

Lilyfield Precinct Parking Study

Inner West Council
Draft Report



Prepared by: GTA Consultants (NSW) Pty Ltd for Inner West Council
on 20/07/2020
Reference: N184030
Issue #: A-Dr4

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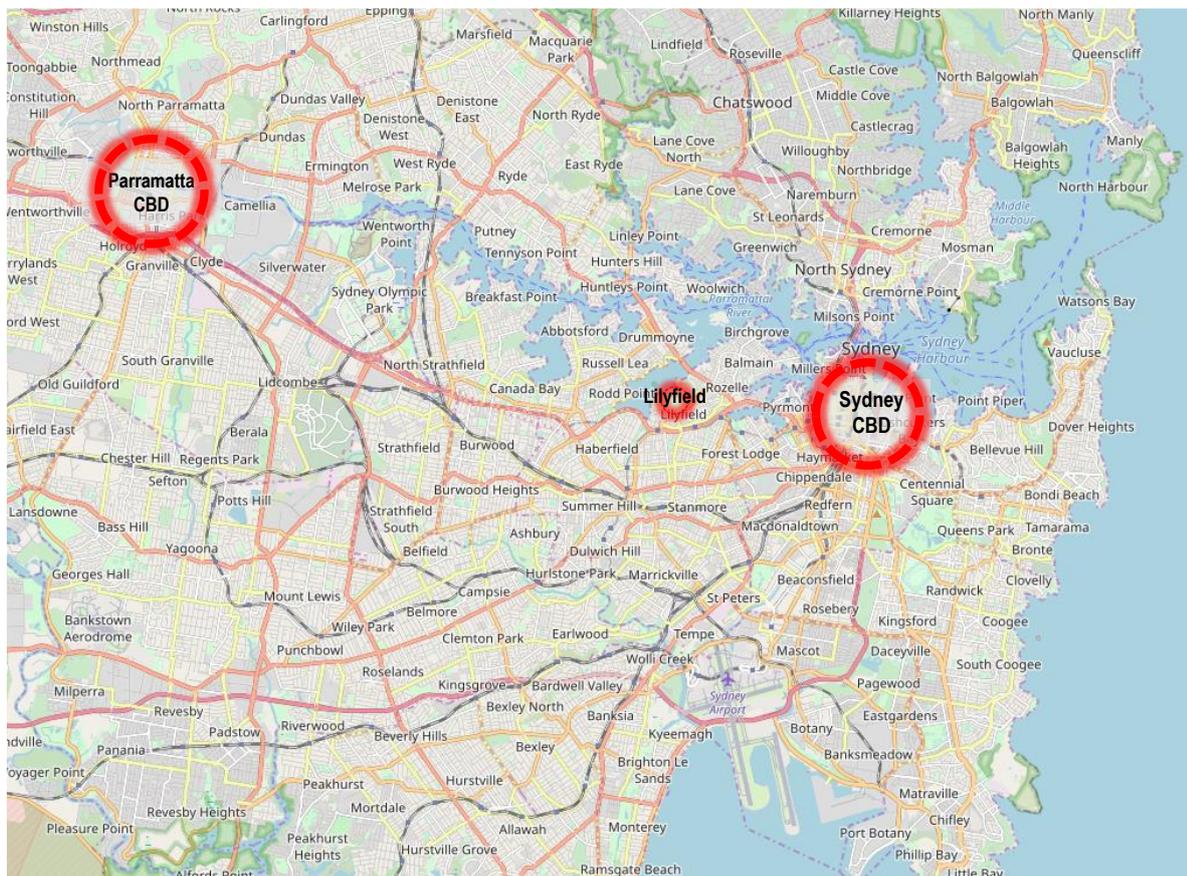
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1. INTRODUCTION

1.1. Project Background

Lilyfield is located in the Inner West Local Government Area of the Sydney Metropolitan Area and is approximately four kilometres west of the Sydney CBD and 17 kilometres east of Parramatta CBD. The suburb is situated within the boundaries of the Inner West Council. The area generally comprises of a combination of residential homes and units, educational institutions, commercial and light industrial lands, parks and recreational land.

Figure 1.1: Lilyfield within the Sydney Metropolitan Area



Base map: OpenStreetMap

The Lilyfield precinct incorporates a range of trip generators that all have varying parking requirements. The trip generators include:

- Residential Dwellings
- Local Commercial Centre
- Educational facilities like University of Tasmania and Orange Grove Public School
- Light rail stops including Leichhardt North and Lilyfield Light Rail Stations
- Sports Facilities like Leichhardt Park Aquatic Centre, Leichhardt Oval, Callan Park
- Recreational facilities like Le Montage Function Centre.

Inner West Council has requested a review of parking within the Lilyfield precinct as a basis for determining a parking management strategy and has commissioned GTA Consultants (GTA) to undertake a review of parking within the Lilyfield precinct and develop a strategy that sets forward how parking will be provided and managed in the future.

1.2. Purpose of Study

The objectives of the project are:

- To review parking within the Lilyfield precinct, looking at location, supply, demand and distribution of both long-stay residential and short-stay commercial parking as well as any evidence of long-stay commuter parking, as the basis for determining future car parking requirements. This includes considering on-street and private off-street parking and undertaking community consultation and working with stakeholders to understand community views in relation to parking in the study area.
- To review state and local parking strategies and policies including Council's Development Control Plan parking rates for Lilyfield associated with new development.
- To undertake a parking supply and demand assessment and report of parking in Lilyfield. Develop an inventory of existing on-street and off-street parking identifying the parking regulations associated with this parking. Survey the parking demand of on-street and off-street parking areas to identify long and short-stay parking requirements.
- To review the impact of parking associated with events at Leichhardt Oval on parking supply in the surrounding residential streets and to identify management techniques to address event parking.
- To develop a Lilyfield Parking Management Strategy considering Council's strategies and plans, community views, parking demand and supply, existing and active transport (walking and cycling) and public transport (bus and light rail), to improve ease of access to parking.
- To identify any discrepancies in parking policies and restrictions within Lilyfield under Inner West Council and identify opportunities for standardisation.

1.3. What is Parking

Before developing a set of parking strategy principles and objectives, and how these integrate with overall transport objectives, we must have a comprehensive understanding of what parking is.

As a general rule, land uses generate and attract visitors, customers, staff and/or residents resulting in economic activity. A by-product of access to these land uses is, in its simplest form, a "trip". Trips can be made by a variety of methods including, but not limited to, walking, cycling, public transport and/or the private motor vehicle.

Where does car parking enter this equation? Car parking provides an end-of-trip facility for the private motor vehicle mode.

1.4. Types of Parking

The type of land use has differing levels of attractiveness (i.e. trip generation) and therefore has different requirements for car parking. Different uses also have different user bases and in turn different needs in regard to their required length of stay. Accordingly, different types of car parking are required (for example, pick-up/drop-off parking requires 5 to 15 minutes, short-stay parking requires one to three hours and long-stay parking is required over four hours or all day to satisfy differing needs. In a setting such as the local centre in Lilyfield, a parking event can serve a number of trip purposes and a single space can be shared between a number of users over the course of the day due to the different temporal patterns of land uses. While in residential areas, a single space can only be shared between a limited number of vehicles as long-stay parking is prevalent amongst residents, potentially also used by commuters accessing the nearby light rail stations as well as visitors to Leichhardt Park.

With consideration of the above, it is important to prioritise the demands of short-stay commercial user groups within the commercial village environment in Lilyfield while limiting long-stay conflicting user groups that may arise from commuters. While in the residential area, it is important to have a sufficient amount and prioritisation of car parking relative to resident demands in the area, while limiting the needs and demand of conflicting user groups that car parking will have on the residential streets.

1.5. The Lilyfield Context

In this context then, it is important that car parking within Lilyfield precinct be managed to:

- Recognise that the parking space does not attract people; it is the destination that attracts people and parking is only a by-product.
- Prioritisation of demand from different user-groups, specifically the parking demand from residents, commuters, workers and event attendees on residential streets and commercial user-groups within the local commercial core.
- Balance the demand for commuter parking and residential parking especially near the light rail stops.
- Address the demand for the special event parking permit scheme near Leichhardt Oval.
- Standardise the previous different parking permits format applied to the study area as a result of amalgamation of different council jurisdictions.

2. EXISTING CONDITIONS

2.1. Planning Context

In preparing this report, relevant policies and guidelines applicable to the Lilyfield precinct were explored, which include both the still in effect *2013 Local Environmental Plan (LEP 2013)* and *2013 Development Control Plan (DCP 2013)*, developed by the former Leichhardt Council and the recently published *Inner West Integrated Transport Strategy (ITS)* by Inner West Council. In addition, the *Permit Parking Guidelines* (October 2018), developed by the former Roads and Maritime Services (now Transport for NSW (TfNSW)), are referenced as the official guidelines in permit parking designs to better understand the context and design parameters of permit parking schemes and how it can be utilised in a parking management strategy. This guideline is discussed further in sub-section 2.1.1.

Inner West Council also recently released a '*Draft Public Domain Parking Policy*' which is under Council review following community consultation. A summary of the draft policy is discussed in sub-section 2.1.2, which examines how public parking is managed throughout the Inner West LGA and brings together the different management approaches adopted by the former constituent councils of Inner West Council.

2.1.1. Permit Parking Guidelines - Road and Maritime Services

The *Permit Parking Guidelines* is a document that sets out criteria and guidelines for designing, implementing and administering permit parking schemes in NSW from the former Roads and Maritime Services and was last updated in October 2018.

Permit parking schemes help to improve amenity for particular classes of road users in locations where there is insufficient off-street parking and where on-street parking is limited. Permit parking also helps to balance the needs of the local community with those of the broader community in high demand areas.

There are six classes of permit parking scheme prescribed in clause 95 of the Road Transport (General) Regulation 2013, including:

- business
- commuter
- resident
- resident's visitor
- special event
- declared organisation.

According to the guideline, if local councils propose to establish a permit parking scheme, it must comply with the Regulation and this mandatory guideline. In the case of Lilyfield, a key part of this study will be to investigate whether existing schemes need to be amended and whether other types of permits are warranted (e.g. event permits).

The guideline expresses the eligibility criteria for all permit schemes and the six classes of parking permits, with the relevant general criteria and specific criteria for the context of Lilyfield summarised below.

Eligibility criteria and other features common to all permit parking schemes

- High demand for parking in the area.
- Inadequate off-street parking and no potential to modify premises or create off-street parking.
- Little or no unrestricted on-street parking close by.
- Vehicle is not a truck, bus, or trailer (boat or caravan).
- Parking authorities have discretion over the total number of permits issued in their area of operations and how they will distribute these permits across the relevant classes of permit parking schemes.

Resident parking permits

- The number of permits issued for an area should not exceed the number of available on-street parking spaces in the area.
- A maximum of one permit per bedroom in a boarding house, or two permits per household. In exceptional circumstances, the number of permits may be increased.
- When issuing permits to eligible residents who have off-street parking, the number of permits which may be issued is the difference between the maximum number per household in the scheme and the number of off-street spaces available to the household.
- Where the number of requests for permits exceeds the number of available on-street parking spaces, only residents who do not have access to unrestricted parking along their kerbside are eligible to apply for a resident parking permit. Applications should be prioritised as follows:
 - no off-street parking space
 - one off-street car space
 - two or more off-street car spaces.

Commuter parking permits

Commuter parking schemes are established to encourage people to use public transport. They can only be established after a 12-month commuter parking trial.

Commuter parking permits may be issued as follows:

- One permit per commuter.
- The parking authority should ensure there is a reasonable chance the commuter will find a parking space within the commuter permit parking area.

Resident's visitor parking permits

Residents may apply for visitor parking permits so their visitors can park within the permit area without time or fee restrictions.

- There is no off-street visitor parking at the resident's address.
- There are no unrestricted on-street parking spaces in front of the residence or along the kerbside.
- The parking authority may offer long-term and/or short-term visitor parking permits.

Special event parking permits

Special event parking permits may be issued to residents or businesses that are affected by special event traffic management. They can be issued for individual events and the permit must include the date/s and location of the special event. Alternately, they may be issued as an annual permit for areas where there are a large number of special events, e.g. Leichhardt Oval.

2.1.2. Draft Public Domain Parking Policy

On-street parking and Council managed car parks across Inner West Council currently operate under different policies from the former Leichhardt, Marrickville and Ashfield Councils. However, since amalgamation there has been an absence of a unified parking management policy to manage public parking throughout the Inner West LGA.

To this end, Inner West Council prepared the *Draft Public Domain Parking Policy* which sets out a governing framework for the investigation, development, implementation and ongoing management of parking schemes and controls in the public domain including on-street parking and council managed car parks. The draft Public Domain Parking Policy proposes one consistent approach across all the Inner West.

The Policy draft covers several areas of parking management including permits for residential and commercial areas, timed parking restrictions in commercial areas, exceptions (such as Mobility Parking Scheme Permits), paid parking, authorised vehicle zones, taxi zones, and more. Relevant elements of this draft policy to Lilyfield are explored below.

Resident Parking Permits

Resident parking permits enable eligible residents, who do not have sufficient on-site parking, to park on-street and avoid time limits and parking fees.

A resident parking permit is issued for a vehicle of an eligible resident provided the property does not have on-site parking available for that vehicle.

The maximum number of permits issued to any one rateable property will not exceed the following limits:

Zone Type A

- A household in Zone Type A, without any on-site parking spaces, is eligible for one parking permit.
- The one permit will be transferable for use on up to three nominated vehicles registered to that address.
- Each room of an eligible boarding house will be treated as a separate dwelling eligible for one resident parking permit.
- No permits will be issued to households with one or more on-site parking spaces.

Zone Type B

- A household in Zone Type B, without any on-site parking spaces, is eligible for up to two parking permits.
- Each room of an eligible boarding house will be treated as a separate dwelling eligible for one resident parking permit.
- A household with one on-site parking space is eligible for one parking permit for a second vehicle.
- No permits will be issued to households with two or more on-site parking spaces.

The current L1 parking permit scheme on Halloran Street and Norton Street in Lilyfield operates as Type B.

Visitor Parking Permits

Visitor parking permits enable residents' visitors to park on-street and avoid time limits and parking fees for the period of operation of the permit. Visitor permits are issued for residential properties only.

Such visitor permits will be single use, one-day permits. The annual allocation of visitor permits for eligible households will be up to 30 one-day permits.

2.1.3. Relationship between *Permit Parking Guidelines* and *Draft Public Domain Parking Policy*

Both the Roads and Maritime guideline and Inner West Council policy follow a similar philosophy of prioritising distribution to households with no available off-street parking. The Roads and Maritime guideline is more standardised with a fixed allocation of one per bedroom or two per household, capped by the maximum available on-street parking space.

The Inner West Council provision is varied with permits allowance based zonally, where Zone Type A has stricter criteria while also providing fewer on-street parking spaces per household. These Zones have not yet been defined by the policy. The Council also has specific rules regarding different types of development of which specific types will be excluded from the schedule depending on the area of the LGA. There are no clauses within the policy on limiting total number of permits issued in regard to the quantum of available parking spaces on a street. Accordingly, as the policy is silent on this limit, it is expected that the issuance of resident parking permits should not exceed the cap set by the Roads and Maritime guideline, that is, the maximum available on-street parking spaces on a street.

2.2. Study Area

2.2.1. The Study Area

Lilyfield is predominantly a residential suburb with a mix of single dwellings and low-density multi-storey unit blocks, with large tracts of recreational areas in the form of Leichhardt Park, Leichhardt Park Aquatic Centre, Leichhardt Oval and Callan Park in the north of the suburb bordering the Parramatta River. The study area mainly consists of residential streets and is bordered by the A4 City-West Link Road and the Inner West Light Rail line to the south.

