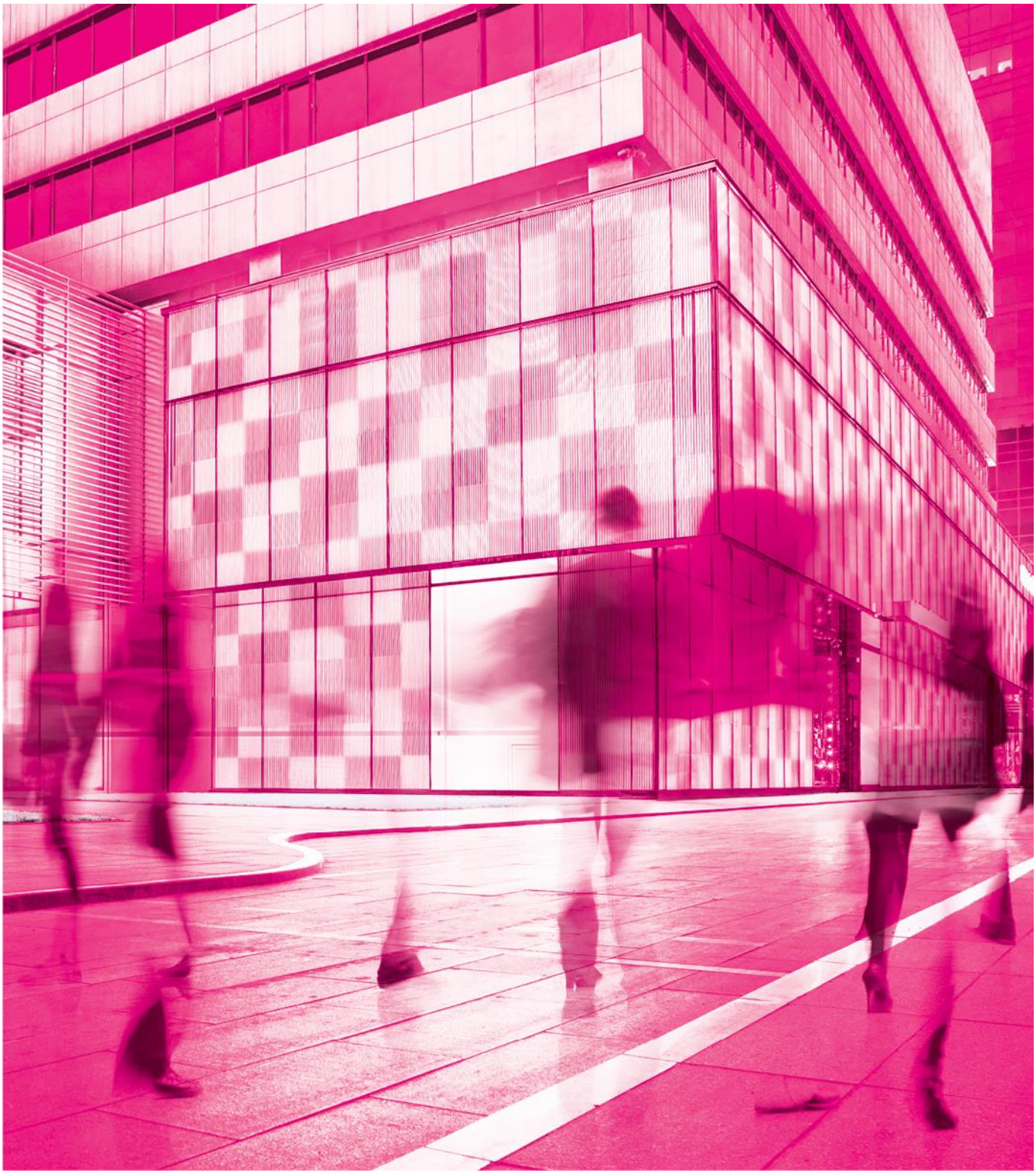

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Club Burwood RSL Traffic Impact Assessment Club Building DA

For Club Burwood

September 2020

parking;
traffic;
civil design;
wayfinding;

ptc.

Document Control

Club Burwood RSL Traffic Impact Assessment Club Building DA, Report

Issue	Date	Issue Details	Author	Reviewed	For the attention of
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1. Introduction

Ptc. has been engaged by Club Burwood RSL (the Club) to undertake a Parking and Traffic Assessment in relation to the proposed club development at 2 George Street in Burwood.

1.1 Site

The address of the site is No. 2 George Street, Burwood (the site). The site is legally described as Lot 1 in DP 1261150.

The site has an area of 11,270sqm and is bound by George Street to the north, Shaftesbury Road to the east, Deane Street to the south and Marmaduke Street to the west.

Figure 1 - Site Location

1.2 Background

A concept development application (DA85/2017) (the Concept DA) for a mixed-use building comprising registered club, hotel tower, commercial premises, entertainment facilities, function centre and indoor recreation facility with basement parking for up to 1,250 car spaces was approved by the Central Sydney Planning Panel on 25 February 2019. The Concept DA related to part of the site and exclude that portion at the corner of Shaftesbury Road and Deane Street. Approval of the Concept DA granted consent to the building envelopes for a podium and tower building, the proposed uses, basement carparking and vehicle access points. As a Concept Da no approval was sought or granted to undertake physical works

The subsequent acquisition of the property at the corner of Deane Street and Shaftesbury Road (formerly 59-63 Shaftesbury Road) created the opportunity to revisit the earlier thinking around the Concept DA and

introduce changes to the management of traffic and vehicle circulation around the site. The revised design requires the submission of a new development application (DA) to Burwood Council.

1.3 The Proposed Development

The Club Burwood RSL Development will comprise six levels of basement carparking, public domain works, a part three storey, part four storey podium building containing a registered club, a variety of food and beverage outlets, commercial premises, function centre and indoor recreation facilities. A twenty-storey tower (inclusive of podium) will accommodate a hotel, bars and restaurants, and some club uses.

The podium and hotel tower buildings will together comprise the Club Burwood RSL Development. However, the two building components are the subject two of separate DAs to be submitted to Burwood Council. The tower relies upon the podium to enable its future construction. The podium has been designed to enable the independent construction of the tower.

For the purposes of this report, the podium building will hereafter be referred to the 'Club building' and the tower form as the 'Hotel Tower'.

This Parking and Traffic Assessment report has been prepared to support both the Club Building DA and the Hotel Tower DA. It provides a detailed assessment of the proposal as well as the forecast traffic activity on the local road network resulting from the project once completed and in operation.

This report also provides an assessment of the parking provision and car park/servicing arrangements.

1.4 Club Building DA

The DA for the Club building seeks development consent for the following:

- Demolition of all buildings and existing structures within the site and removal of nominated trees within the site
- Construction of a part three-storey, part four storey building with variable setbacks to the boundaries of the site. Due to the slope of the site, the podium presents as three storeys to Shaftesbury Road, George and Deane Streets and four storeys to Marmaduke Street
- Installation of skylights and photovoltaic cells to the podium roof
- Interim works to the podium roof to be replaced with final treatment and finishes on completion of the Hotel Tower
- Six levels of basement carparking accessed via Shaftesbury Road and Deane Street and providing parking for approximately 1,250 cars. Loading dock access is from Marmaduke Street,
- A car wash for club members within the basement car park.
- Public domain works including:
    - Removal of the existing pedestrian crossing on Shaftesbury Road and traffic calming devices in George and Deane Streets
    - The partial widening of George Street and Shaftesbury Road,
    - Installation of a traffic control signal at the George Street and Shaftesbury Road intersection

  - Widening of Deane Street to accommodate two-way traffic between Shaftesbury Road and Marmaduke Street
  - Intersection upgrades at the corner of Deane Street and Shaftesbury Avenue
  - Construction of a shared zone at the intersection of Deane Street and Marmaduke Street
  - New footpaths, seating, landscaping and public domain works around the site
- Provision within the Club building structure and roof to enable future construction of the Hotel Tower with car parking spaces and waste management areas within the basement allocated for the Club and Hotel uses provision of space for hotel lobby and lift shafts
- Uses including registered club, a variety of food and beverage outlets, commercial premises, function centre, indoor recreation facilities, microbrewery, and future hotel lobby.

1.5 Hotel Tower DA (Separate Application)

While the hotel tower will be subject to a separate DA, the accumulative traffic activity and parking demand has been assessed within this report as it relates to the parking provision within the basement car park.

The Hotel Tower is a 20 storey (inclusive of podium proposed under the Club building DA) building comprising two separate wings. The tower will be located on the north western side of the site adjacent to Marmaduke and George Streets.

The DA for the Hotel Tower will seek development consent for the following:

- a 20-storey tower (excluding the four levels of podium which are the part of the Club building DA) comprising:
  - restaurant and reception space (level 4)
  - health leisure and lifestyle centre including swimming pool, (level 5)
  - 206 hotel rooms (level 6- 16)
  - restaurant and bar (level 17-19)
  - rooftop bar (level 20)
- Final landscaping and finishing works to the roof of the Club building including paths, seating and planting
- Land uses including hotel, registered club, food and beverage outlets, indoor recreation facility and function centre.

1.6 Standard Project Details/Metrics

Client Name	Burwood RSL Club Ltd
Project Name	Club Burwood RSL Development
Site Address	2 George St, Burwood
Legal Description	Lot 1 in DP 1261150
Site Area	11,270m^2
Building Area	43,000m^2
General Area Descriptions	Refer section 1.4 and section 1.5 above
Number of levels of Hotel Tower	20 storeys inclusive of a part three storey, part four storey podium building approved under the Club building DA.

