,814.07 per space on commercial development.

Table 57 - Comparison of Parking Deficiency Levy in Adjoining Councils

Type of Contribution	Hurstville S94 Plan 2012 - Hurstville City Centre (Benchmark)	Hurstville S94 Plan 2012 – Penshurst, Mortdale, Beverly Hills, Riverwood Commercial Centres	Kogarah Section 94 Plan No. 8 – Kogarah Town Centre	Bankstown	Canterbury	Sutherland Shire	Rockdale	Botany Bay
Non-residential Development Parking Deficiency	\$54,556.91 per deficient space	\$31,717.97 per deficient space	\$32,814.07 per deficient space	N/A	N/A	N/A	\$19,990 - \$24,790 (varies depending on suburb)	N/A

Note: The cost estimates in the 'Hurstville S94 Plan 2012' were based on Quantity Surveyor reports at the time of preparing the Plan.

Legend:

- Benchmark rate
- Less than benchmark rate
- Greater than benchmark rate
- Non-comparable rate

It is noted that Council will continue to levy developer contributions for any deficient car parking provisions in non-residential developments as per the existing *Hurstville Section 94 Contributions Plan 2012*, unless the plan is updated.

It should be noted that whilst considering the parking deficiency contribution rate for a particular commercial centre, the existing and forecast parking demand should be taken into account (refer to Section 7).

It is recommended that the current contribution rates for deficient car parking provisions be reviewed when the new Georges River Council Section 7.11 Plan is prepared.

14. Implementation Strategy

A staged approach is to be adopted for implementing change by categorising action items, to be agreed with Council into the following categories:

- Quick wins (12 months after adoption of strategy)
- Medium term strategy (2-3 years after adoption of strategy)
- Longer term solutions (3-5 years after adoption of strategy)

The costs of implementation will need to be considered and may impact the proposed timing. Some of the recommendations will take place across a longer time frame however planning should commence as soon as possible.

Table 58 - Implementation priorities

ACTION ITEM #	REF	ACTION ITEM	QUICK WINS	MEDIUM TERM	LONGER TERM
IMPROVE USE OF EXISTING SUPPLY (Refer Section 11)					
1	11.1.1	Consult with user groups to determine demand and allocation of parking		✓	✓
2	11.1.2	Reallocate spaces to accessible parking to approve amenity	✓		
3	11.1.3	Review and amend Loading Zones, subject to consultation with local businesses	✓	✓	
4	11.1.4	Consult with local businesses to determine the demand for all day parking not satisfied by private parking provision		✓	✓
5	11.2.1	Review all streets and car parks with regard to the appropriate time restrictions for off-street and on-street parking considering ptc. recommendations per Table 46 and Table 56.	✓	✓	✓
6	11.2.2	Replace Pay and Display machines in off-street car parks with access control equipment		✓	
7	11.2.2	Review pricing strategy Town Square Car Park, Kogarah	✓	✓	✓
8	11.3.1	Prepare integrated signage plans for the key centres with off-street parking, considering technology solutions such as	✓	✓	

ACTION REF ITEM #		ACTION ITEM	QUICK WINS	MEDIUM TERM	LONGER TERM
		dynamic signage (similar to that installed at Westfield Hurstville), and mobile apps /web based real time data to "find a park".			
9	11.3.1	Install dynamic signage at the entrance to nominated car parks to relieve traffic congestion as it prevents cars entering a car park and circulating the aisles when no spaces are available.	✓	✓	
10	11.3.2	Load maps showing the location of various parking areas on the Council website so that people can check the location of car parks and where parking is available prior to undertaking a visit (especially if they only do so occasionally)	✓		
11	11.4.1	Investigate and action technology solutions for improving the efficiency and productivity of the parking enforcement team.	✓	✓	
12	11.4.1	Install in ground sensors in 1/2P and 1P spaces in Kogarah and off street car parks in Riverwood (Belmore Lane and Belmore Road) in the first instance as a trial before rolling out elsewhere in the LGA		✓	✓
13	11.4.2	Conduct a publicity campaign utilising the local newspaper, the Council website and social media to inform the community of the enforcement regime and the importance of enforcing time restrictions in managing parking availability	✓	✓	✓

ENCOURAGE MORE NON-CAR TRIPS (refer Section 12)

14	12.1.1	Council to establish a framework to facilitate collaboration with TfNSW aimed at optimising routes and improving amenity and frequency of services ensuring that all train stations and bus stops are fully accessible to patrons with a disability or mobility impairment	✓	✓	✓
15	12.1.2	Council to advertise the use of transport apps on their website and social media platforms (i.e. Facebook, Twitter) to assist in changing the behaviour of the	✓		

ACTION REF ITEM #		ACTION ITEM	QUICK WINS	MEDIUM TERM	LONGER TERM
		community by allowing the public to make more informed decisions with regards to their next trip			
16	12.2.1	Alternative travel modes such as cycling and walking can be promoted more strongly on the Council's website.	✓		
17	12.2.2	Update Bike Plan to encompass the entire LGA	✓	✓	
18	12.2.3	Update PAMP to encompass the entire LGA	✓	✓	
19	12.3.1	Introduce additional car sharing zones adjacent to major train stations such as Hurstville & Kogarah to provide an alternative option for public transport users.	✓	✓	
20	12.3.1	Liaise with TfNSW and car sharing service providers to consider travel incentives such as the Opal transfer discounts for commuters who utilise multiple transport modes as part of their journey		✓	✓
21	12.4.1	Council to work with local schools and businesses to promote travel smart initiatives (e.g. public transport, car-pooling, walking and cycling etc.).	✓	✓	
22	12.4.1	Establishment of Kiss & Ride zones, particularly in the immediate vicinity of schools (e.g. within the educational precinct in Kogarah) to provide designated areas for parents to drop off their children.		✓	
23	12.5.1	Facilitate negotiations between the Hospital, TAFE and other employers in Kogarah and the Leagues Club to provide all day parking. If the demand warrants a shuttle bus service could be provided between the Leagues Club and Kogarah town centre to provide a convenient connection for those who require a parking space.		✓	

ACTION REF ITEM #	ACTION ITEM	QUICK WINS	MEDIUM TERM	LONGER TERM
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INCREASE SUPPLY (Refer Section 13)

24	13.2	Amendment to existing DCP parking requirement structure and rates as summarised in Table 53 and Table 55.	✓	✓	
25	13.3	Implement changes in off-street parking supply as summarised in Table 56 in Section 13.3	✓	✓	✓
26	13.4	Review the parking deficiency levy and consider adopting other types of developer contributions	✓	✓	

- Attachment 1 Study Area Maps**
- Attachment 2 Background Research**
- Attachment 3 GIS Parking Inventory (Excel)**
- Attachment 4 GIS Parking Inventory Maps**
- Attachment 5 Parking Survey Results Weekday**
- Attachment 6 Parking Survey Results Weekend**
- Attachment 7 Occupancy and LOS graphs Weekday**
- Attachment 8 Occupancy and LOS graphs Weekend**
- Attachment 9 Heat maps peak occupancy Weekday and Weekend**
- Attachment 10 Detailed Analysis Parking Surveys**
- Attachment 11 Future Parking Demand model**
- Attachment 12 Feedback Stakeholder workshops**
- Attachment 13 Detailed Analysis of Accessible Parking and Loading Zones**
- Attachment 14 Detailed Analysis of Off-Street car parks**