The parking study's study area is shown below in Figure 2.1 and excludes Callan Park which falls under the jurisdiction of the NSW Government's Office of Environment and Heritage.

Figure 2.1: Study area



Base map: Google Maps

2.2.2. Key Streets and Sites

The study area comprises key streets and sites that greatly affect the dynamics of the precinct and how the area functions. Figure 2.2 identifies six major streets and seven key places of interest that play a vital role in the study area, and these are further detailed in Table 2.1.

Figure 2.2: Map of Key streets and sites within the Lilyfield Precinct

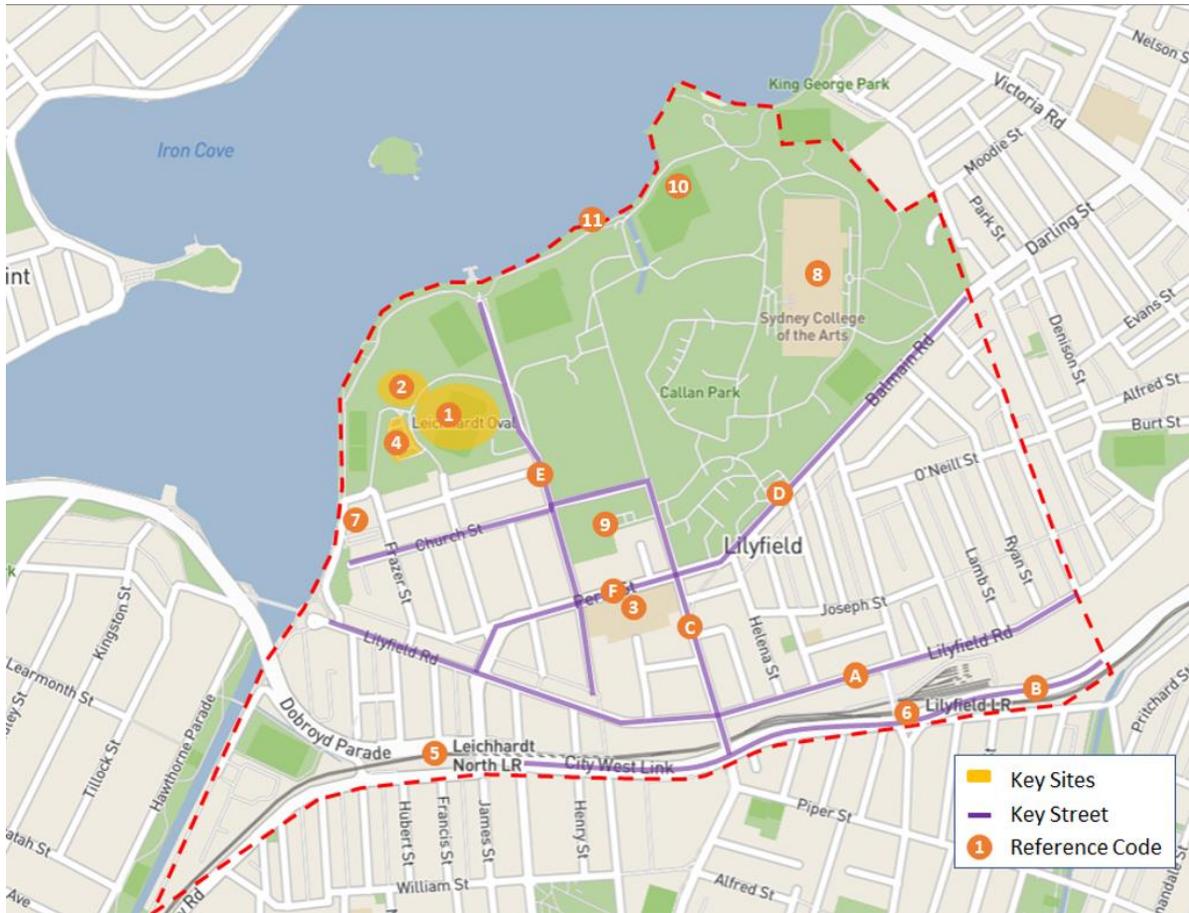


Table 2.1: Key streets and sites within the Lilyfield Precinct

Reference	Key Streets	Description
A	Lilyfield Road	Main local road aligned east-west connecting Lilyfield to Rozelle and Annandale.
B	City West Link	Important corridor providing alternative route to Parramatta Road into Sydney CBD in an east-west alignment.
C	Wharf Road	A collector road with north south alignment in the centre of the area.
D	Balmain Road	Main local road from north-east to south-west connecting Lilyfield to Rozelle and passing through residential and commercial areas.
E	Glover Street	A collector road with north south alignment in the centre of the area.
F	Perry Street	Main local collector road with east west alignment connecting Balmain Road to Mary Street.
1	Leichhardt Oval	A rugby league and soccer stadium with a capacity of 20,000 which can highly affect the local transportation and parking capacity.
2	Leichhardt Park Aquatic Centre	Is sitting on the edge of Iron Cove Bay at north west of Lilyfield.
3	Orange Grove Public School and Market	Orange Grove Public School is a primary school located at Perry Street having around 500 students. The school operates from 8:00 to 4:00pm Mondays to Fridays.

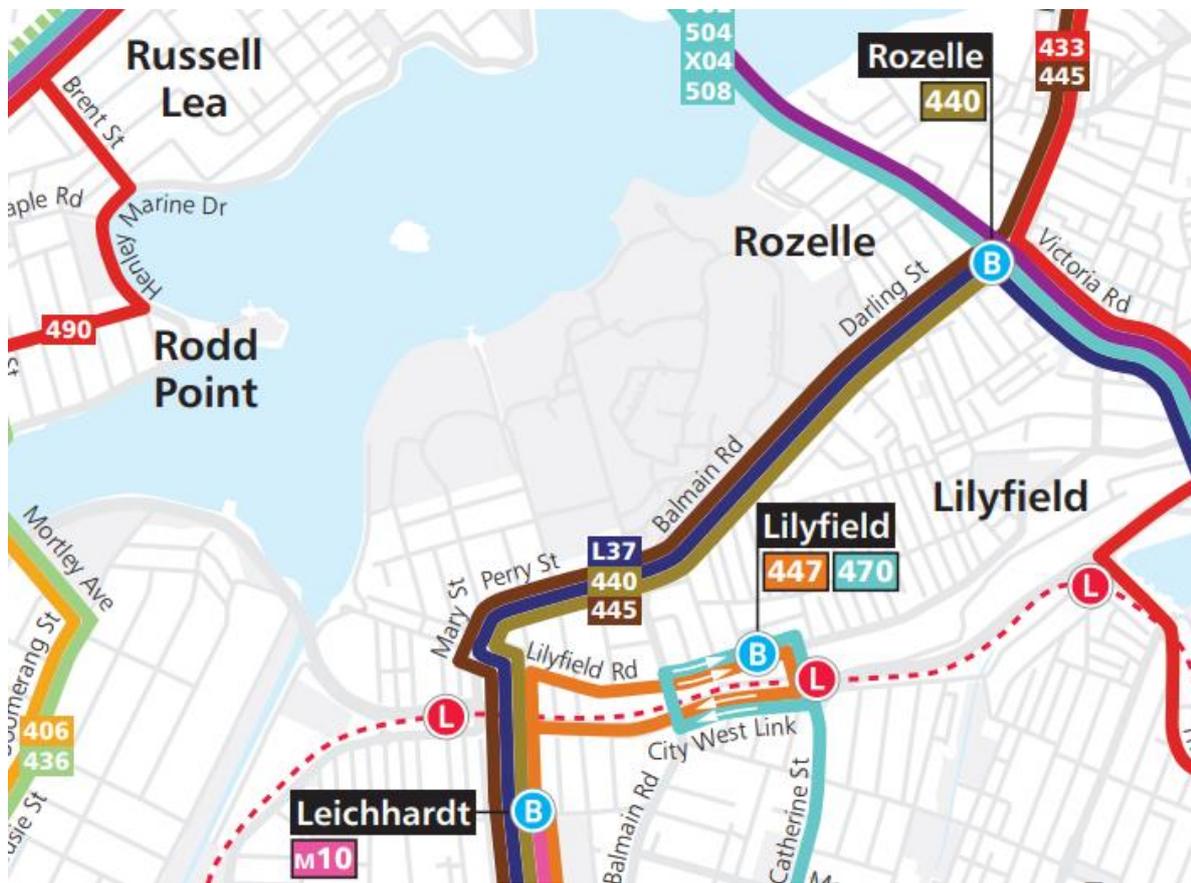
Reference	Key Streets	Description
		The Orange Grove Market located at Balmain Road &, Perry Street which is Saturday Market operating from 8:00am to 1:00pm selling organic products.
4	Leichhardt Park car park	Leichhardt Park car park located at Mary Street, Lilyfield providing 200 parking bays free with restrictions of 2 hours all days from Monday to Sunday. It is a public parking.
5	Leichhardt North light rail stop	Located in the southwest of the study area on the light rail line connecting the Inner West to the CBD with trams every 8 minutes.
6	Lilyfield light rail stop	Located in the south of the study area on the light rail line connecting the Inner West to the CBD with trams every 8 minutes.
7	Le Montage Function Centre	A Sydney waterfront venue overlooking Iron Cove Bay located at 38 Frazer Street, Lilyfield. It is a Sydney venue for weddings, corporate events and private functions. It operates all weekdays from 9 am to 6:00pm except Tuesdays and Wednesdays when it remains open until 9:00pm. All event spaces have the capacity for 1500 to 2500 people.
8	Sydney College of the Arts*	Located within eastern end of Callan Park, off Balmain Road with on-site visitor parking.
9	Offices, including University of Tasmania, Callan Park and NSW Ambulance offices*	Located at the south-western end of Callan Park with on-site parking available.
10	Callan Park Oval*	Sportsground inside Callan Park attracting scheduled cricket games in the summer and soccer games in the winter, as well as recreational sport participants.
11	The Bay Run*	A popular local shared use path running along the shoreline.

**Callan Park is owned and operated by the Office of Environment and Heritage, belonging to the NSW state government. Parking management for the Callan Park area is excluded from this study.*

2.2.3. Public Transport

The Lilyfield precinct is well connected by public transport and is served by light rail (Dulwich Hill Line) and frequent bus services. The entire precinct has access to the public transport stops within typical walking distances. Local public transport services are shown in Figure 2.3 and described in Table 2.2.

Figure 2.3: Map of public transport provided within the study area



Source: <https://transportnsw.info/travel-info>

Table 2.2: Public Transport within the Area

Service	Route Number	Route Description	Frequency on/off- Peak
Bus	447	Lilyfield to Leichhardt Marketplace (Loop Service)	Every 60 min/ 2 service on Saturdays
	470	Lilyfield to City Martin Place	Every 20min/every 20 min
	440	Bondi Junction to Rozelle	Every 8 min/ every 10 min
	445	Campsie to Balmain via Leichhardt Marketplace	Every 15 min/ every 15 min
	L37 (Limited stop)	Haberfield to City Town Hall	Every 15 min (7:00-8:00 and 16:30-17:40)-Monday to Friday
Light Rail	L1	Dulwich Hill Line	Every 8 min/ every 10 min

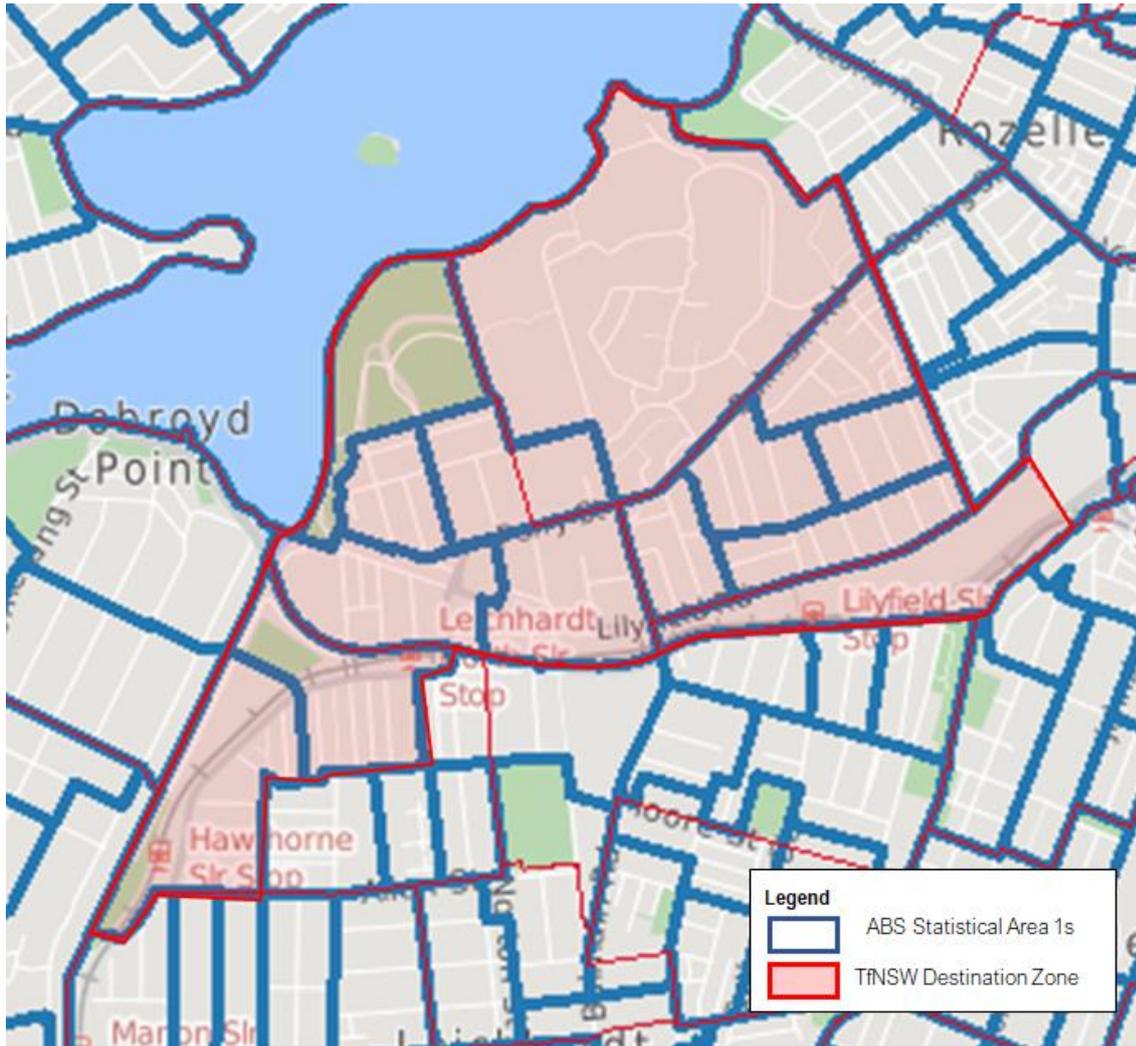
Source: <https://transportnsw.info/trip/>

2.3. Existing Travel Behaviour

2.3.1. Journey to Work

The 2016 Census Statistical Areas 1 (SA1) that make up the Destination Zones (DZ) covering the study area for the purpose of a journey to work mode share analysis are shown in Figure 2.4.