Client Name	Burwood RSL Club Ltd
Number of car spaces within the site	1,250
Description of previous DA	Concept Development Application DA85/2017 (Approved Concept DA)
Terminology of different components	Refer architectural plans

1.7 Vehicle Access Arrangements

The acquisition of the corner site means that the eastern end of Deane Street can be widened to facilitate two-way traffic flow between Shaftesbury Road and Marmaduke Street. This provides an opportunity to reassess the accessibility of the site and the relationship with the surrounding road network in the context the approach and departure routes, which were somewhat restricted under the previous scheme.

The design is consistent with regard to the widening of George Street to provide two-way flow, and the provision of traffic signals at the intersection of George Street and Shaftesbury Road. These upgrades to the road network are all features of Council's Town Centre strategy (refer Figure 2 below) and facilitate the future expansion of the strategy to other parts of the network. One element of the strategy that is not able to be included within the proposal relates to the installation of traffic signals at the intersection of Shaftesbury Road and Deane Street. A concept layout has been presented to TfNSW and rejected on the grounds of intersection proximity and network coordination difficulties.

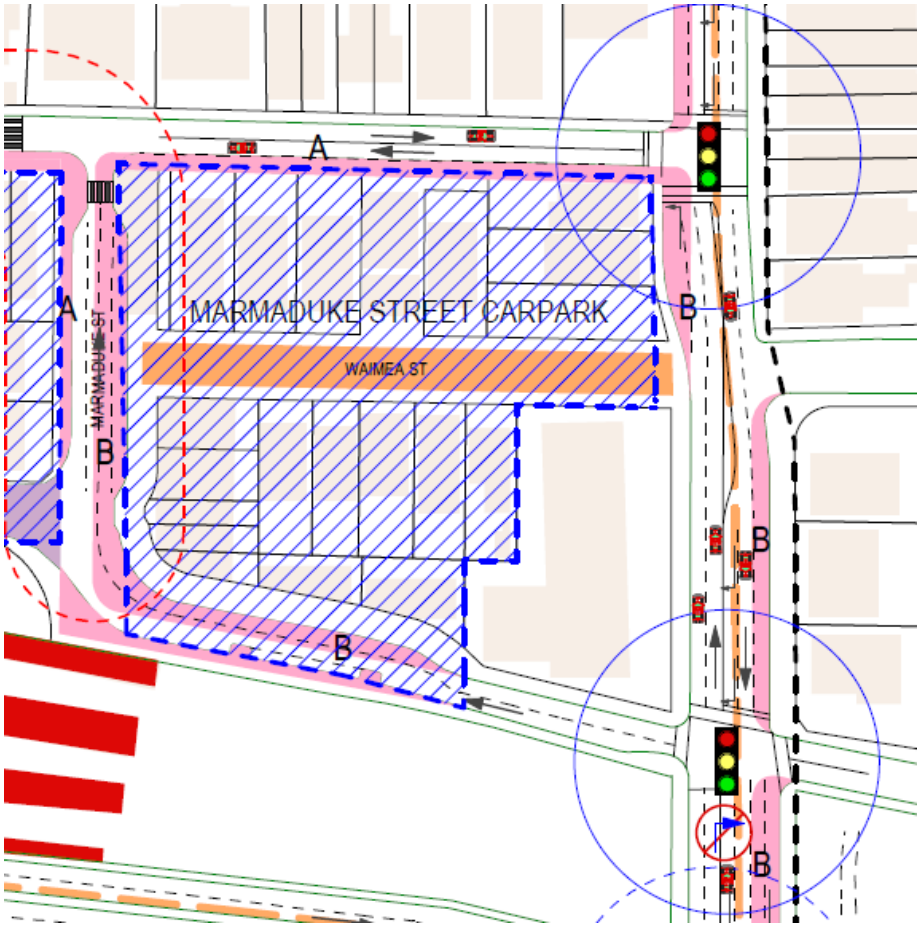
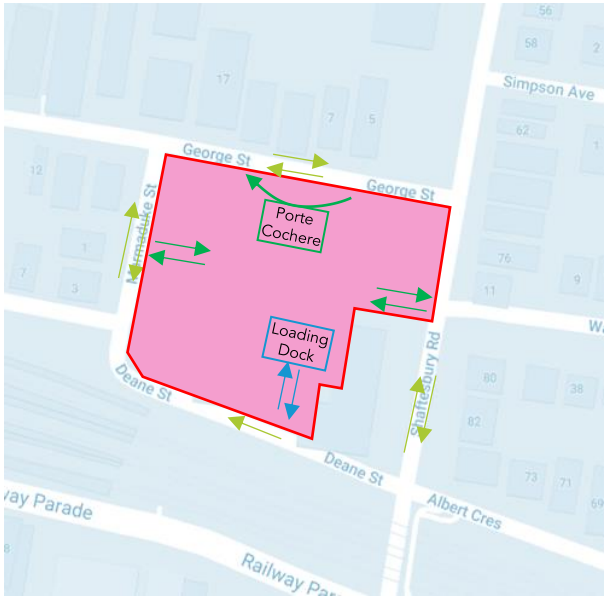


Figure 2 - Burwood Town Centre Strategy

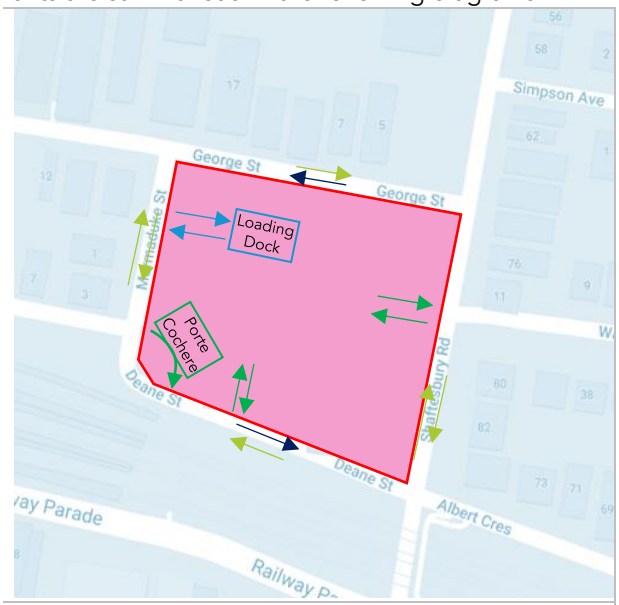
As a result of the changes to the road network described above, the vehicles access locations have been relocated to provide an improved transport management and urban planning outcome, these include:

- The Shaftesbury Road car park access is retained in the same arrangement,
- The former Marmaduke Street car park access has been relocated to the Deane Street frontage to benefit from the conversion of Deane Street to two-way traffic flow. This provide a more proximate connection to Shaftesbury Road without impacting on the residential character of Marmaduke Street,
- The porte Cochere has been relocated from the George Street frontage to the corner of Marmaduke Street and Deane Street. This removes this activity from the residential interface along George Street, but also takes advantage of the complete circulation route available around the entire site,
- The loading dock access has been relocated from the Deane Street frontage (to accommodate the new car park access ramp) to the Marmaduke Street frontage, where it will benefit from access and departure via the proposed traffic signals on George Street.

The changes to the road network and access arrangements are summarised in the following diagrams:



Approved Concept



Amended Concept

2. Existing Transport Facilities

The Club site is served by State, Regional and Local Roads. Primary access to the site is provided by Shaftesbury Road, a local road, which provides north-south access between Parramatta Road and Burwood Heights. east-west access, to the north of the site, is provided by Victoria Street, whilst to the south, east-west access is provided via Railway Parade.

A number of smaller local roads, which create a grid-like road network, service the Burwood Town Centre and provide connections to State Roads, which provide external access to the greater regions of Sydney. The roads servicing the site are illustrated in Figure 3.