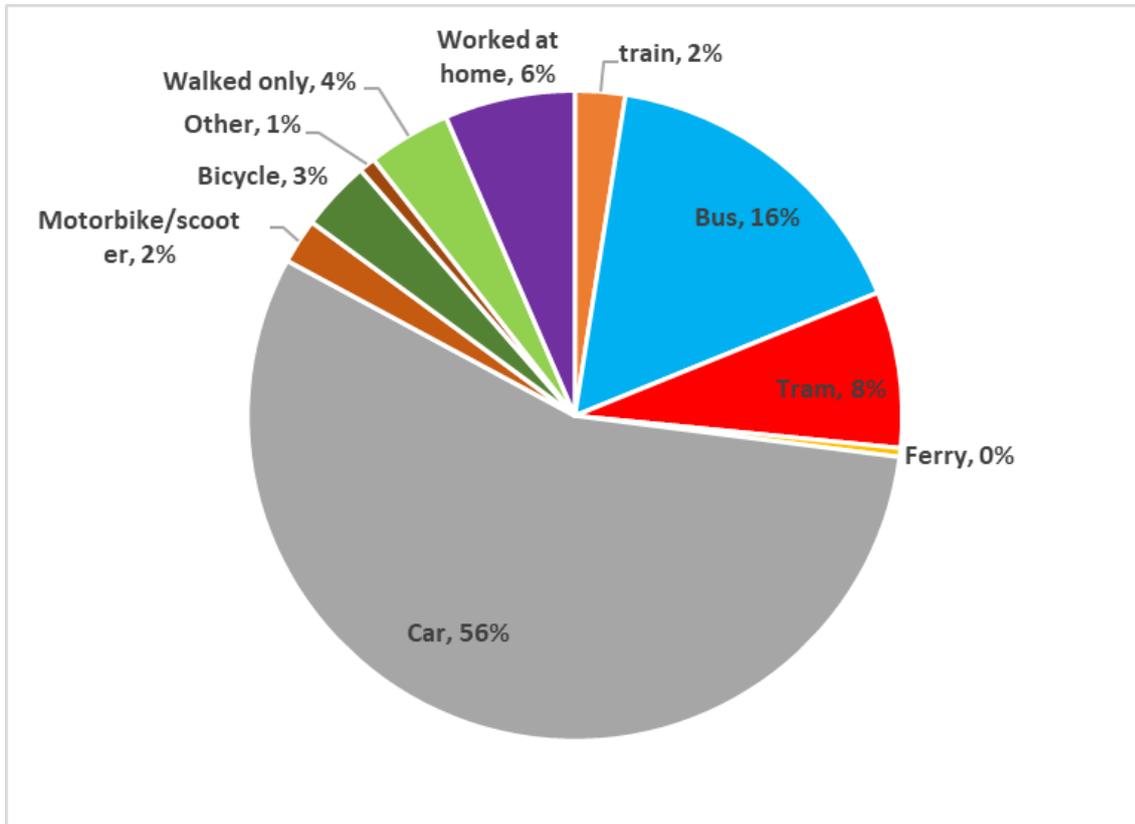
Figure 2.4: Boundary of the relevant SA1s in the study area



Source: <https://itt.abs.gov.au/itt/r.jsp?ABSMAPS>

As indicated in Figure 2.5, residents in the relevant SA1s have a non-car journey to work mode share of 44 per cent. This fairly high non-car mode share is likely a result of the SA1s' close proximity to both the Lilyfield and Leichhardt North light rail stops providing frequent services to Pyrmont and Central Station, as well as access to frequent bus services toward the city centre and Leichhardt.

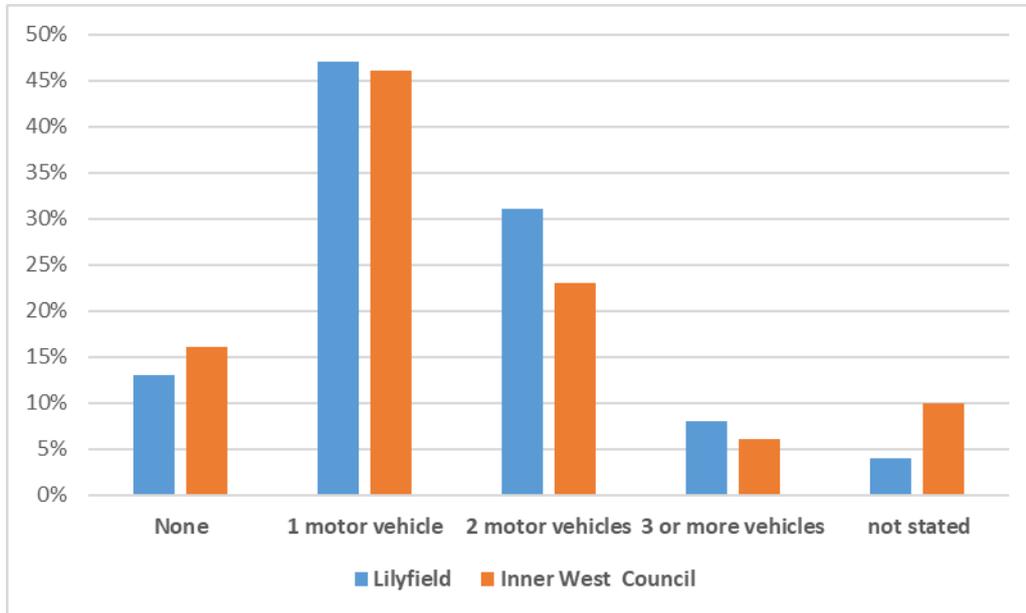
Figure 2.5: Journey to work mode share for residents in the relevant SA1s



2.3.2. Car Ownership

Based on the 2016 Census, Lilyfield recorded 13 per cent of households in the study area as not owning a car while 47 per cent of households owned one car. Figure 2.6 shows that this percentage of zero car ownership is similar to the Inner West Council area while the rate of car ownership of two vehicles is higher than the Inner West at-large. This indicates that the suburb of Lilyfield is slightly more reliant on private vehicles as a method of travel, which is also reflected in the overall rate of car ownership of 1.4 vehicles per household in Lilyfield compared to 1.2 vehicles per household in the overall Inner West Council area. This higher car ownership rate may be due to Lilyfield’s location at the start of Balmain peninsula that is relatively isolated from other parts of the Inner West and Greater Sydney, despite the strong public transport access to the city centre (which represents only one of many possible destinations).

Figure 2.6: Percentage of vehicle ownership



Source: <https://quickstats.censusdata.abs.gov.au/>

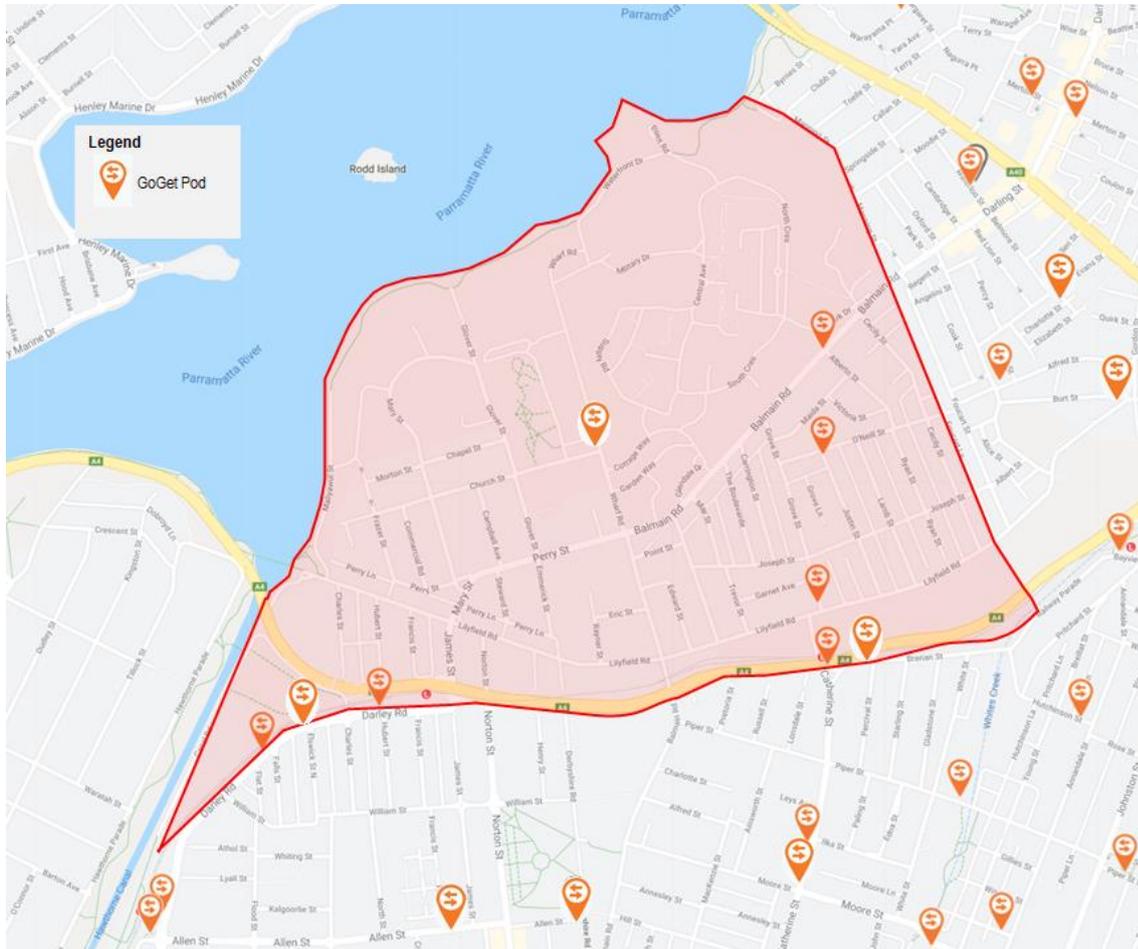
2.4. Local Car Sharing Initiatives

Car share schemes have become increasingly common throughout Sydney and are now recognised as a viable transport option for drivers. They offer an alternative to the private car and are of benefit to the residents of the area. Car share forms an integral part of the ongoing transformation of the Inner West to reduce vehicle ownership of existing and future residents, especially as a second vehicle. This is crucial for areas gravitating towards high-density living where on-site car parking typically does not support ownership of more than one vehicle.

GoGet car share has several car share pods within the Lilyfield area as shown in Figure 2.7. With further development of the local area, there will be opportunities for more car share providers to increase supply nearby as viability increases with more residents and workers.

Car Next Door is a peer to peer car sharing businesses where car owners are able to rent out their car when it is not being used at a time-based rate. Given its crowdsourcing nature, there is no permanent fleet established in Sydney in the same manner as GoGet. However, the Car Next Door website reveals there are vehicles available for hire in the Lilyfield study area.

Figure 2.7: Go-Get car share pods in the Lilyfield Precinct



Source: Go-Get Cars (www.goget.com.au)

2.5. Parking Supply and Conditions

2.5.1. Background to Parking in Lilyfield

Parking in Lilyfield principally comprises on-street parking on residential streets with the exception of small pockets of time-restricted parking in the shopping area along Balmain Road near the Wharf Road intersection. Furthermore, on-street parking near Leichhardt Oval has a one-hour limit during sporting events at Leichhardt Oval for those without a residential parking permit.

The major off-street parking area in Lilyfield is the Leichhardt Park car park which is to service the customers using the Aquatic Centre and nearby natural amenities.

2.5.2. Parking Supply within Lilyfield

Figure 2.8: Lilyfield Parking Restrictions Map



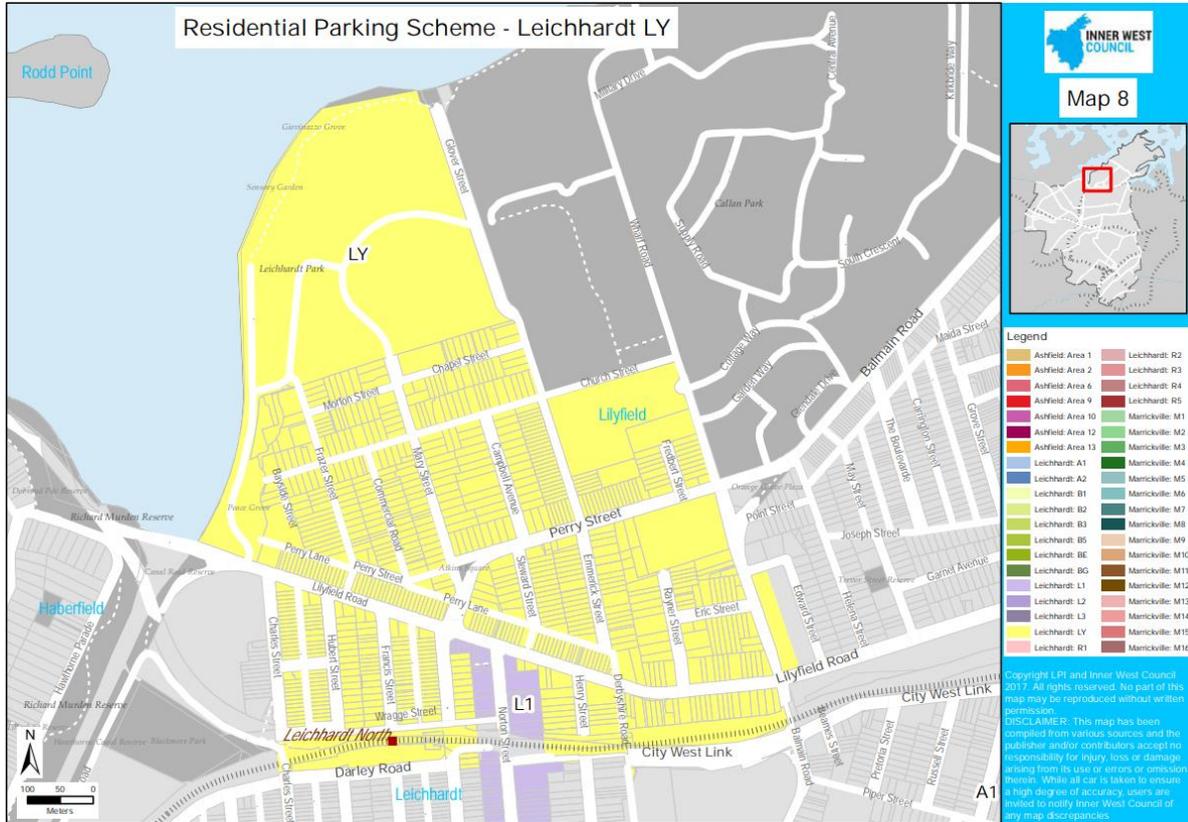
**LY full description – "1 Hour Parking During Sporting Fixtures At Leichhardt Oval, Authorised Resident Vehicles Excepted LY"*

Figure 2.8 shows an overview of the parking restrictions in Lilyfield. The on-street parking is predominantly unrestricted in the residential areas, with the exception of streets west of Wharf Road having specific one-hour event restriction for non-permit holders during an event at Leichhardt Oval (LY on the figure above). On-street parking shown as LY are unrestricted at all other times.

Short-term (under two hours) time-restricted parking exists in small pockets outside the shops along Balmain Road and the aquatic centre. Disabled parking spaces are available across the Lilyfield area, in both residential and commercial areas.

2.5.3. Resident Parking Scheme

Figure 2.9: Residential Parking Scheme – Leichhardt LY



Retrieved from <https://www.innerwest.nsw.gov.au/live/information-for-residents/parking/permit-parking> (March 2020)

According to Figure 2.9, two residential parking schemes are active within the Lilyfield study area, as follows:

- LY Permit Zones – Street signage in this zone display “1P During sporting fixtures at Leichhardt Oval authorised residents vehicles excepted”, which covers a major portion of the study area highlighted in yellow in the figure above. This zone is established to prioritise on-street parking spaces on residential streets for residents over visitors to Leichhardt Oval during sporting fixtures. Whereas parking spaces adjacent to Leichhardt Oval but not on residential streets (e.g. parking spaces at Leichhardt Park) do not have such restrictions.
- L1 Permit Zones – Street signage in this zone display “2P 8am-10pm Permit Holder Excepted” and this zone is present on Norton Street and O’Halloran Street only within the study area. This zone is established to maintain parking spaces for residents from staff at nearby businesses as land uses in the L1 permit zone contain multiple commercial office buildings, commercial services and other places of employment.