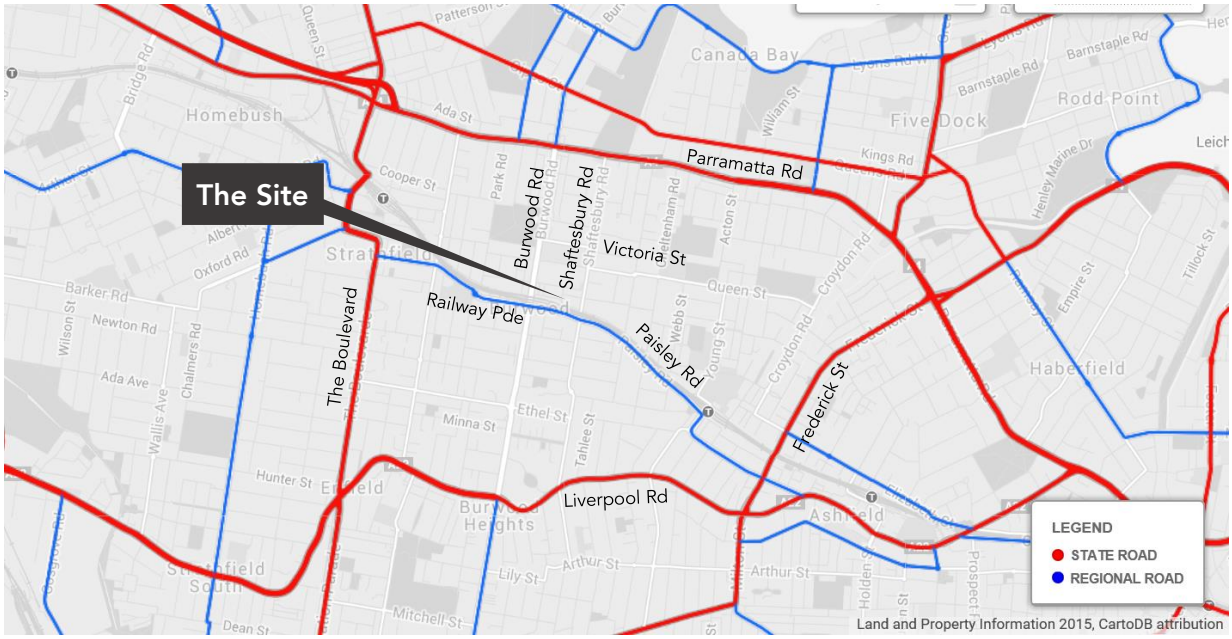


Figure 3 - Road Classification

The NSW administrative road hierarchy comprises the following road classifications, which align with the generic road hierarchy as follows:

- **State Roads** - Freeways and Primary Arterials (TfNSW Managed)
- **Regional Roads** - Secondary or Sub Arterials (Council Managed, Part Funded by the State)
- **Local Roads** - Collector and Local Access Roads (Council Managed)

The roads servicing the site are described as in the following tables:

Shaftesbury Road	
Road Classification	Local Road
Alignment	North-South
Number of Lanes	2 lanes in each direction
Carriageway Type	Undivided
Carriageway Width	10m
Speed Limit	50 kph
School Zone	No
Parking Controls	Parking not permitted
Forms Site Frontage	Yes

Figure 4 - Shaftesbury Road

George Street	
Road Classification	Local Road
Alignment	East-West
Number of Lanes	1 lane one-way
Carriageway Type	Undivided
Carriageway Width	6m
Speed Limit	40 kph
School Zone	No
Parking Controls	2P Ticket 9am-6pm Mon-Sat & Public Holidays
Forms Site Frontage	Yes

Figure 5 - George Street (Eastbound)

Deane Street	
Road Classification	Local Road
Alignment	East-West
Number of Lanes	1 lane one-way
Carriageway Type	Undivided
Carriageway Width	6m
Speed Limit	40 kph
School Zone	No
Parking Controls	2P Ticket 8am-6pm Mon-Fri, 8am-1pm Sat
Forms Site Frontage	Yes

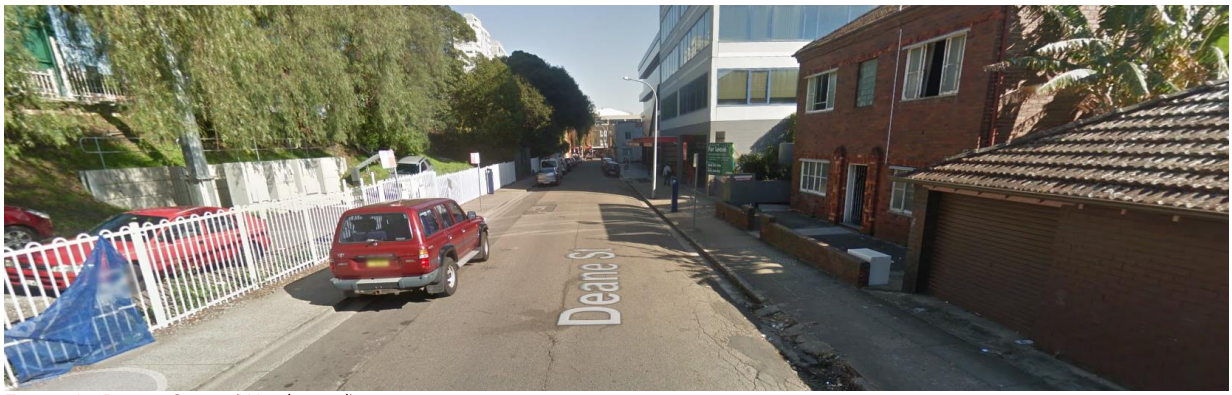


Figure 6 - Deane Street (Westbound)

Marmaduke Street	
Road Classification	Local Road
Alignment	North-South
Number of Lanes	2 lanes two-way
Carriageway Type	Undivided
Carriageway Width	6m
Speed Limit	40 kph
School Zone	No
Parking Controls	Parking not permitted
Forms Site Frontage	Yes


Figure 7 - Marmaduke Street (Northbound)

Waimea Street (east)	
Road Classification	Local Road
Alignment	East-West
Number of Lanes	1 lane in each direction
Carriageway Type	Undivided
Carriageway Width	7m
Speed Limit	40 kph
School Zone	No
Parking Controls	2P Ticket 9am-6pm Mon-Sat & Public Holidays
Forms Site Frontage	Yes

Figure 8 - Waimea Street (Westbound)

Waimea Street (west) forms part of the site and will be demolished as part of the development.

Railway Parade	
Road Classification	Regional Road
Alignment	East-West
Number of Lanes	1 lane in each direction
Carriageway Type	Undivided
Carriageway Width	10m
Speed Limit	40 kph
School Zone	No
Parking Controls	2P Ticket 9am-6pm Mon-Sat & Public Holidays
Forms Site Frontage	No

Figure 9 - Railway Parade (Eastbound)

Victoria Street	
Road Classification	State Road
Alignment	East-West
Number of Lanes	2 lanes Eastbound, 1 lane Westbound
Carriageway Type	Undivided
Carriageway Width	8m
Speed Limit	50 kph
School Zone	No
Parking Controls	Parking not permitted
Forms Site Frontage	No

Figure 10 - Victoria Street

Burwood Road	
Road Classification	Local Road
Alignment	North-South
Number of Lanes	1 lane in each direction
Carriageway Type	Undivided
Carriageway Width	10m
Speed Limit	40 kph
School Zone	No
Parking Controls	1/2P Mon-Sat, North of George Street
Forms Site Frontage	No

Figure 11 - Burwood Road (Southbound)

2.1 Public Transport

The NSW Planning Guidelines for Walking and Cycling suggests a distance of 400m is a walkable catchment for accessibility to off-site parking provisions and local amenities. Furthermore, the guide also suggests that an 800m catchment is an acceptable, walkable distance if the development is within an area with public transport links.

The following subsections discuss the availability of public transport within 400-800m available in the vicinity of the Club site.

2.1.1 Club Shuttle Bus Services

The Club operates a free courtesy bus service for residents living within an area of approximately three kilometres of the Club, which will be retained in relation to the new Club. The catchment area includes the neighbouring suburbs of Burwood, Strathfield, Homebush, Concord, Five Dock, Haberfield, Ashfield, Croydon, Ashbury, Enfield, Belfield and South Strathfield.

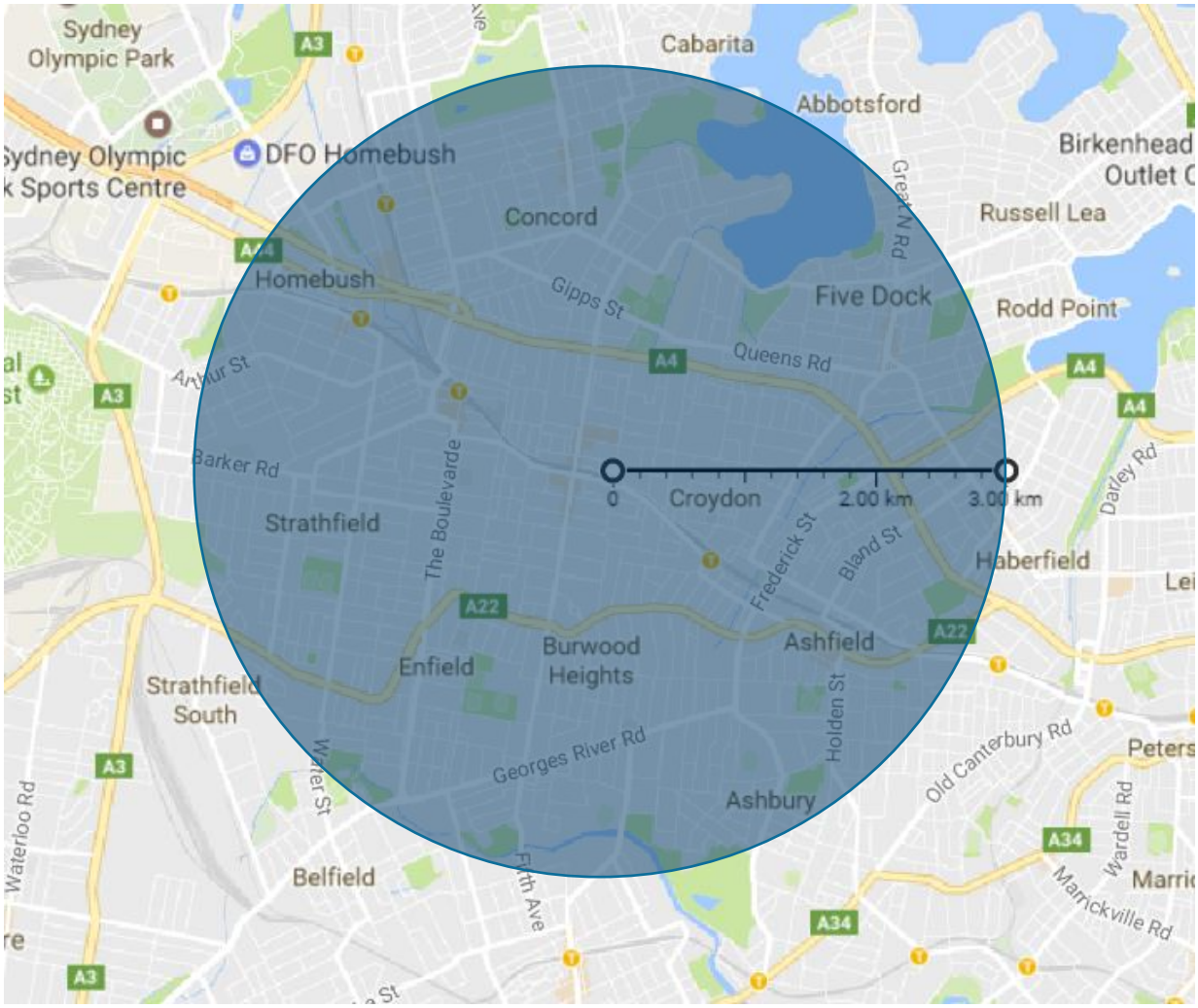


Figure 12 - Indicative Area Served by the Club Shuttle Bus

The shuttle bus operates as a door-to-door service on Wednesday to Sunday typically between 5pm to midnight with the last bus departing from the Club at 2:05am. To use this service, residents are required to call to arrange a pick-up and drop-off service.

2.2 Public Bus Services

The Club site is also accessible by Sydney Buses services that operate within the vicinity of the site. The 2 closest major bus stops are located at Westfield Burwood and at Burwood Station Stand H, a 500m and 400m walk to the site respectively (see Figure 13). This places them within the comfortable walking distance as set out by the NSW Planning Guidelines. Many bus routes service these two stops, a summary is given in Table 1.

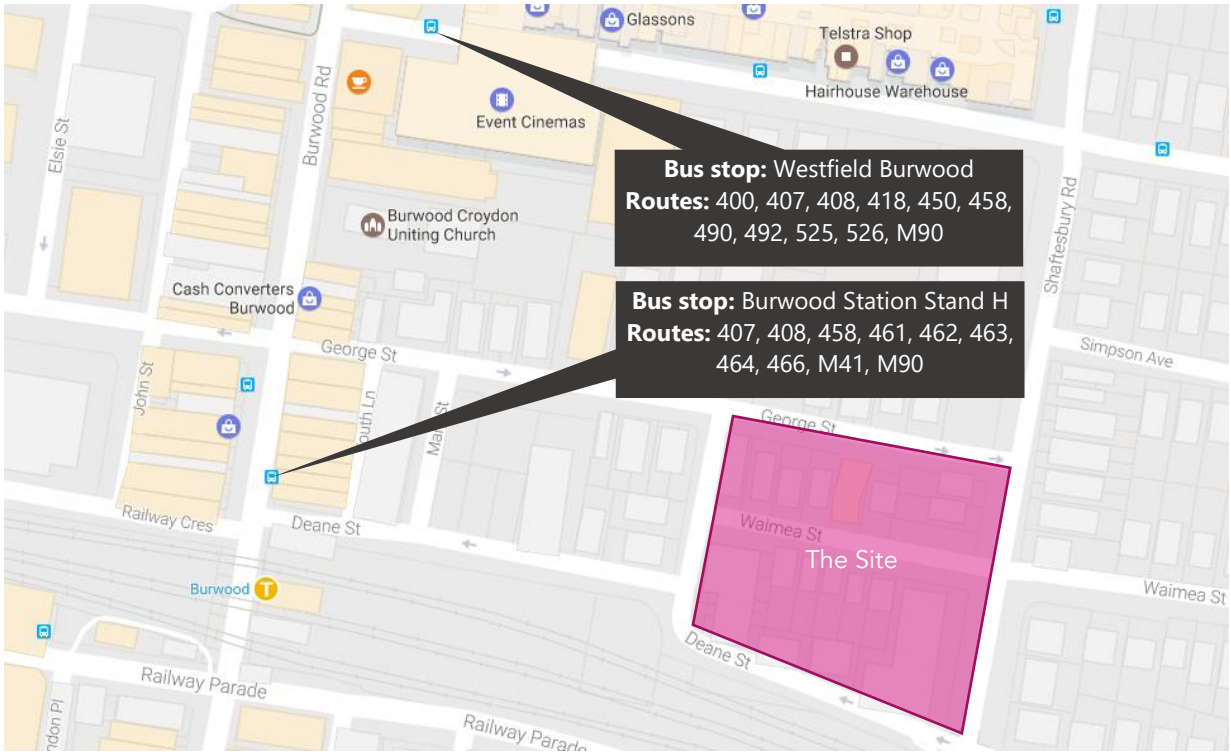


Figure 13 - Nearby Bus Services

Table 1 - Bus Services

Route	Description	Frequency
400	Burwood to Bondi Junction LIMITED STOPS	Every 20-30min Mon-Sun
407	Rookwood to Burwood via Strathfield	Every 30min Mon-Fri, Every 60min Sat-Sun
408	Burwood to Rookwood via Strathfield	Every 30min Mon-Fri, Every 60min Sat-Sun
418	Bondi Junction to Burwood	Every 30min Mon-Sun
450	Hurstville to Burwood	Every 30min Mon-Sat, Every 60min Sun
458	Macquarie University to Burwood	Every 30min Mon-Fri, Every 60min Sat-Sun
461	Burwood to The Domain	Every 10min (peak) or 20min (off-peak) Mon-Fri, Every 30min Sat-Sun
462	Ashfield to Mortlake	Every 30min early mornings and evenings Mon -Sun
463	Burwood to Bayview Park	Every 60min Mon-Fri
464	Ashfield to Mortlake	Every 30min Mon-Sun
466	Ashfield to Cabarita Wharf	Every 30min Mon-Sun
490	Drummoyne to Hurstville	Every 30min Mon-Sun
492	Drummoyne to Rockdale	Every 30min Mon-Sun
525	Parramatta to Burwood	Every 30min Mon-Sun
526	Rhodes to Burwood	Every 30min Mon-Sun
M41	Hurstville to Macquarie Park / Macquarie Park to	Every 10min (peak), 15min (off-peak) Mon-

	Hurstville	Fri, Every 20min Sat-Sun, Every 30min evenings
M90	Liverpool to Burwood / Burwood to Liverpool	Every 10min (peak), 15min (off-peak) Mon-Fri, Every 20min Sat-Sun, Every 30min evenings

2.2.1 Train Services

The site is accessible from the Sydney rail network via Burwood Station, which is located 210m (walking distance) from the Station entrance to the Marmaduke Street entrance to the Club, as shown in Figure 14. By way of comparison, the existing Club site is situated a 600m walking distance from the station. The close proximity of the new Club to the Station provides the opportunity to increase rail use as a mode share for staff and patrons.

Figure 14 - Location of Burwood Station

Burwood station directly services train lines T1 – North Shore, Northern & Western Line and T2 – Airport, Inner West & South Line. The combined coverage of these two train lines extends to much of metropolitan and suburban Sydney. It is noted that the express service from Central connects with Burwood with only 1 stop at Redfern providing an 11-minute journey time from the City.

Access to the T3 – Bankstown Line and T6 – Carlingford Line is very straightforward with direct trains to Lidcombe and Clyde, respectively.

2.2.2 Cycling

There are a number of cycle paths that serve the proposed site and nearby areas. The existing cycle path extends along the streets adjacent to the site, including Deane Street, Marmaduke Street and Waimea Street.

This route also connects to Burwood Station for greater commute coverage using a combined train & bicycle transport mode. The route extends well past the Burwood LGA towards Strathfield, Concord, Canada Bay, Ashfield, and Canterbury enabling cycling as a viable alternative to buses and trains to and from nearby suburbs.

3. Existing Traffic Conditions

The modelling of the existing road network and the projected traffic activity has been established to include the key morning and afternoon periods, which represents the peak loads and therefore worst-case scenarios.

Since the proposed development is a club and the expected peak hours of the traffic will be on the weekend, to estimate the impact of the proposed development, traffic surveys were conducted on a Thursday and Saturday. The intersections surrounding the proposed Club that have been assessed are shown in Table 2. The extent of the study area and location of key intersections are shown in Figure 15.