Resident parking permits are currently issued to residents living in the properties shown in Figure 2.9, with a maximum of two permits issued to a household if there is no off-street parking and two or more vehicles are registered to a property. These permits are free of charge to eligible residents.

2.6. Parking Demand

2.6.1. Parking Surveys

The on-site parking surveys were conducted on Saturday 15 February and Wednesday 19 February 2020. The overall survey extent is the same as the study area as shown earlier in Figure 2.1. The parking survey included all Council-controlled on-street and off-street parking available to the public and involved the following tasks:

- Parking inventory collection
 - Inventory of parking capacity and restrictions
 - Parking signage audit comprising photographs and GPS coordinates of all signs.
- Parking Occupancy and duration of stay/turnover rate surveys
 - Two-hourly interval (Wednesday, 8am to 8pm)
 - Two-hourly interval (Saturday, 10am to 2pm).

2.6.2. Survey Analysis

Occupancy

The reported 'average peak' parking occupancy rate in this study is expressed as the mean of the four highest hourly occupancies, irrespective of when those highest occupancies occurred. This metric is known as 'average peak occupancy' and GTA uses this method to offset any outliers of extremely high demand as well as avoiding being solely focused on the peak hour of occupancy. This method is a more realistic measure of an occupancy rate that road users can expect throughout the day rather than at one specific hour.

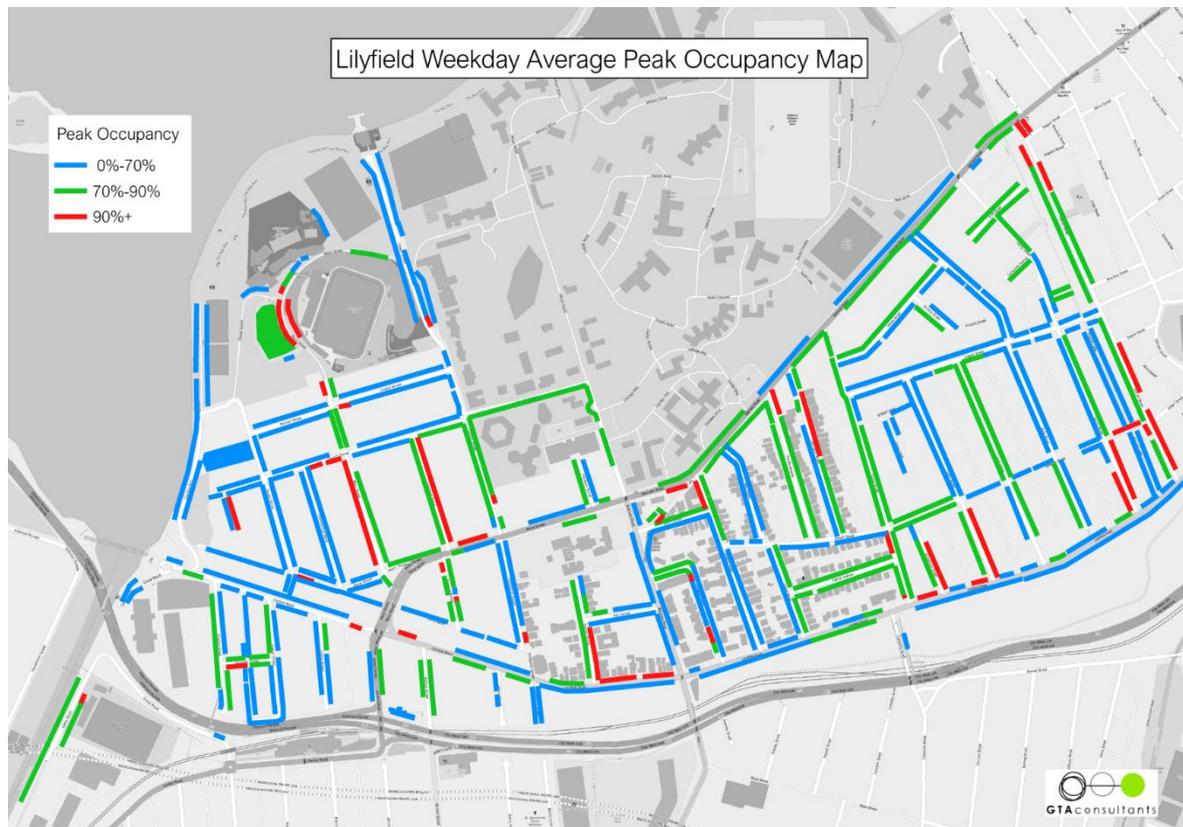
The Saturday parking data, having only three observations, was compiled and calculated as an average instead.

The occupancy rates are subsequently grouped into three different categories, they are as below:

- **0%-69%**, these parking spaces are regarded as low usage, where car parks are sparsely occupied, and customers are expected to find a parking spot at first instance.
- **70%-89%**, these parking spaces are at an optimal utilisation level where it has a high degree of utilisation indicating the kerbside space or land allocated to parking are not underused but there are enough spaces available for drivers to be able to find a parking space without circling around.
- **90%+**, these car parks are almost if not already at full capacity and drivers will struggle to find any available spaces in the first instance, leading to localised cruising for parking and consequent congestion.

The weekday average peak and weekend average parking occupancies from the parking surveys are shown in Figure 2.10 and Figure 2.12.

Figure 2.10: Weekday Average Peak Occupancy



Weekday average peak demands are generally low across the area with ample availability of unrestricted on-street parking. Commuter demand exists mostly in the form of incoming workers to the local offices around the Norton street area and WestConnex just south of Lilyfield Road in the eastern end of the area. Callan Park also contains multiple offices and recreational land uses but these have parking within the park, so it is surmised that the spillover onto Balmain Road and other nearby streets would not be significant, as reflected in the predominant 0 to 70 per cent and 70 to 90 per cent parking occupancies on streets near Callan Park.

The presence of the two light rail stations of Lilyfield and Leichhardt North does not cause any noticeable influx in demand for parking, as shown by Figure 2.10, given there are no streets exhibiting high average peak occupancies of or greater than 90 per cent surrounding both Lilyfield and Leichhardt North stations.

The off-street car park at the aquatic centre is utilised at an optimal level of between 70 and 90 per cent, indicating the car park (and by extension the swimming pool) is well-utilised with visitors also able to find a parking space easily.

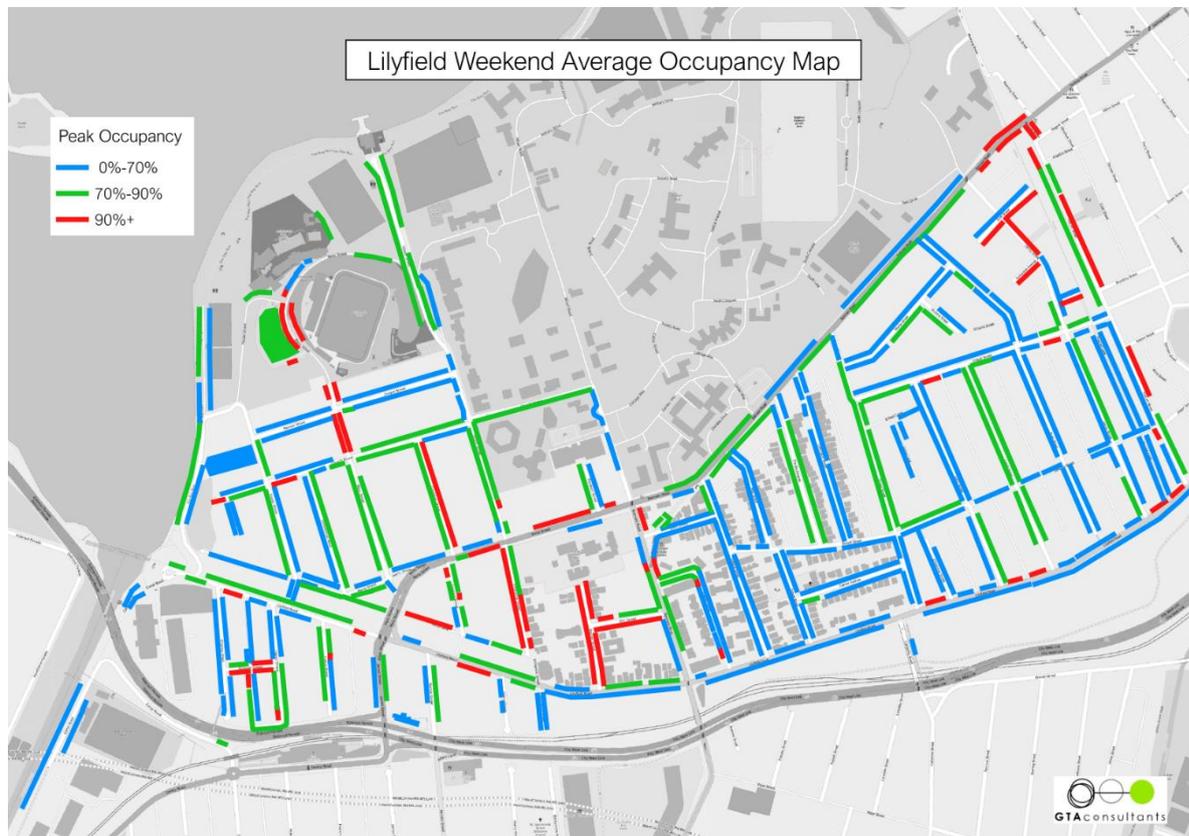
In the Orange Grove shopping village, some streets have high occupancy (90 per cent or more) while others have lower occupancies, meaning shop-goers should be able to find available spaces nearby within a short 100-metre walk.

The weekday occupancy data of dedicated motorcycle parking was provided Council as shown below. All motorcycle parking pockets within Lilyfield at the time of the survey have a low demand with ample capacity available.

Figure 2.11: Motorcycle Occupancy



Figure 2.12: Weekend Average Occupancy



The weekend parking demand is generally low across the residential areas, with the streets on the south-eastern portion of the study area having more parking availability in the absence of workers going to nearby businesses or WestConnex. Callan Park also contains recreational land uses but there is available parking within the park, so it is surmised that the spillover onto Balmain Road and other nearby streets would not be significant, as reflected in the predominant 0 to 70 per cent and 70 to 90 per cent parking occupancies on streets near Callan Park.

Given the expected change of people activity from work to recreational leisure in the weekend, the demand for parking also reflect this. Places of high parking demands include streets near the Rozelle shops in the north-eastern corner of the study area as well as the streets near the Orange Grove markets.

The Orange Grove Markets in Lilyfield is a popular local attraction that operates every Saturday morning from 8am to 1pm. The market is situated inside Orange Grove School between Balmain Road and Perry Street. The parking demand is very high on the adjacent side streets where demand almost saturates capacity.

The on-street parking at Leichhardt Oval and surrounding facilities have a noticeable increase demand in the weekend, especially on Mary Street and Glover Street. However, the parking supply in this area still had the availability to meet the demand on other nearby streets, meaning visitors were not required to leave the immediate area to find an available parking space.

Duration of Stay

Duration of stay is evaluated by recording the total dwell time of all surveyed parked vehicles. Over the entire survey period, the durations of stay for all individual vehicles surveyed are averaged to derive an average duration of stay calculation for every street. The average duration of stay metric is useful for understanding the characteristics of the intended parking purpose of users. Short-stay parking is defined as a parking duration of less than three hours while any duration of three hours or more is long-stay parking. Short-stay parking could encompass people visiting residents or the local shops while long-stay parking could comprise residents' parking, commuter parking or staff parking from nearby places of employment. The weekday and weekend average durations of stay are displayed in Figure 2.13 and Figure 2.14.

Figure 2.13: Weekday Average Duration of Stay

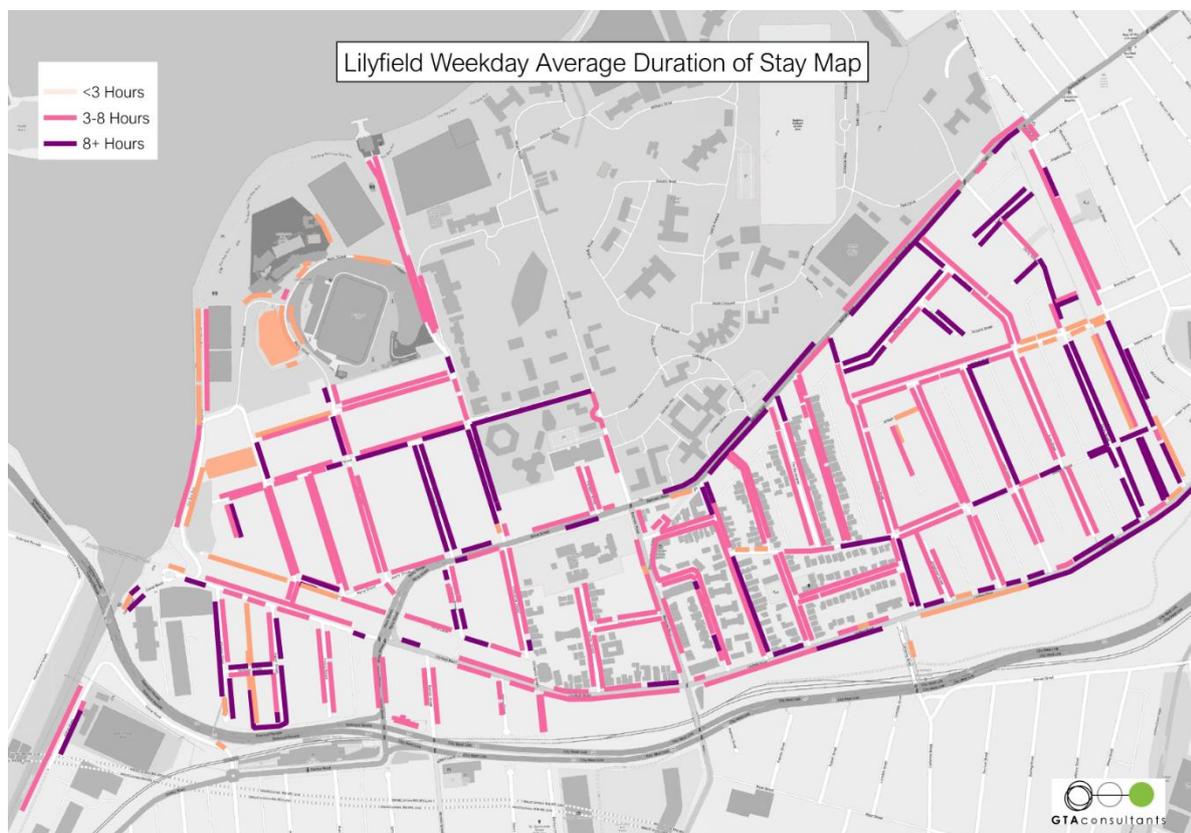
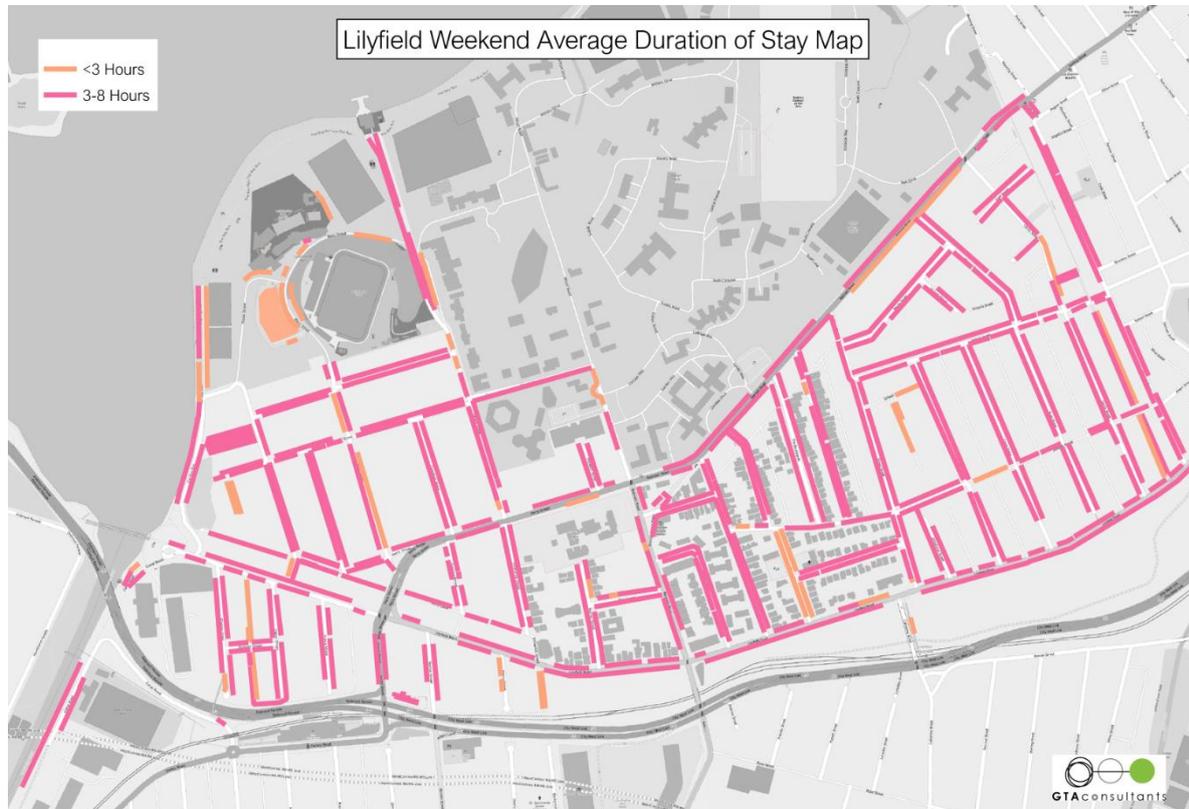