Table 2 - Intersection Traffic Survey Locations

Survey No	Intersection	Control Type
1	Shaftesbury Road and Victoria Street	Signals
2	Shaftesbury Road and George Street	Priority
3	Shaftesbury Road and Waimea Street	Priority
4	Shaftesbury Road and Deane Street	Priority
5	Marmaduke Street and Deane Street	Priority
6	George Street and Marmaduke Street	Priority
7	Burwood Road and George Street	Priority
8	Burwood Road, Deane Street and Railway Crescent	Signals

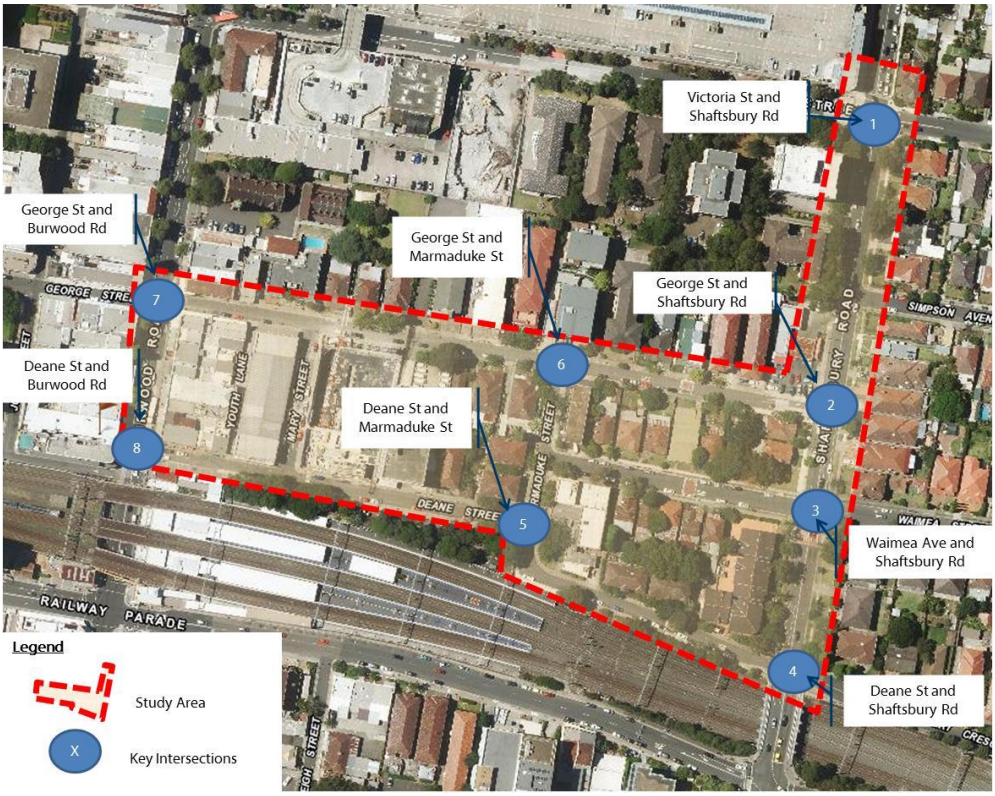


Figure 15 - Study Area with Key Intersection Locations

3.1 Existing Intersection Performance (pre-Covid-19)

The intersections serving the site and the operation of these intersections have been assessed using the SIDRA intersection performance assessment software, noting that the traffic volume data was collected prior to the impacts of the Covid-19 pandemic and the associated impact on traffic activity.

The SIDRA software package is designed to assess the operation of single intersections, with some provisions for coordinated vehicle arrivals, as well as providing various performance indicators (Level of Service, Average Delay, etc.). In the case of a signalised intersection, SIDRA is able to determine the most efficient traffic signal phasing and timings within given parameters, e.g. a fixed cycle length.

Typically, there are four performance indicators used to summarise the performance of an intersection, being:

- Degree of Saturation – The total usage of the intersection expressed as a factor of 1, with 1 representing 100% use/saturation. (e.g. 0.8 = 80% saturation)
- Average Delay – The average delay encountered by all vehicles passing through the intersection. It is often important to review the average delay of each approach as a side road could have a long delay time, while the large free flowing major road traffic will provide an overall low average delay.
- Level of Service – This is a categorisation of average delay, intended for simple reference. RMS adopts the bands, defined in
- 95% Queue lengths (Q95) - is defined to be the queue length in metres that has only a 5-percent probability of being exceeded during the analysis time period. It transforms the average delay into measurable distance units.

Table 3 - Intersection Performance

Level of Service	Average Delay (secs/vehicle)	Traffic Signals, Roundabout	Give Way & Stop Signs
A	<14	Good operation	
B	15 to 28	Good with acceptable delays & spare capacity	Acceptable delays & spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity. At signals, incidents would cause excessive delays. Roundabouts require other control mode	At capacity, requires other control mode
F	>70	Extra capacity required	Extreme delay, major treatment required

A summary of the SIDRA results is presented in the following tables.

Table 4 - Summary of SIDRA Outputs Results (Existing Operation) - Thursday AM Peak

Intersection		Level of Service	Average Delay (Sec)	Degree of Saturation	95% Queue Length (m)
1	Shaftesbury Road and Victoria Street	LOS D	51.3	0.902	242.6
2	Shaftesbury Road and George Street	LOS C	32.3	0.066	1.6
3	Shaftesbury Road and Waimea Street	LOS F	191.2	0.426	16.7
4	Shaftesbury Road and Deane Street	LOS B	15.1	0.217	7.6
5	Marmaduke Street and Deane Street	LOS A	5.7	0.032	0
6	George Street and Marmaduke Street	LOS A	5.9	0.019	0
7	Burwood Road and George Street	LOS A	7.9	0.283	11.7
8	Burwood Road, Deane Street and Railway Crescent	LOS A	9.2	0.518	35.8

Table 5 - Summary of SIDRA Outputs Results (Existing Operation) - Thursday PM Peak

Intersection		Level of Service	Average Delay (Sec)	Degree of Saturation	95% Queue Length (m)
1	Shaftesbury Road and Victoria Street	LOS E	69.2	1.278	348.4
2	Shaftesbury Road and George Street	LOS C	35.7	0.108	2.3
3	Shaftesbury Road and Waimea Street	LOS F	179.3	0.376	12.1
4	Shaftesbury Road and Deane Street	LOS A	12.3	0.259	3.3
5	Marmaduke Street and Deane Street	LOS A	5.1	0.064	1.5
6	George Street and Marmaduke Street	LOS A	5.7	0.024	0
7	Burwood Road and George Street	LOS A	7.7	0.169	4
8	Burwood Road, Deane Street and Railway Crescent	LOS A	9.1	0.432	23.7

Table 6 - Summary of SIDRA Outputs Results (Existing Operation) - Saturday Peak

Intersection		Level of Service	Average Delay (Sec)	Degree of Saturation	95% Queue Length (m)
1	Shaftesbury Road and Victoria Street E	LOS E	69.2	1.278	348.4
2	Shaftesbury Road and George Street	LOS C	35.7	0.108	2.3
3	Shaftesbury Road and Waimea Street	LOS F	179.3	0.376	12.5
4	Shaftesbury Road and Deane Street	LOS A	12.3	0.259	3.3
5	Marmaduke Street and Deane Street	LOS A	5.7	0.018	0.0
6	George Street and Marmaduke Street	LOS A	5.7	0.024	0.0
7	Burwood Road and George Street	LOS A	7.7	0.169	4.0
8	Burwood Road, Deane Street and Railway Crescent	LOS A	9.1	0.432	23.7

According to the analysis, the intersection of Shaftesbury Road and Victoria Street is operating below the acceptable level of service during the weekday and weekend evening peak periods under current conditions.

The intersection of Shaftesbury Road and George Street is operating below the acceptable level of service in all the peak conditions. This is likely due to the right turn movement, which occurs across the opposing through movement without any signalisation.

The post development analysis includes the conversion of the George Street intersection to Traffic Signal Controls as identified in the Council Town Centre Study, which act as mitigation measures to improve the network operation at these key intersections. Discussions are currently underway with RMS regarding the approval of these traffic signals.

The remaining intersections are operating at a good level of service in all the observed peak hours.

4. Vehicular Access & Circulation

The proposed access arrangements for patron and service vehicles have been established based on the current and proposed road layout in the area surrounding the site.

In conjunction with the proposed amendments to the existing road layout/infrastructure, consideration has been given to the Burwood Town Centre Plan.

4.1 Existing Road Environment

The proposed Club is bounded by George Street to the north, Marmaduke Street to the west, Deane Street to the south and Shaftesbury Road to the east. Waimea Street currently runs east-west through the site, although this road will be closed as part of the project, the intersection on Shaftesbury Road will be retained to form an access to the car park.

The current traffic directions are illustrated in Figure 16.

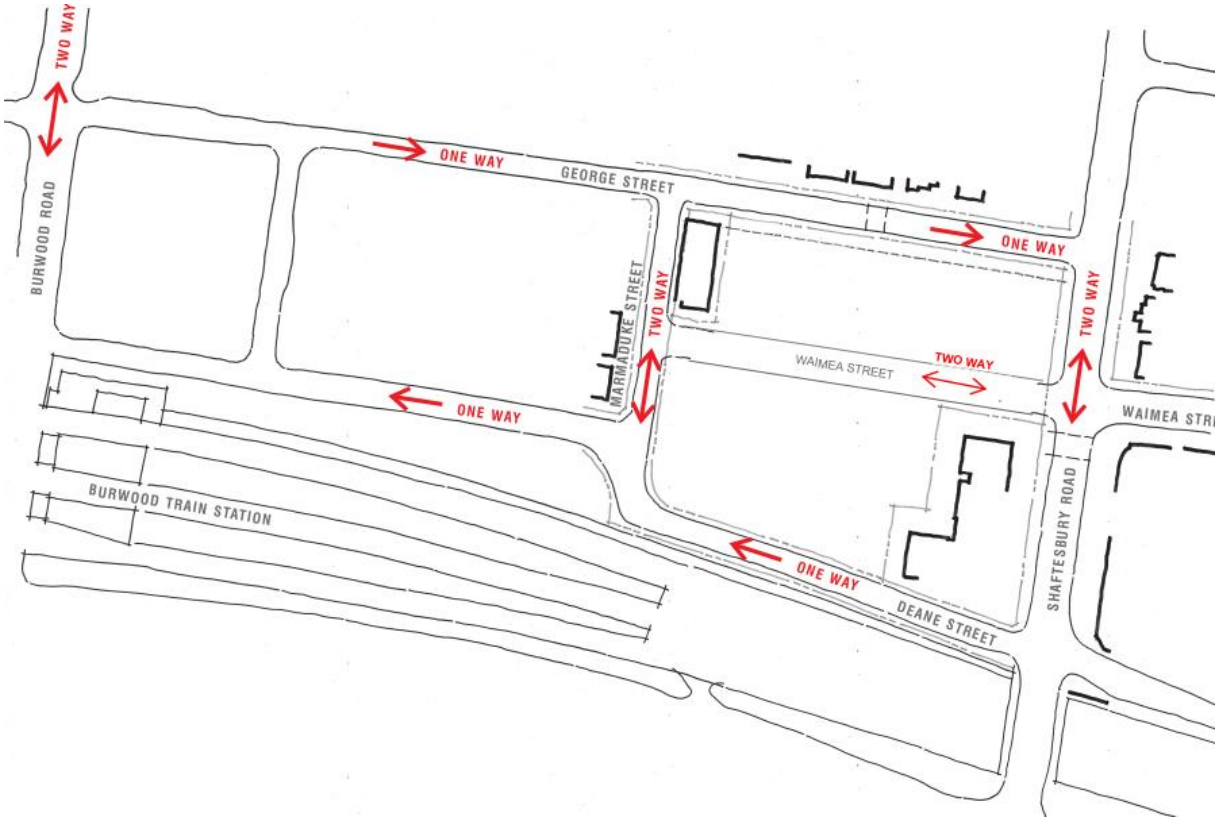


Figure 16 - Existing Traffic Directions

4.2 Council Town Planning Future Road Environment

Council has identified future planning of desirable road alterations within the Burwood Town Centre.

The plan includes the widening of George Street to accommodate two-way traffic flow, the signalisation of Shaftesbury Road at Deane Street and George Street and the closure of Deane Street to the west of the site (at Burwood Road). The planning of the development access arrangement has considered the proposed changes to the road network.

4.3 Proposed Road Network Improvements

The club is being developed within an area that forms part of Council's strategic plan for the road network. In this regard, this DA and the single ownership of the entire site facilitates some of the road changes identified in the plan.

It is important to note that the following changes to the road network are proposed as part of this DA:

- Widening of George Street along the southern side between Shaftesbury Road and Marmaduke Street to provide two-way traffic flow within two eastbound lanes and one westbound lane,
- The widening of Shaftesbury Road along the western side between Waimea Street and George Street to provide a dedicated left turn lane,
- The installation of traffic signals at the intersection of Shaftesbury Road and George Street (concept design has been submitted to TfNSW for review),
- Removal of the existing speed hump on George Street,
- Widening of Deane Street along the northern side to provide two-way traffic flow within a single lane in each direction,
- A raised shared zone at the intersection of Deane Street and Marmaduke Street to provide a connection between the porte cochere/club entrance and the town centre and railway station.

It should be noted that a proposal to upgrade the intersection of Shaftesbury Road and Deane Street has been presented to TfNSW, although this has been rejected on the grounds of proximity to the Railway Parade intersection, and therefore this does not form part of this DA.

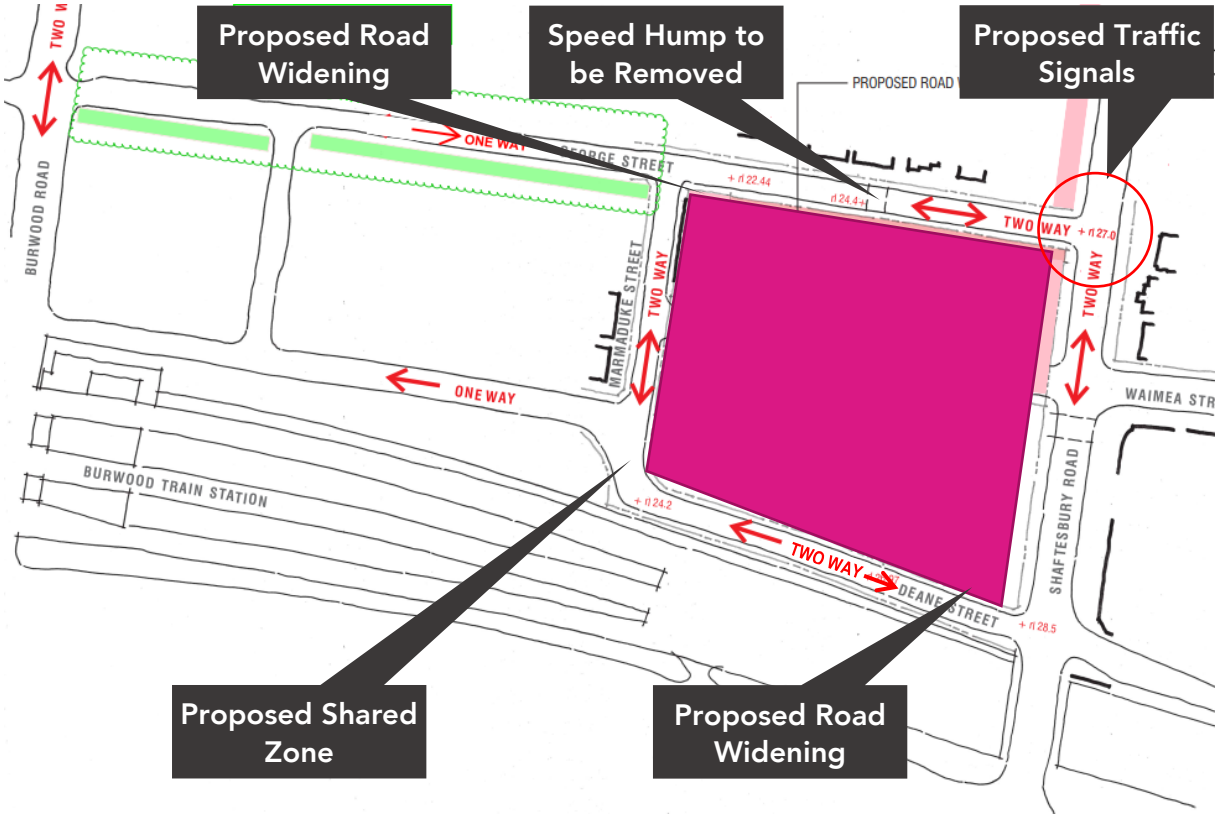


Figure 17 - Proposed Road Improvements

The proposed road layout and traffic controls form the basis of the projected traffic modelling.

4.4 Proposed Site Access Arrangements

The proposed site access and egress arrangement is proposed, having consideration for the future road plans and to minimise impact on the surrounding road network.

The following sections outline the proposed routes and required alterations to the existing road environment.

4.4.1 Customer Access Routes

The proposal will include a basement car park for patrons and a porte cochere for patrons and coaches, shuttle buses etc. The customer access routes, and access locations have been modified in response to the expanded site frontage, which provides the opportunity to widen Deane Street and provide two-way traffic flow.

The car park will be accessible via two driveways being located on Shaftesbury Road (in the location of the existing Waimea Street alignment), and Deane Street, which is to be converted to two-way traffic flow as part of the development.

The location of the driveways was determined after extensive consideration of the proposed changes to the road network, to limit the impact on the operation of the road network (by minimising circulation) and to ensure that patrons would be able to enter and exit the car park efficiently.

The proposed patron vehicle access routes are illustrated in Figure 18.

Figure 18 - Customer Access/Departure Routes

Shaftesbury Road Access

The Shaftesbury Road access makes use of the existing Waimea Street intersection, which retains the crossroads arrangement, rather than offsetting the driveway from the eastern section of Waimea Street. This also places the driveway at the maximum distance from the George Street intersection to separate traffic movements, and also to accommodate the future left-turn lane to be constructed on the approach to George Street.

The driveway will include a central island, shaped to prevent the right turn movements to and from the driveway. This is in lieu of a central median island in Shaftesbury Road, as this would impact on movements to/from the eastern section of Waimea Street.

The driveway accommodates single entry and exit lanes at the street level, although this arrangement widens at the internal control point to provide two entry and two exit lanes, which is applicable for this type and size of car park and complies with the requirements of AS2890.1.

This access design and location is entirely consistent with the approved concept.

Deane Street Access

The Deane Street access is proposed as a result of the changes to Deane Street, in particular the introduction of two-way traffic flow, which is accommodated through a slight widening of the carriageway, which is possible now that the entire frontage of Deane Street forms the development site.

The access will comprise single entry and exit lanes at the street level, although this arrangement widens at the internal control point to provide two entry and two exit lanes, which is applicable for this type and size of car park and complies with the requirements of AS2890.1.

This access is new in comparison with the approved concept and replaces the former Marmaduke Street car park access.

The conversion of Deane Street to two-way traffic introduces the entry turning movements on to Shaftesbury Road. An assessment of the sight lines has been undertaken and confirms that suitable sightlines to the north and south on Shaftesbury Road are available, including vision of the Railway Parade intersection.