Figure 2.14: Weekend Average Duration of Stay



As most of the Lilyfield area comprises unrestricted parking within residential streets, the average durations of stay observed for the surveyed weekday and weekend are principally greater than three hours with some streets exhibiting average durations of stay greater than eight hours also observed on the weekday, which constitutes long-stay parking. It is not known whether there were average durations of stay greater than eight hours on the surveyed weekend since the survey period only lasted four hours.

Notwithstanding the predominance of long-stay parking, pockets of short-stay parking were observed near Leichhardt Oval and the surrounding Bay Run area as well as near shops and businesses on both the weekday and weekend. Interestingly despite the Orange Grove Markets ostensibly attracting a steady flow of visitors on the weekend with a high demand for parking, the average duration of stay for this area on the weekend was high at predominantly over three hours, which suggests the streets may be occupied by residents or vendors staying for long durations instead of market-goers.

Turnover Ratio

Turnover is the total number of individual cars occupying a certain parking space or street of parking spaces over a defined survey period. High turnover indicates more parking activity at a location (e.g. more customers accessing on-street parking to go to the shops) while low turnover indicates very few individual cars park at a location during a survey period due to an absence of attractors that generate visitation.

Relying on turnover data alone will induce biases due to spatial variances in parking capacity where streets with a high capacity could result in higher turnover despite having a relatively low occupancy rate. To address this bias, GTA uses the turnover ratio metric to appraise how frequent a street is used by parking users during a survey period in relation to that street's parking capacity. This ratio is calculated by dividing the number of individual cars parked on a street on the survey day by the parking capacity.

The weekday and weekend turnover ratios are displayed in Figure 2.15 and Figure 2.16.

Figure 2.15: Weekday Turnover Ratio

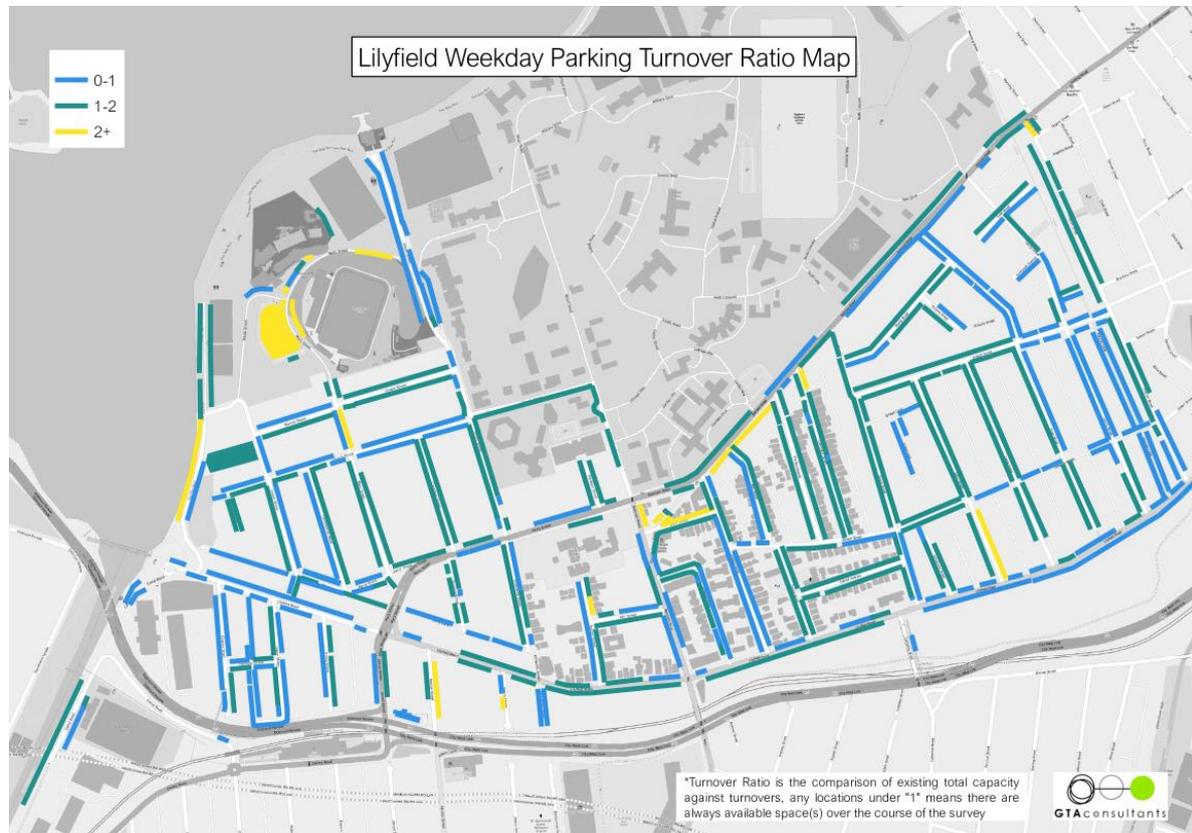
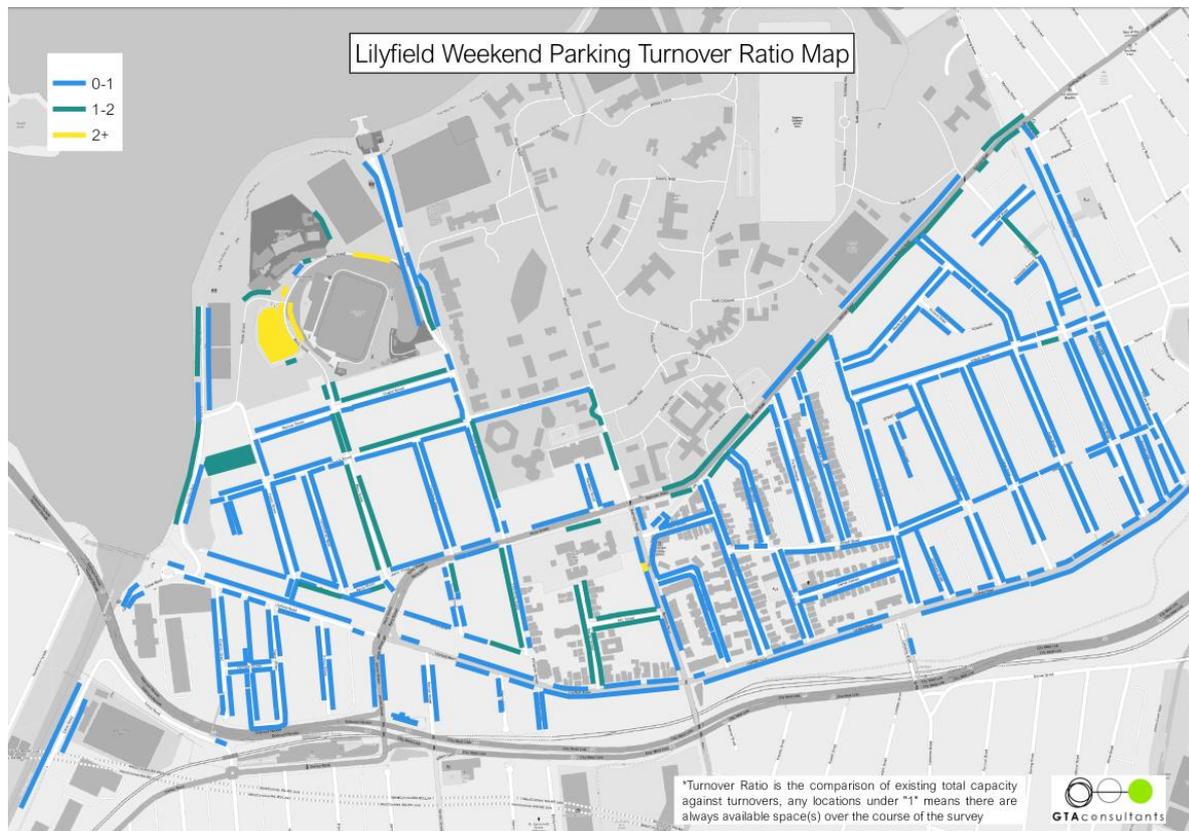


Figure 2.16: Weekend Turnover Ratio



The turnover ratios are higher during weekdays, with the streets near the shops and recreational areas having noticeably higher ratios where they are experiencing more than twice as many parked cars compared to the underlying capacity. The residential streets generally have a ratio of less than one or two, indicating the total demand over the course of the day will either not exceed the capacity or there was a small degree of parking turnover but not to an extent that there is a noticeable churn of vehicles on the residential streets.

In comparison, the surveyed weekend exhibited lower turnover ratios and hence parking activity compared to a weekday, with a greater coverage of streets having a ratio of less than once, indicating high parking availability and low usage. This trend, especially in the Orange Grove Markets area, supports the earlier assertion that long durations of stay near the Markets stymie the ability for short-stay visitors to access nearby parking spaces.

2.6.3. Accessible Parking Spaces

A total number of 59 accessible parking spaces including off-street and on-street parking was recorded in the study area as part of the survey. Average peak occupancy during weekdays was 66 per cent against 52 per cent during the weekend, which are generally considered as low levels of occupancy with ample availability of accessible parking spaces. An average duration of stay of 5 hours and 51 minutes and an average turnover ratio of around one was observed for vehicles parked within the disabled parking spaces during the weekday survey, which is considered long-stay parking. Consequently, the use of accessible parking spaces in Lilyfield is generally for long-stay and low turnover parking.

2.6.4. Boat Trailer Surveys

As part of the conducted surveys, the presence of boat trailers parked on-street was also recorded to inform Council whether this occurrence is prevalent in the study area. For example, if boat trailer parking was found to be ubiquitous in Lilyfield, resulting in boat trailers taking up kerbside space that could otherwise have been used for on-street parking or other uses, then Council could use this evidence to inform future policy approaches to manage boat trailer parking.

To that end, the results of the survey for boat trailer parking across the same survey days are shown in Figure 2.17 and Figure 2.18.

Figure 2.17: Weekday Boat Trailer Parking

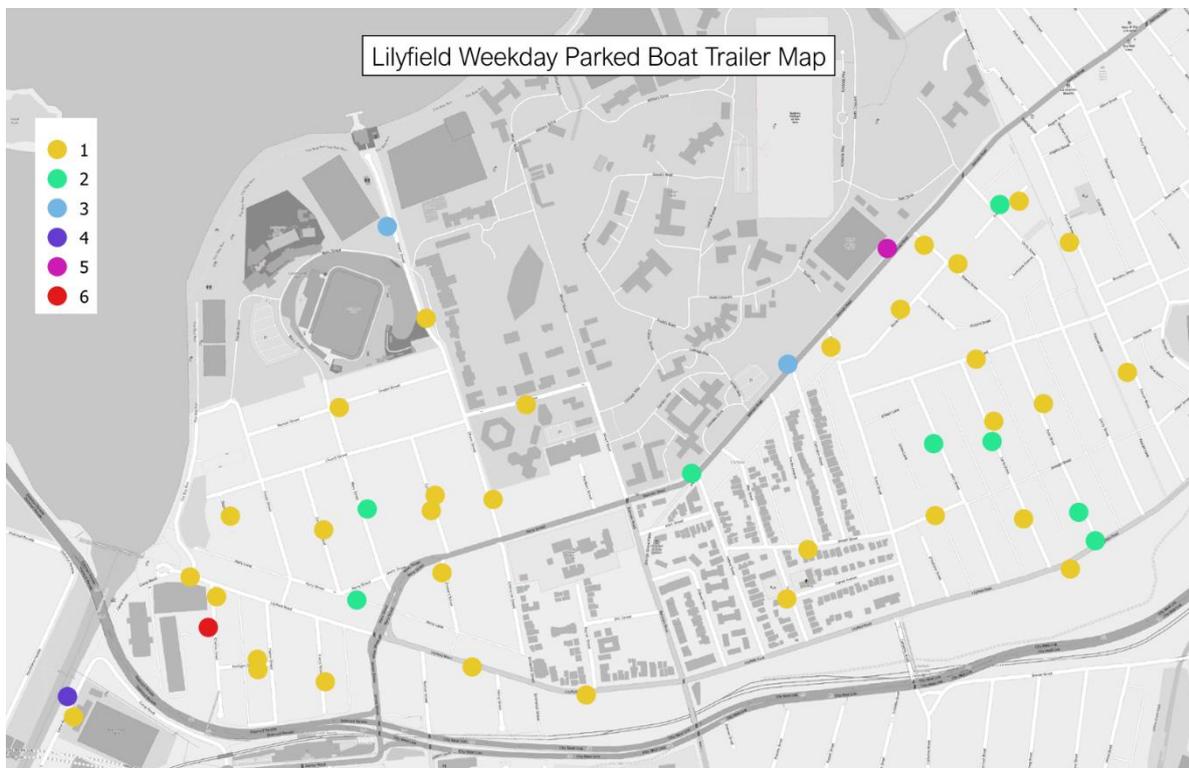


Figure 2.18: Weekend Boat Trailer Parking



As shown by these figures, there was a discernible spread of boat trailers parked on-street on the weekday, with the presence of principally one to two boat trailers surveyed throughout the study area in conjunction with isolated pockets of streets having three or more boat trailers parked. Despite this distribution of parked boat trailers, given they number only a handful across different streets, it has not necessarily reached a level where it has become problematic and denies access to a premium of parking, given earlier occupancy survey results showing that there is a high degree of parking availability throughout the study area.

In the surveyed weekend, the presence of parked boat trailers decreases, presumably as more people take their boats out onto the water during the weekend.

2.6.5. Demand Implications

Based on the results of the preceding occupancy, duration of stay, turnover, accessible parking and boat trailer parking analysis, the following conclusions can be made about parking demand characteristics in Lilyfield:

- Average peak parking occupancies in Lilyfield are at a low or optimal level on the weekday with only isolated streets of high demand (at or over 90 per cent). There was no evidence of high parking demand near light rail stops or clusters of places of employment, indicating any demand from these activities does not overwhelm underlying parking supply.
- On the weekend, there is a similar trend of low or optimal levels of parking occupancy throughout the study area, with the exception of a cluster of high parking demand near the Orange Grove Markets as these markets generate parking activity.
- The average durations of stay and turnover ratios observed on both the weekday and weekend are consistent with that of a predominantly residential setting; principally long-stay parking greater than three hours was the most widespread parking duration observed and supported by turnover ratios of less than two hours.

- Notwithstanding the predominant average duration of stay and turnover ratio trends, pockets of higher turnover and/or lower durations of stay were observed in areas such as the aquatic centre, Leichhardt Park and the shopping area on Balmain Road. This trend was not observed near the Orange Grove Markets, suggesting the pattern of high parking occupancy is caused by long-stay vehicles such as local residents or market vendors.
- Boat trailer parking was not observed to be a widespread occurrence in Lilyfield in a manner that prevents drivers from accessing parking given the broad availability of parking throughout Lilyfield.

2.7. Parking Signage Check

A product of the amalgamation of the former constituent councils of Inner West Council is an amalgam of different signage types that regulate parking throughout the LGA. Many of these signs have been used historically but no longer represent standard practice as stipulated by TfNSW and many of the signs that regulate the same aspect of parking (e.g. a 1/4P restriction) may look different depending on the location within the LGA.

Accordingly, as part of this study, GTA was tasked with identifying general inconsistencies in signage and recommend standardisation where appropriate. GTA used the TfNSW standards on signage as the source of truth for what is the correct parking signage¹ to be used throughout the LGA moving forward.

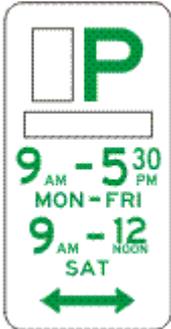
Furthermore, Council experienced enforcement issues under the existing '1P during sporting fixtures only' signage in the LY residential parking permit zone. GTA will make recommendations in Section 5 of this report on how this signage could be improved, along with enforcement recommendations drawing from case studies on event parking management in other jurisdictions in Section 4.3 of this report.

To ensure consistency with the current TfNSW parking signage standards, GTA reviewed all photographed signs captured as part of the parking survey in Lilyfield and identified that outdated and irregularly dimensioned signs are present within the study area. All non-compliant signs, examples of their location and the recommended TfNSW signs are identified in Table 2.3 below. Another observation is the common sighting of discoloured or damaged signs that might potentially render them legally void. GTA recommends Council replace such signs promptly to avoid enforcement complications from illegible signs.

The detailed locations of the non-compliant signs are available from the repository of sign photographs and geographical location IDs provided to Council by GTA via email and electronic file transfer on 18 March 2020.

¹ <https://www.rms.nsw.gov.au/cgi-bin/index.cgi?action=searchtrafficsigns.form>

Table 2.3: Non-compliant signs

Locations	Current sign and issue	Recommended TfNSW sign example
<p>Balmain Road, Mary Street, Charles Street, Leichhardt Park car park,</p>	 <p>P15 minutes is not a standard sign</p>	 <p>R5-15</p>
<p>Balmain Road, Mary Street, Hubert Street</p>	 <p>"1 hour" is no longer used</p>	 <p>R5-1-1</p>

Locations	Current sign and issue	Recommended TfNSW sign example
<p>Mary Street, Leichhardt Park Aquatic Centre parking lane, Glover Street</p>	 <p>Angle parking sign irregular dimension</p>	 <p>R9-205</p>
<p>LY zone</p>	 <p>Signs indicating "1 hour" are no longer used and current wording on sporting fixtures leads to enforcement issues as previously indicated by Council</p>	 <p>R5-62-4</p> <p>Refer to Section 5 of this report for more information on event parking</p>

2.8. Resident Permit Parking Allocation

A key aspect of the existing parking conditions in Lilyfield is the current operation of the LY and L1 residential parking permit zone and the quantum of permits that are allocated. The amount of permits allocated in comparison to the parking capacity of a street or the permit zone reveals the proportion of the capacity that has been set aside for residential permit parking. For the LY zone, this only relates to residential permit parking during sporting fixtures at Leichhardt Oval, notwithstanding its present unenforceability as informed by Council. The *Permit Parking Guidelines* from Roads and Maritime Services stipulate that the number of permits issued for an area should not exceed the number of available on-street parking spaces in that area.

In the case of Lilyfield and based on data provided by Inner West Council, there are 196 resident permits issued for the LY zone. Meanwhile, there are 626 parking spaces in this zone, meaning the amount of parking permits issued in the LY zone is consistent with the guidelines referenced above. One possible explanation of low quantity of permits issued in relation to capacity is that the permits are only valid during sporting fixtures at Leichhardt Oval and the lack of enforceability means there is little incentive to apply for this permit.

Regarding the L1 zone that applies only to Norton Street and Halloran Street within the study area but is actually a broader zone that lies mostly outside of the study area, it is not possible to evaluate how many L1 permits have been issued to properties on this street in relation to these streets' parking capacity given the data received from Council pertains to the entire L1 zone.

2.9. Community Survey

In order to understand the day-to-day community views on the current parking situation, Council has directly engaged with the local community including residents, business owners and shopkeepers. An extensive questionnaire letter "Make parking fairer" detailing this parking study was advertised via social media and the Council website. Anyone member of the public could also request a physical copy of the questionnaire.

2.9.1. Survey Statistics

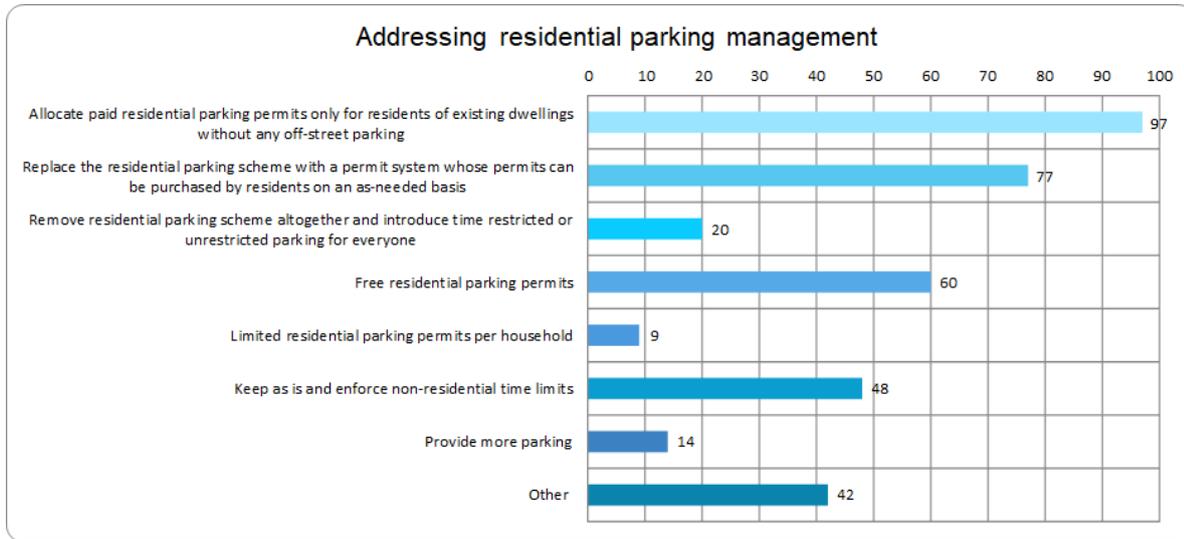
After a consultation period of one month during February to March 2020, Council received 390 questionnaire responses; the key insights to the responses are as follows:

- 90 per cent of the respondents responded "Yes" to living in Lilyfield.
- 91 per cent of the respondents lives in a house.
- 79 per cent of the respondents usually park less than 100 metres away from their place of residence.
- 42 per cent of the respondents responded "Yes" to having off-street parking at their residence.
- Weekday evenings/nights was the most chosen timeframe for issues finding a parking spot near the respondents' residence.
- 66 per cent of the respondents who work in Lilyfield responded "No" to parking off-street at work.
- 97 per cent of the respondents live in the Lilyfield postcode area, the others are all from adjacent postcode areas.

2.9.2. Survey Responses

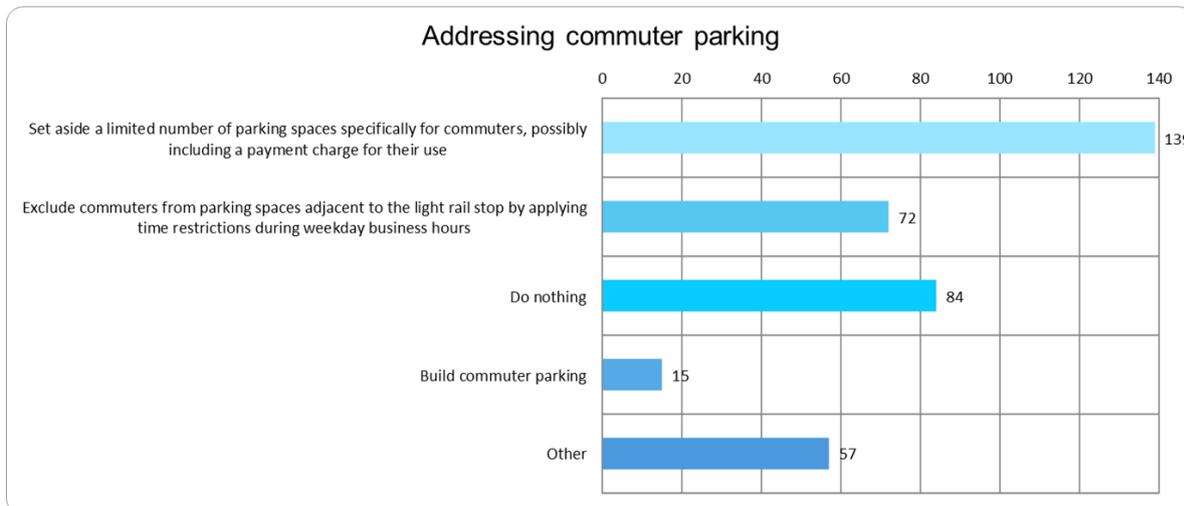
In addition to the respondents' characteristics highlighted above, the questionnaire also asked respondents on their views toward different aspects of parking management in Lilyfield, especially concerning ways to manage residential parking, commuter parking and event parkin near Leichhardt Oval. The results and commentary are provided below.

Figure 2.19: Respondents' views toward addressing residential parking management



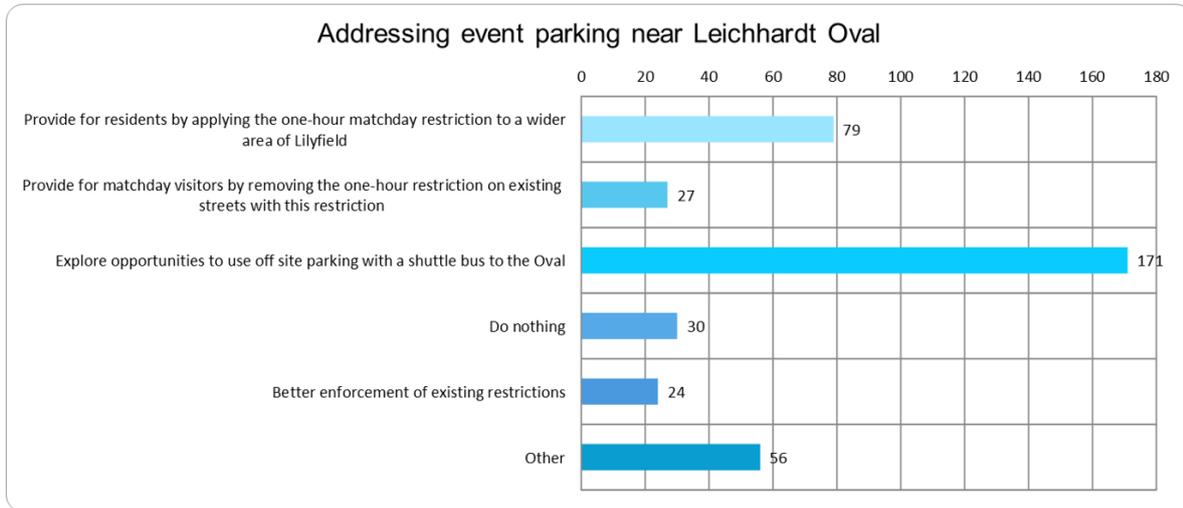
Based on Figure 2.19, the respondents highly favour resident parking permits to be made available to only those residents of dwellings without any off-street parking or in a manner that can be purchased by residents on an as-needed basis. Notwithstanding these views, a large proportion of respondents (108) also wanted the existing scheme to remain as is and to remain free and be supported by better enforcement of the time limits.

Figure 2.20: Respondents' views toward addressing commuter parking



Based on Figure 2.20, while a plurality of respondents were favourable to setting aside some spaces for possible paid commuter on-street parking, a large group of respondents also favoured the status quo or excluding commuters from parking near light rail stops via time-restricted parking.

Figure 2.21: Respondents' views toward addressing event parking near Leichhardt Oval



Regarding Figure 2.21, the exploration of using event shuttles from another origin for patrons to access Leichhardt Oval is the most sought-after intervention by the respondents, which could be similar to event buses that ran to Moore Park from Central Station before the City and Southeast Light Rail opening.

A group of respondents also suggests expanding the area of the LY permit parking zone, indicating the presence of event-visitors may cause parking and traffic disruption to residents living near Leichhardt Oval.

Separate correspondence was received from residents living on Hubert Street requesting angled parking on Hubert Street to increase parking capacity. However, upon reviewing parking occupancy and demand, the street currently has insufficient demand (less than 85 per cent) to warrant the implementation of this suggested measure as directed by Council's draft Public Domain Parking Policy.

Separate correspondence was also received from the community regarding a request for time-restricted parking on Canal Road. Having regard to the weekday and weekend occupancy results for this road which were below 70 per cent and the low turnover ratio on this street (suggesting the parking may be used by staff at the nearby film studios), there is no clear case for change in the parking management approach on this road.

3. SWOT ANALYSIS

3.1. SWOT Analysis

In developing the parking study, a SWOT (strength, weaknesses, opportunities and threats) analysis of parking within Lilyfield was undertaken. The results of the SWOT analysis for Lilyfield within the context of parking is presented in Table 3.1.