4.4.2 Service Vehicle Access

A loading dock is proposed within the central area of the Club, with a dedicated access from Marmaduke Street. This location was determined to separate customer and service vehicles and to provide access within the rear of the building.

This access is new in comparison with the approved concept and replaces the former Deane Street loading dock access.

The service vehicle route has been determined using the turning path review of a 12.5m truck to accommodate the maximum proposed vehicle size required to serve the Club. Access to the site will be via Shaftesbury Road, George Street, with site access along Marmaduke Street. Egress will be via Marmaduke Street, George Street, and Shaftesbury Road.

The northern route will provide direct connection to Parramatta Road, while the south route will provide connection to the Hume Highway. The route to the south will replicate the route followed by an existing bus route, which confirms that rigid vehicles of this size are able to follow this route.

4.4.3 Porte Cochere and Coach Route

The proposal includes a Porte Cochere to be located at the corner of Marmaduke Street and Deane Street, at the south-west corner of the subject site. This location represents a key aspect of the entrance to the Club, but also provides the most efficient and suitable location with regard to the road arrangements.

The Porte Cochere has been designed to accommodate coaches up to 14.5m long on the basis that they would access along Marmaduke Street and George Street from Shaftesbury Road and egress by turning left on to Deane Street to return to Shaftesbury Road. This arrangement limits the need for coaches to drive through Burwood Town Centre to enter or exit the Club, which was a key recommendation from Council during the Pre-DA discussions.

The coach pick up / drop off route has been determined using the turning path review of a 14.5m coach.

Access to the porte cochere will be via Shaftesbury Road, the left or right turn into George Street and left into Marmaduke Street. Egress will be via Deane Street to Shaftesbury Road whereby vehicles will be able to turn left or right to access Parramatta Road (north) or the Hume Highway (south).

5. Development Traffic Assessment

The following traffic impact assessment should be read in the context that the current proposal is largely consistent with the approved Concept DA in terms of the land use, yield and parking provision.

The traffic generating yield of the project has reduced slightly and the parking provision remains largely the same, therefore this results in practically no difference to the outcome of the projected traffic volumes, although the changes to the access locations result in some differences to the distribution of trips.

It should also be noted that this section includes the traffic associated with the Club and the Hotel tower so that the cumulative impact can be assessed (regardless of the separate Development Applications).

5.1 Trip Generation

The potential traffic generation associated with the proposed building has been established with reference to the existing Club and a comparison with other Clubs where data is available. Typically, traffic activity associated with a development is derived through reference to the RMS Guide to Traffic Generating Development, however, in relation to Clubs this data is limited, as described in Chapter 3.7.3 of the RMS Guide:

"3.7.3 Clubs

Overview

Surveys of licensed clubs conducted by the RTA in 1978 indicate that it is difficult to generalise on their traffic generation because of the diversified nature of clubs. Traffic generation is affected by such factors as the provision of live entertainment, gambling facilities, number of members and club location. Behavioural changes since 1978, such as the introduction of random breath testing, also make such generalisations more difficult.

The 1978 surveys of clubs found an evening peak period traffic generation of 10 veh/hr/100m^2 licensed floor area, and a total vehicle generation over the 4.00 pm to 1.00 am period of 90 veh/100m^2 licensed floor area.

A traffic generation assessment of new clubs should be based on recent surveys of similar clubs. For extensions to an existing club, the assessment should be based on the relevant club."

It is clear that the use of traffic generation data collected 38 years ago would not provide an accurate projection of the traffic activity associated with a contemporary club having regard for the numerous changed factors including current drink driving laws cited in the RMS Guide.

In accordance with the Guide, the traffic assessment has been based on surveys of other comparable Clubs.

5.1.1 Comparable Club Data

Existing traffic activity associated with a comparable large club located on the Northern Beaches was recorded through traffic surveys of the car park entries and exits.

The combined entry and exit movements from the driveways are summarised in the following graphs, which present the data in 15-minute intervals.

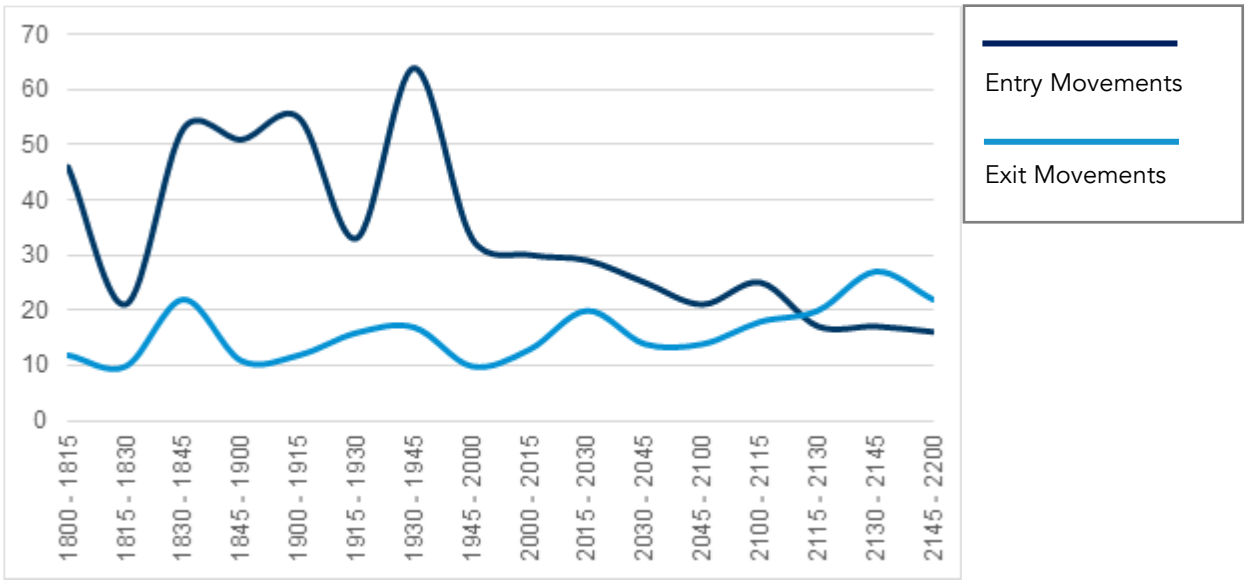


Figure 19 - Friday Evening Traffic Volumes

The Friday peak period was between 18:30 and 20:00 with the maximum number of entry movements (203) and exit movements (49) occurring between 18:45 and 19:45. This represents an arrival / departure ratio of 80/20.