Table 3.1: SWOT Analysis for Balmain East Precinct Parking Study

Strengths	Weaknesses
<ul style="list-style-type: none"> Existing low to medium residential density has not generated high parking occupancies that are pervasive throughout the study area. Any parking generated by light rail commuters or local working staff has not resulted in high parking occupancies. Areas of high parking occupancy are isolated or ephemeral (e.g. Orange Grove Markets). Majority of residents able to park in their immediate surrounds (<100m). Residents appreciate prioritising paid parking permits on an as-needed basis. A significant portion of the study area's properties (especially east of Wharf Road) have off-street parking via rear lane garages or conventional street frontage access. 	<ul style="list-style-type: none"> Leichhardt Oval generates high demand for parking but parking enforcement during event days is not possible. Parking near Orange Grove Markets does not exhibit sufficient turnover to support access by multiple visitors.
Opportunities	Threats
<ul style="list-style-type: none"> Reform existing LY permit parking scheme into an enforceable special event permit parking scheme. Explore potential for shuttle bus for Leichhardt Oval event days. Standardise parking signage across the study area as well as the LGA. Explore opportunities to expand the coverage and quantum of car share pods to increase its convenience to residents as a means to reduce car ownership rates and on-street parking demand. 	<ul style="list-style-type: none"> Any future medium to high development activity in Lilyfield and the resultant parking demand need to be appropriately managed through public and private domain parking policy measures, the absence of which would result in unfettered growth in demand for on-street parking.

4. PARKING MANAGEMENT CASE STUDIES

4.1. Introduction

The purpose of this section is to run through relevant examples of how parking issues similar to those found in Lilyfield have been dealt with to inform this parking study's recommendations contained in Section 5 of this report. In particular, management approaches to parking on residential streets and event parking will be explored.

4.2. Parking Management on Residential Streets

4.2.1. Parking hierarchies in other cities

Parking hierarchies are a common policy approach used by local governments across Australia and New Zealand to address issues of competing demand for kerbside space on residential streets as well as other street types among differing user groups. Such hierarchies serve as a guideline to accommodate and prioritise various user groups within a local place context.

Austroroads

According to the *Austroroads Guide to Traffic Management Part 11* on parking, a robust parking hierarchy should take into account the following:

- Safety and convenience of all road users
- Encourage moving shift from private vehicle usage
- Equitable and transparent parking space allocation
- Enable a consistent vision for parking infrastructure.

The guide presents an example parking hierarchy that sets out a recommended hierarchy across different place contexts, as shown in Figure 4.1.

Figure 4.1: Example parking hierarchy from Austroads

Priority	Inner core of commercial centre		Outer area	
	On-street	Off-street	On-street	Off-street
Essential 	Loading	Disability permit holders	Public transport	Long-stay/ commuter
	Public transport	Short to medium-stay	Residents	Short to medium-stay
	Drop-off/pick-up	Drop-off/pick-up	Short to medium-stay	Drop-off/pick-up
	Short to medium-stay	Loading	Disability permit holders	Park and ride
		Motorcycle/ scooter	Loading	Residents
Motorcycle/ scooter and cyclists	Long-stay/ commuter & residents	Long-stay/ commuter	Motorcycle/ scooter	
Least important	Disability permit holders	Cyclists	Drop-off/pick-up and motorcycle/ scooter and cyclists	Disability permit holders and loading and cyclists
Not allowed in this zone	Long-stay/ commuter and Park and ride	Park & ride		Public transport
	Residents	Public transport		

Source: Austroads Guide to Traffic Management Part 11 (2017) based on Glenorchy City Council (2007)

As shown in Figure 4.1, it recommends kerbside space be allocated for public transport and residents as the highest priority for ‘outer areas’ (which could include residential streets such as those in Lilyfield), while commuter parking is a low priority. On commercial streets such as those found in the small section of shops on Balmain Road, kerbside uses that support businesses such as loading, public transport and short-stay parking for customers are a high priority while long-stay parking and parking for residents is discouraged.

It is noted that Figure 4.1 is only an example guide and councils have the discretion to set out their own parking management hierarchies. For instance, the current version of Council’s draft *Public Domain Parking Policy* does not include a parking management hierarchy.

The subsequent sub-sections detail examples of parking management hierarchies put into practice by cities in other jurisdictions.

Christchurch, New Zealand

Figure 4.2: Parking management hierarchy in Christchurch

	Commercial Areas	Residential Areas	Other Areas (such as Industrial)
1st priority	Safety	Safety	Safety
2nd priority*	Movement and Amenity	Movement and Amenity	Movement and Amenity
3rd priority	Mobility Parking	Mobility Parking	Mobility Parking
4th priority	Bus stops/ Cycle parks/Bike corrals Shared parking (bike share or car share)/ Micromobility parking (e.g. scooters)	Bus Stops	Bus stops/ Cycle parks/ Bike corrals Shared parking (bike share or car share)/ Micromobility parking (e.g. scooters)
5th priority	Taxi Ranks (special passenger vehicle stands)	Residents Parking	Short Stay Parking
6th priority	Loading Zones	Cycle parks/ Bike corrals Shared parking (bike share or car share)/ Micromobility parking (e.g. scooters)	Residents Parking
7th priority	Short Stay Parking	Short Stay Parking	Commuter Parking
8th priority	Residents Parking	Commuter Parking	
9th priority	Commuter Parking		

Christchurch City Council in New Zealand has adopted a parking management hierarchy to manage kerbside parking in its suburbs (Figure 4.2). The hierarchy is broadly consistent with the Austroads guideline where public transport and disability parking are prioritised in residential areas followed by parking for residents. Short-stay parking is more prioritised in commercial areas and commuter parking is consistently the least important across all place contexts.

Kingston, VIC

Figure 4.3: Parking management hierarchy in Kingston, VIC

Residential Areas			Activity / Commercial Areas		
A	B	C	A	B	C
Residents	Traders	Loading Zones	Disabled	Traders	Residents
Bus and Taxi stops	Commuters	Short Term Parking	Short-term Parking	Commuters	Schools
	Foreshore	School	Bus and Taxi stops	Foreshore	
	Disabled			Loading Zones	

Source: Parking Management Strategy, City of Kingston Victoria (2019)

The City of Kingston, VIC acknowledges the current demand for parking often exceeds the available supply in their municipality and has established a framework for parking user priorities across different areas (e.g. residential and commercial areas). The priorities (with A being the most important and C the least important) are used to provide a clear hierarchy in establishing future traffic and parking regulations.

In residential areas, priority for kerbside space is given to parking for residents and public transport over other user groups such as commuters and school pick up and drop off, while short-stay parking is prioritised in commercial areas.

4.3. Event Parking

Despite the event parking survey to assess the impacts of a sporting fixture at Leichhardt Oval on parking in the surrounding streets not proceeding due to COVID-19 related cancellations, the case study examples below are useful for informing management approaches that could be used for the streets in proximity to Leichhardt Oval during future sporting fixtures. The case studies to be reviewed comprise:

- Eden Park, Kingsland, Auckland, New Zealand
- Suncorp Stadium, Milton, QLD.

These two case studies will subsequently be compared with an example of a traffic management plan (TMP) that was implemented in Leichhardt Oval for National Rugby League (NRL) matches in 2015.

4.3.1. Eden Park, Auckland, New Zealand

In the streets surrounding Eden Park in the residential suburb of Kingsland in Auckland, New Zealand, in the hours prior to, during and after a sporting fixture, on-street parking is restricted to local residents only via the issue of residential event parking permits that are free of charge. Parking for residents is on a first-come, first-served basis and there is no guarantee of parking space. There is no parking at the stadium.

This parking restriction is enforced by Auckland Transport parking wardens and contracted towing companies and occasionally the New Zealand Police who can close off selected streets. An example of the residential parking permit zone in force is shown below in Figure 4.4.

Figure 4.4: Event parking and traffic access restrictions for Eden Park, Auckland



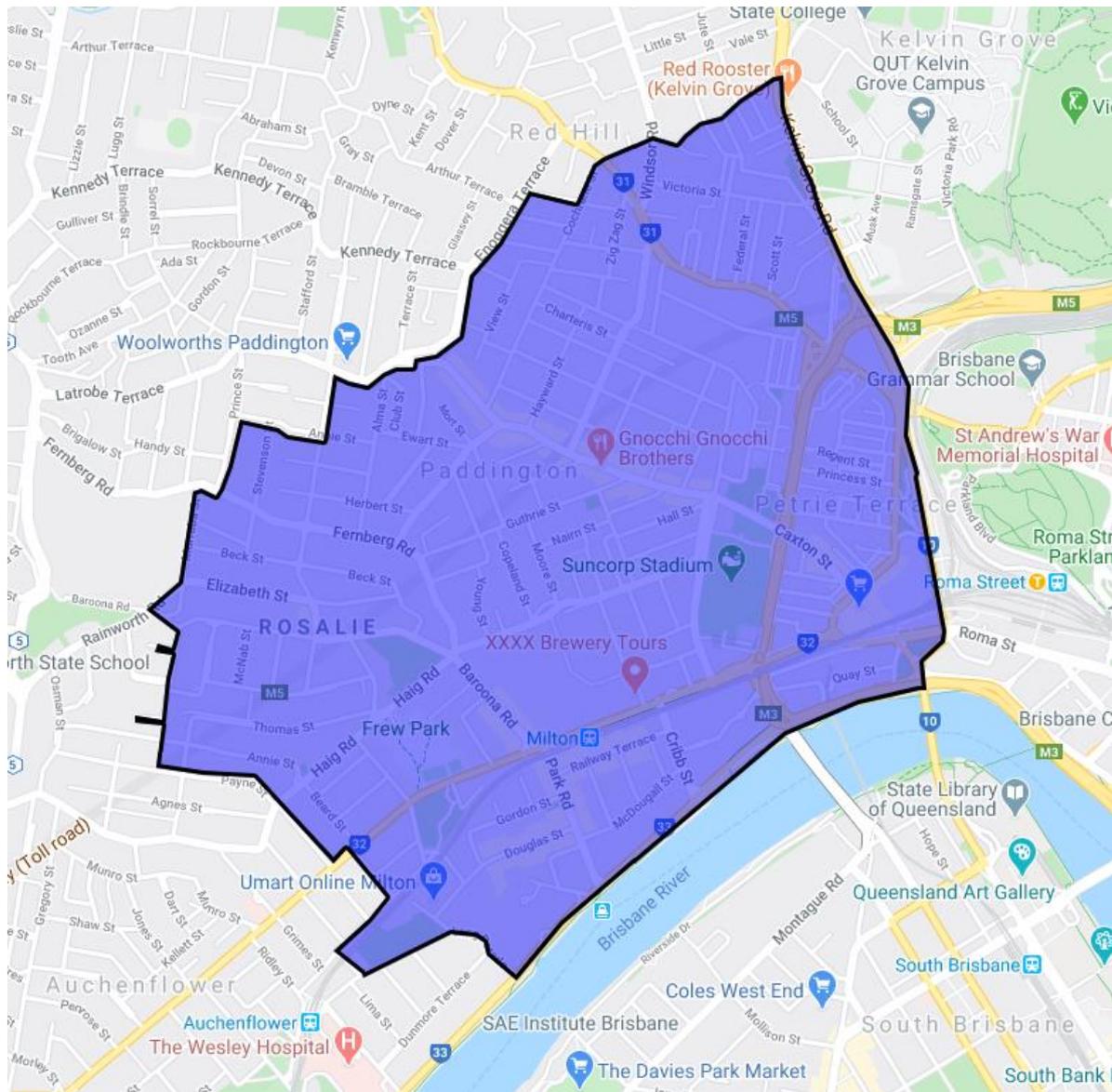
Source: Eden Park (<https://edenpark.co.nz/wp-content/uploads/2020/01/NZLvIND-ODI-Sat-8-Feb-2020-v3.pdf>)

4.3.2. Suncorp Stadium, Milton, QLD

The streets surrounding Suncorp Stadium in the suburb of Milton in Brisbane is subject to the Suncorp Stadium (Lang Park) Traffic Area, meaning in the two hours prior to and two hours after an event, on-street parking is restricted to 15 minutes unless a car has a residential parking permit which is only issued to residents living in the Traffic Area. This Traffic Area is enforced by Brisbane City Council parking rangers and contracted towing companies and communicated via fixed, temporary and VMS signage. There is no parking at Suncorp Stadium.

The Traffic Area boundary is shown below:

Figure 4.5: Suncorp Stadium (Lang Park) Traffic Area



Source: Brisbane City Council (<https://www.brisbane.qld.gov.au/traffic-and-transport/parking-in-brisbane/special-event-parking/suncorp-stadium-lang-park-traffic-area>)

4.3.3. Leichhardt Oval Traffic Management Plan 2015

On Sunday 19 April 2015, officers from the former Leichhardt Municipal Council conducted pre-match and post-match observations of local traffic and parking conditions in the streets surrounding Leichhardt Oval for a NRL match that took place at 2.00pm. The purpose of these observations was to inform the development of a TMP to manage NRL matches at Leichhardt Oval in the future. The following observations in Table 4.1 were made by the officers at the time.

Table 4.1: Pre-match and post-match observations of a NRL match on Sunday 19 April 2015 at 2.00 pm

Type	Pre-match	Post-match
Traffic	Minimal traffic queueing.	Traffic queueing in all roads surrounding the site, in particular Glover Street, Mary Street, Lilyfield Road, James Street, Perry Street, Balmain Road and Darling Street.
	Intersections operating within capacity.	Intersections operating at capacity.
	Mary Street closed between Leichhardt Oval and Leichhardt Park Car Park approximately 30 minutes prior to kick-off except for VIP cars to reduce pedestrian-vehicular conflict; this closure is managed by Wests Tigers' security staff.	Mary Street closed by security adjacent to Leichhardt Park Car Park southern entry, which converts to left turn exit only from the car park. No traffic is permitted to travel southbound in this section of Mary Street.
		Police control traffic at Mary Street/Perry Street, Glover Street/Perry Street and Mary Street/Lilyfield Road.
		Additional traffic signal phase time given to vehicles leaving the venue at intersections of James Street, Norton Street, Balmain Road with City West Link Road to reduce queueing.
		Parked cars on eastern side of James Street between City West Link and Lilyfield Road impact on queueing of southbound vehicles exiting the event.
Parking	On-street parking in the surrounding streets and Glover Street car park at capacity.	On-street parking in the surrounding streets and Glover Street car park at capacity.
	Leichhardt Oval Car Park managed by security staff allowing only LPAC patrons and VIP Wests Tigers/NRL access to car park.	Leichhardt Oval Car Park managed by security staff allowing only LPAC patrons and VIP Wests Tigers/NRL access to car park.
Walking	Significant pedestrian activity in Glover Street, Mary Street, James Street with Mary Street the predominant access point to the Oval.	Significant pedestrian activity in Glover Street, Mary Street, James Street, Perry Street and Balmain Road with pedestrians taking over the carriageway on Mary Street and Glover Street.
Public Transport	Standard bus and light rail services; no special event services provided.	Standard bus and light rail services; additional four special event services provided for leaving customers on Perry Street in front of Orange Grove Public School.
	Taxis dropping off match-goers at Mary Street immediately opposite Leichhardt Oval entrance.	

Based on these observations, the former Leichhardt Municipal Council collaborated with NSW Police, State Transit Authority (STA) and Roads and Maritime Services to develop a commonly agreed TMP for subsequent NRL match days. Elements of this TMP are outlined in Table 4.2.

Table 4.2: Elements of the 2015 TMP for NRL match days

Type	Measures
Traffic	Police point duty at the intersections of Mary Street/ Perry Street, Glover Street/ Perry Street, Mary Street/ Lilyfield Road.
	Additional signal phase time for southbound traffic in James Street, Norton Street and Balmain Road at the intersections of James Street, Norton Street and Balmain Road with City West Link Road to manage post-match traffic.
	Special Event Clearway on the eastern side of James Street, between Lilyfield Road and City West Link, Lilyfield for a six-hour period on game day starting two hours prior to kick-off, to facilitate southbound traffic for visitors exiting the Oval. This clearway was enforced by tow truck.
Public Transport	Temporary bus zone set up on Perry Street, northern side between Glover Street and Wharf Road, with the responsibility for the installation of temporary bus zone signs falling with STA.
	Council community bus to run a loop providing patrons of both Leichhardt Oval and LPAC access from Lilyfield Road to Leichhardt Oval.

Based on Table 4.2, the TMP measures targeted issues associated with traffic queuing and congestion through the adjustment of signal phase times, police point duty and use of clearways. The effectiveness of ancillary measures such as the Council community bus is unclear, especially given the short distance of the route which could be walked by most visitors. As shown in Table 4.2, there were no measures targeting the enforcement of the LY parking zone, which has been a longstanding issue for Council as it has encountered difficulties in enforcing the one-hour time limit for non-residents during sporting fixtures at Leichhardt Oval.

Given the considerable time since the publication of the aforesaid TMP and the amalgamation of the former Leichhardt Municipal Council into Inner West Council, it is not clear whether this TMP was still in place for NRL matches in 2019 and whether this TMP extended to other sporting fixtures such as A-League soccer games.

4.3.4. Event Parking Summary

While on the surface the existing LY permit parking scheme operates like an event parking scheme similar to that of Brisbane and Auckland, the main difference is that the scheme in Lilyfield is not enforceable due to ambiguous signage and based on discussions with Council at a meeting on 13 March 2020, has not been well enforced in the past due to parking ranger capacity constraints.

The reasons why the schemes in Brisbane and Auckland have functioned well are due to their ability to be enforced and communicated via:

- Effective event traffic management, including street closures supported by the Police and static and VMS signage to inform and dissuade visitors driving into the stadium vicinity; and
- Effective enforcement, this requires a joint effort during an event day from Council parking rangers and contracted towing companies to promptly remove vehicles without a permit from permit zones, supported by legal and unambiguous signage indicating the special event permit restrictions (such as that recommended by TfNSW in Table 2.3).

4.4. Summary

By leaning on the findings from the above case studies on parking management for residential streets and event parking, there are aspects that could be incorporated by Council across Lilyfield and the wider Inner West area. The most relevant lessons transferrable to the Lilyfield and Inner West context include:

- Consistent kerbside space hierarchy that aligns with the local place context and allocates space to the different user groups accordingly
- Close collaboration between all event traffic and parking management mechanisms to ensure event parking restrictions are informed and upheld via a mixture of signage, enforcement and street closures to ensure events that are held at Leichhardt Oval do not adversely affect residents from a parking and traffic perspective.

5. RECOMMENDATIONS

5.1. Introduction

The following details the development of a set of car parking strategy recommendations for the Lilyfield study area. These recommendations have been developed following the SWOT analysis in Section 3 and the review of case studies in Section 4. The primary aim of these recommendations is to managing existing car parking provision and demands in a balanced manner which considers the needs of all stakeholders.

5.2. Key Strategic Objectives

The review of existing conditions and the parking surveys undertaken in February 2020 showed that overall, parking supply in Lilyfield is sufficient for the demand in the precinct. However, there are small areas of high demand observed and recorded around the Aquatic Centre, shops at Balmain Road and near the Orange Grove Markets on the surveyed Saturday. Taking into account these characteristics and the anticipated high parking demand generated by events at Leichhardt Oval, a number of recommendations have been developed to achieve the following:

- Prioritisation of long-stay residential parking on residential streets over the provision for non-residential long-stay user groups (i.e. commuters or employees).
- Consideration for the demand of short-stay user-groups for the local attractions where appropriate.
- Consistent parking policies and planning across the Inner West LGA.

These priorities relate to the background policy documents and existing conditions and community views presented in earlier sections of this report. The recommendations will provide an immediate benefit to the Lilyfield precinct as well as include options to achieve the long-term management of parking resources in the Lilyfield area in the view of future development.

5.3. Recommendations

5.3.1. Parking hierarchy

GTA has identified there is existing competition for road space between residents and visitors (commuters, eventgoers and local workers) as shown from the community consultation and parking survey data. To resolve such conflicts, a clear framework is required to inform current and future management approaches to allocating kerbside space, including for parking.

This can be achieved by establishing a clear parking management hierarchy for the Inner West that includes residential areas such as Lilyfield. This could be adopted into future iterations of the draft *Public Domain Parking Policy* before it is ratified by Council and will assist Council in allocating valuable kerbside space for different types of parking as well as other transport functions, depending on the local environment. A recommended hierarchy for the residential and commercial areas in Lilyfield (and indeed the Inner West at-large) could take the forms shown in Figure 5.1.

Figure 5.1: Recommended parking management hierarchy

Priority	Residential		Commercial/Activity Centre	
	Arterial	Non-arterial	Arterial	Non-arterial
1	Safety: <i>Reduced crash risk.</i>	Safety: <i>Reduced crash risk.</i>	Safety: <i>Reduced crash risk.</i>	Safety: <i>Reduced crash risk.</i>
2	Existing Property access <i>(e.g. ensure existing property accesses are retained and also accommodate vehicle movements along the street to access to properties).</i>	Existing Property access <i>(e.g. ensure existing property accesses are retained and also accommodate vehicle movements along the street to access to properties).</i>	Existing Property access <i>(e.g. ensure existing property accesses are retained and also accommodate vehicle movements along the street to access to properties).</i>	Existing Property access <i>(e.g. ensure existing property accesses are retained and also accommodate vehicle movements along the street to access to properties).</i>
3	Footpath <i>(e.g. new footpaths or widening to accommodate high demand from pedestrians).</i>	Footpath <i>(e.g. new footpaths or widening to accommodate high demand from pedestrians).</i>	Footpath <i>(e.g. new footpaths or widening to accommodate high demand from pedestrians).</i>	Footpath <i>(e.g. new footpaths or widening to accommodate high demand from pedestrians).</i>
4	Public transport and cycling <i>(e.g. public transport stops, bus lane, cycleway).</i>	Public transport and cycling <i>(e.g. public transport stops, bus lane, cycleway).</i>	Public transport and cycling <i>(e.g. public transport stops, bus lane, cycleway).</i>	Public realm improvements <i>(e.g. trees, landscaping, dining areas).</i>
5	Other vehicle movements <i>(e.g. cars, vans, trucks, motorbikes).</i>	Vehicle parking for residents.	Other vehicle movements <i>(e.g. cars, vans, trucks, motorbikes).</i>	Mobility Parking.
6	Vehicle parking for residents.	Public realm improvements: <i>(e.g. trees, landscaping, dining areas).</i>	Mobility Parking.	Cycle parking.
7	Public realm improvements <i>(e.g. trees, landscaping, dining areas).</i>	Other vehicle movements <i>(e.g. cars, vans, trucks, motorbikes).</i>	Cycle parking.	Public transport and cycling <i>(e.g. public transport stops, bus lane, cycleway).</i>
8	Commuter parking.	Commuter parking.	Public realm improvements <i>(e.g. trees, landscaping, dining areas).</i>	Vehicle parking for visitors.
9			Vehicle parking for visitors.	Other vehicle movements <i>(e.g. cars, vans, trucks, motorbikes).</i>

It is worth highlighting that a high ranking on this hierarchy does not necessarily mean all kerbside space should be allocated to that user group. Rather, it means that user group should be considered first and if their needs are evaluated to have been met, then other user groups lower in the hierarchy should be considered. For example, a high public transport priority in residential areas does not mean all space should be given to a bus stop. If there is no bus route, then Council can consider the next user group on the list such as parking for residents. However, if a bus stop needed to be expanded due to operational adjustments and some unrestricted parking spaces used primarily by residents needed to be acquired, then the application of the hierarchy would mean the bus stop should take precedence.

The application of this parking management hierarchy also offers guidance for the management of narrow kerbside space on narrow streets. For instance, it states that safety, property access and footpath provision should be the three highest priorities for residential streets. Accordingly, on narrow streets (e.g. those less than 2.5 m in carriageway width), the safety of all road users and access to properties (e.g. for residents' cars and emergency vehicles) as well as providing footpaths should be prioritised.

It is understood that through the ratification of Council's *Integrated Transport Strategy* at the Extraordinary Council Meeting on 3 March 2020, Council's longstanding practice of allowing vehicle parking over footpaths on narrow streets in selected suburbs such as Balmain East can be rolled out LGA-wide. Adopting the recommended hierarchy would not be in conflict with this policy. The hierarchy only states that safety, property access and footpaths should be considered before vehicle parking for residents. In this regard, where all three aspects can be provided in a narrow street, then vehicle parking can continue to be provided.

5.3.2. Orange Grove Markets

Upon review and analysis of the parking surveys conducted, it is recommended that Saturday time-restricted parking be implemented to encourage higher turnover and lower durations of stay near the Orange Grove Markets to facilitate access by a broader variety of visitors during market opening hours. The area of operation for this time-restricted parking could be that shown in Figure 5.2.

Figure 5.2: Recommended Saturday time-restricted parking area



Basemap Source: Google Maps

Given that the markets open from 8am to 1pm on Saturday, the time-restriction duration could adopt a similar timespan with either 1P or 2P restrictions.

5.3.3. Residential Parking in Lilyfield

Given the survey results indicate that average peak parking occupancies on most residential streets in Lilyfield are either at a low or optimal range, there is no clear case to consider adopting a residential permit parking scheme anywhere in Lilyfield like with other suburbs in the Inner West LGA (noting that the existing LY scheme operates like an event parking permit rather than a residential parking permit). Accordingly, the recommendation is to maintain the status quo of unrestricted residential parking throughout the study area's residential streets. As for the small sections of L1 residential parking in the study area which is currently under Zone B, this can be rolled over into the same 'Zone Type B' scheme under the draft *Public Domain Parking Policy*, meaning any dwelling with two or more parking spaces is ineligible for a permit. If parking conditions change considerably in the future, then there may be a case to re-examine parking demands and the most suitable parking management approach.

Mobility parking is observed to be generally in low demand with ample supply; therefore, no further expansions are recommended in the current state. Notwithstanding, additional disability parking can be implemented under Council review and adhering to Council's Parking Policy document.

5.3.4. Leichhardt Park Aquatic Centre Car Park

In the Leichhardt Park Aquatic Centre Car Park, the parking survey results showed that the off-street car park was optimally utilised with an average peak parking occupancy that ranged between 70 to 90 per cent on the weekday and weekend while parking turnover was high with an average duration of stay less than three hours, which is expected of a recreational facility that attracts a constant churn of visitors. There is also a limited quantity of on-street parking along Mary Street outside the Leichhardt Park Aquatic Centre that exhibited high average peak parking occupancy of greater than 90 per cent on the weekday and weekend. Accordingly, although a small section of on-street parking appears to have an issue with high occupancy, the vast majority of parking at the Leichhardt Park Aquatic Centre's off-street car park does not have occupancy or turnover concerns. As such, no specific parking management intervention is recommended for this car park but it should be regularly monitored via surveys to adjust the management approach in the future if necessary.

5.3.5. Boat Trailer Parking

Boat trailer parking was found not to be a significant issue in Lilyfield due to the small quantity of boat trailer parking relative to the widespread availability of parking and low parking demand. Accordingly, no specific intervention is recommended in this regard, notwithstanding the discernible clusters observed on Balmain Road, Charles Street and Canal Road.

In the future if the boat trailers are found parking for long durations on streets with high demand (90 per cent occupancy or more) where there is evidently a premium of parking, Council could consider implementing measures to restrict their presence on such streets. It is noted that boat trailers parked on the public roadway will be subject to locational parking restrictions providing these restrictions are clearly designated with legally enforceable signage. Members of the public are within their rights to report to Council's Customer Service to lodge any safety or amenity issues related to boats trailers.

5.3.6. Commuter Parking

The surveys revealed that any instances of commuter parking near light rail stations was not sufficiently high to cause widespread high average peak occupancies of 90 per cent or greater in the streets surrounding the Leichhardt North and Lilyfield light rail stations. Accordingly, no specific intervention is recommended. Noting that if the situation changes in the future in terms of greater commuter parking demand, there are opportunities to investigate angled parking on Charles Street and Hubert Street. However, commuter parking remains the lowest priority in the recommended parking management hierarch.

5.3.7. Motorcycle Parking

The data provided by Council indicates the demand for dedicated motorcycle parking is low and does not require a further capacity upgrade.

5.3.8. Disabled Parking

The data provided by Council indicates the demand for dedicated disabled parking is low and does not require a further capacity upgrade.

5.3.9. Parking Signage Update

Given the inconsistencies in selected parking signs in the study area as identified in Section 2.7 of this report, it is recommended that such signage be replaced with the standard signage is identified in Table 2.3.

5.3.10.Event Parking Management

Notwithstanding the TMP that was in place for NRL games at Leichhardt Oval, the existing LY resident permit parking scheme for streets near Leichhardt Oval that operates during sporting fixtures is only as effective as the amount of enforcement provided. Given its past experience with enforcement, a reform is required.

Accordingly, it is recommended that this scheme be replaced with a Special Event Parking Permit scheme over the same area as the existing LY zone as per the Roads and Maritime permit parking guidelines and supported by special event parking signage such as that shown in Table 2.3.

To support the implementation of the special event parking permit scheme, on major event days, Council is advised to rollout a full suite of management techniques across multiple facets including:

- Event traffic management and legal signages (including VMS) to inform and dissuade non-residents from entering restricted areas.
- Resourcing parking ranger patrols as well as considering contracting towing companies to remove non-compliant vehicles.
- Investigate direct shuttle services at Central Station for transporting eventgoers to and from Leichhardt Oval.

Through this recommendation, local residents' parking needs and amenity will be prioritised while visitors to Leichhardt Oval can still access the stadium via other means such as light rail, taxi and on-demand vehicle pick-up/ drop off, public bus and any prospective event bus service. In terms of an event bus service, the feasibility of running such as service, including service areas, operational costs and resourcing is recommended to be further investigated, especially given the prospect of more events at Leichhardt Oval following the COVID-19 pandemic due to the temporary closure of Sydney Football Stadium and Sydney Olympic Stadium. These recommendations can be incorporated into a new TMP for Leichhardt Oval that covers not only NRL games but also A-League and other events.

5.3.11.Implementation Timeframe

In terms of the implementation of the recommendations, these have been categorised into short-term and long-term recommendations which reflect their relative priority and requisite timeframe required for implementation.

Short term (0-5 years)			
Item no.	Description	Streets affected	Priority
1	2P 8am-1pm Sat parking changes in streets near Orange Grove Markets	Perry Street (between Glover Street and Wharf Road), Glover Street (east side), Fredbert Street, Emmerick Street(east side), Rayner Street (north of Eric Street), Eric Street, Balmain Road (between Perry Street and Eric Street)	High
2	Introduction of angle parking (rear to kerb) in Hubert Street and Charles Street. Change to rear to kerb angle parking on east side of Francis Street.	Hubert Street, Charles Street, Francis Street	High

3	Special Event Parking Scheme to replace existing LY permit zone. Undertake further parking survey during large sporting event in Leichhardt Oval and review permit zone extent.	Street within Lilyfield with existing LY permit zone	High
4	Develop an event Traffic Management Plan (TMP)	Streets near Leichhardt Oval during events	Medium
5	Replacement of redundant, faded, damaged signs	Streets identified in the signage audit within study area.	Medium
6	Development of Parking Hierarchy	All streets within Balmain East	Low
Long term (5+ years)			
Item no.	Description	Streets affected	Priority
7	Changes to boat trailer parking management consistent with other areas within Inner West LGA	Streets with historical boat trailer issues	Low
8	Liaise with Leichhardt Oval event organisers to develop a bus shuttle service and satellite parking area.		Medium