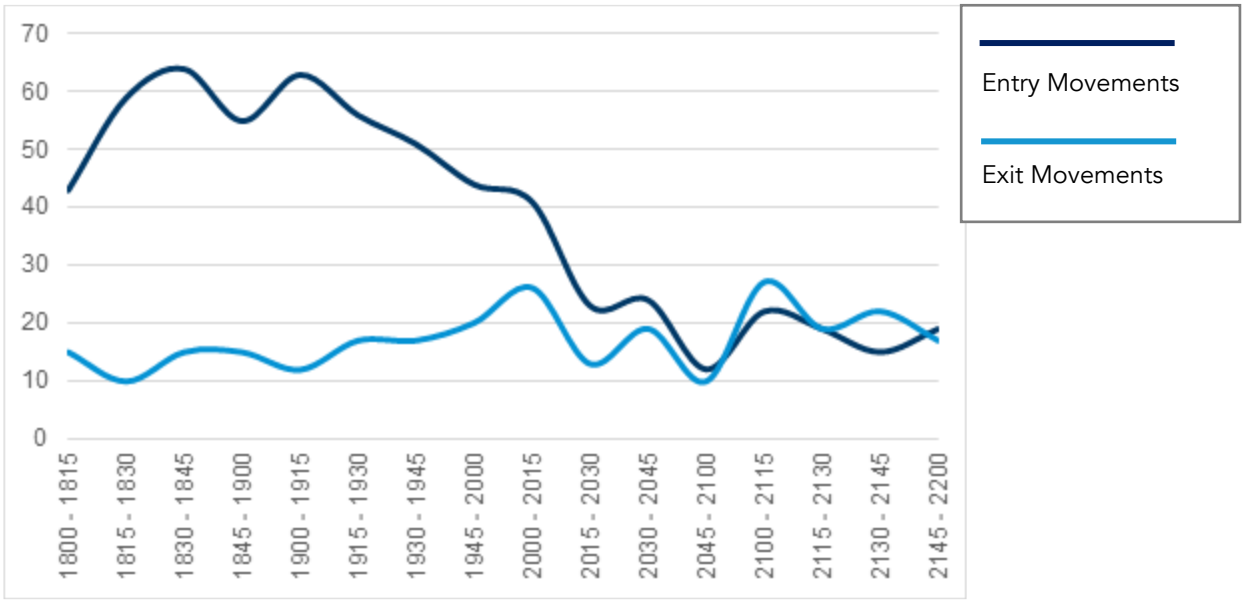
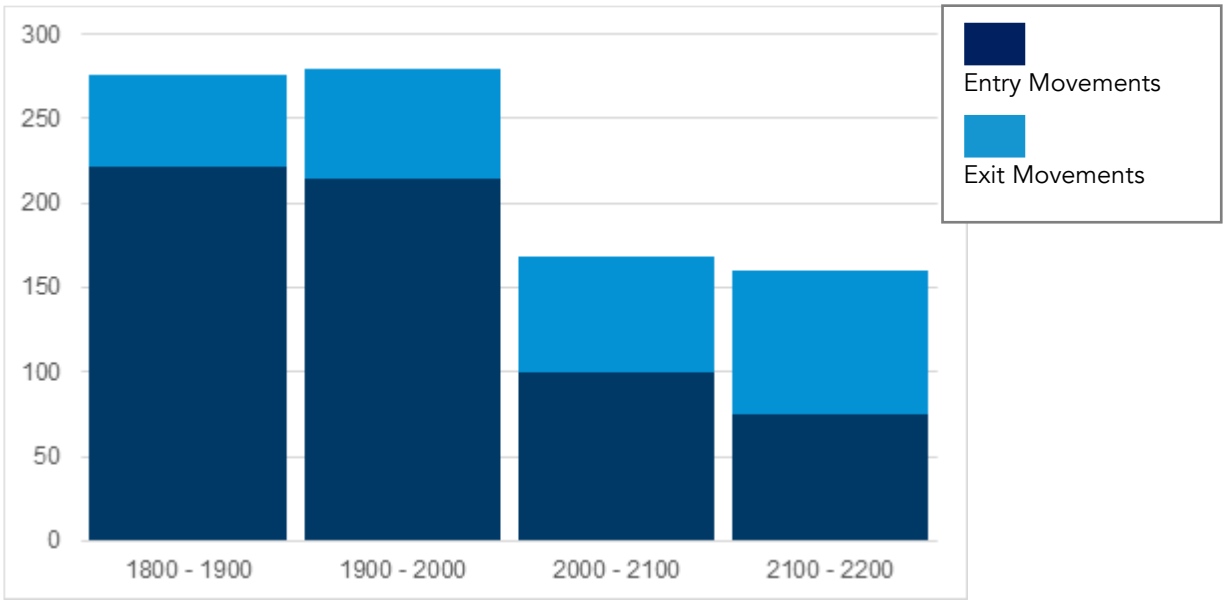
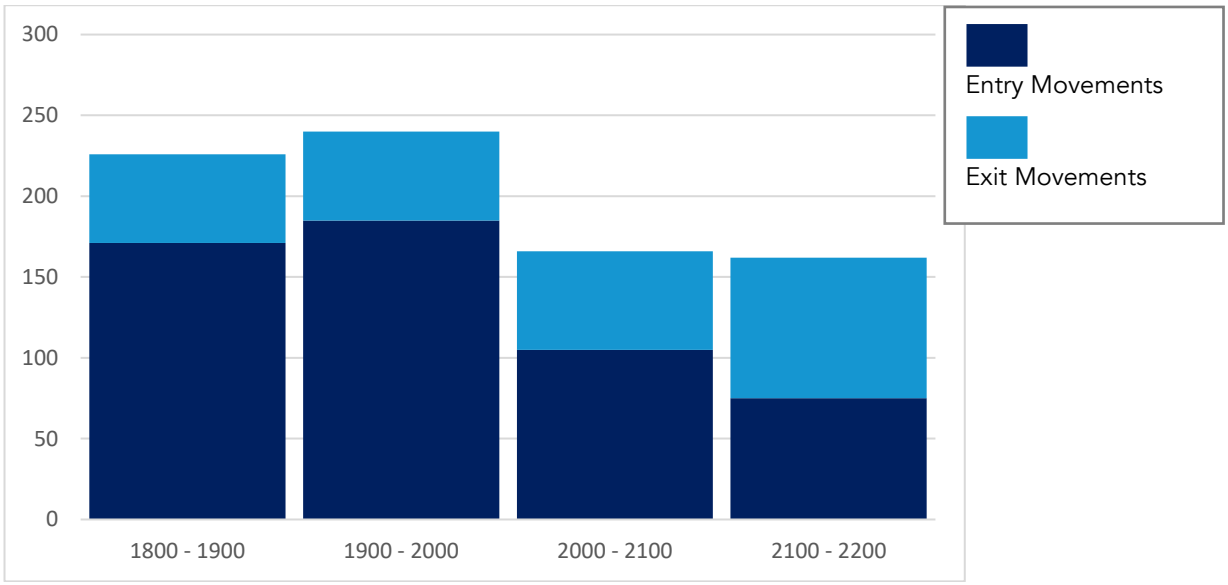


Figure 20 - Saturday Evening Traffic Volumes

The Saturday peak period was between 18:00 and 20:00 with the maximum number of entry movements (241) and exit movements (52) occurring between 18:15 and 19:15. This represents an arrival / departure ratio of 80/20.

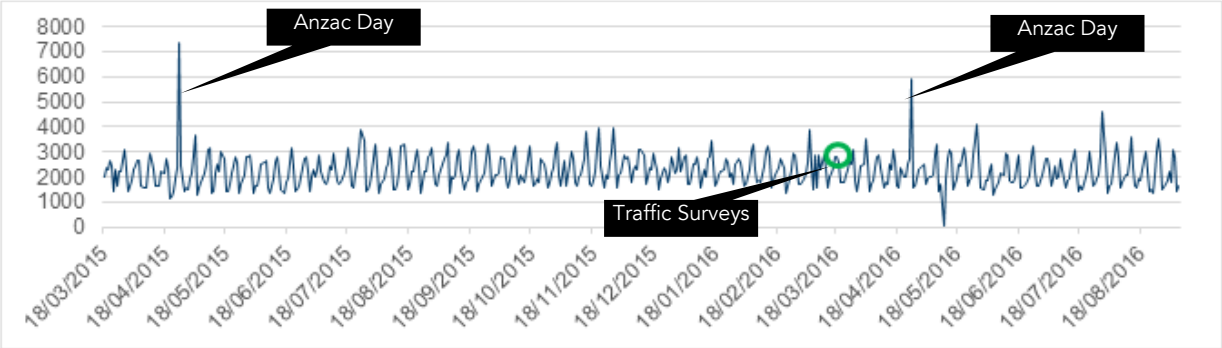
The data is presented in hourly intervals in the following graphs, which show the total entry and exit movements in each column:





The traffic surveys were undertaken during a weekend in March 2016. As a data point within a year, it is important to establish whether this represented a typical period and whether there are any seasonal effects to be factored.

In this regard, the daily patronage data from March 2015 to August 2016 has been provided by the comparable club and is summarised in the following graph:



Outliers:

Anzac Day	25/04/2015
Anzac Day	25/04/2016
Error	11/05/2016

The data indicates that there is very little seasonal variation through the year with only Anzac Day evident as a peak day and half a dozen days where there is a higher level of activity. In this regard, the weekend of the surveys represented typical days and there is no need to adjust the figures for seasonal variation.

5.1.2 Club Component

The assessment of comparable clubs established a traffic generation rate of 1 vehicle movement per 50m^2 per hour. The distribution of entry and exit movements was 80% entering and 20% exiting movements during both the Thursday evening and Saturday peak hours.

The approved Club component (including the office, but excluding the hotel) comprised 17,400m^2 GFA and application of the above rate indicates a traffic activity of 348 movements (285 entering and 63 exiting) during the peak hour.

The approved concept comprised a traffic generating floor area of 17,400m^2 based on a broad assessment of the capacity of the building form (a suitable level of detail for a Concept Approval application). The design of the club component comprises a traffic generating floor area of 15,468m^2, representing a reduction of 1,882m^2, which is primarily due to the more detailed design of the building and more accurate assignment of floor area. A comparison of the various areas is presented in the following table:

	Land Use	Approved Concept GFA	Approved Concept GFA (Traffic Generating)	Development Application GFA	Development Application GFA (Traffic Generating)
1	Gaming	3,300	3,300	1,630	1,630
2	F&B	7,750	7,750	8,151	8,151
3	Event Theatre	1,400	1,400	856	856
4	Leisure Pool, Gym	1,160	1,160	602	602
5	Office	1,240	1,240	1,587	1,587
6	Circulation	6,950	-	3,847	-
7	B.O.H	5,440	-	4,102	-
8	Hotel	7,430	-	12,975	-
9	Conference Facility	2,500	2,500	2,642	2,642
10	Miscellaneous	_	_	6,588	-
	Total GFA	**37,170**	**17,350**	**42,980**	**15,468**

Application of the trip generation rate of 1 trip per 50m^2 to the revised floor area of 15,468m^2 indicates a peak hour activity of 309 movements (247 entering and 62 exiting), which is a reduction of 39 trips when compared with the approved scheme.

5.1.3 Hotel Component (not included within this DA)

While the Hotel development does not form part of this DA, it is important to assess the cumulative impact of both parts of the development.

Traffic activity associated with a development is derived through reference to the RMS Guide to Traffic Generating Development, however, in relation to traditional hotels this data is limited, as described in Chapter 3.4.2 of the RMS Guide:

"Hotels – traditional

Original RTA research indicated a large variance in the traffic generation rates of hotels. This variation is due to such factors as the location and age of the building, its internal design, the provision of live music and other such facilities, etc. Since these surveys were undertaken some changes have occurred in the use of hotels, partly due to the introduction of random breath testing. These changes have generally reduced traffic generation rates of hotels. It is recommended that the analysis of proposed hotel developments be based on surveys of similar existing hotels.

Where hotels are to be located in or near residential areas, an assessment of traffic generation in the late evening period must be undertaken in order to determine the impact of noise.

Therefore, the trip generation rates for the proposed hotel development is considered from the ITE Trip Generation manual. As per ITE guidelines, the peak trip generation of each guest room 0.6 vehicles. The revised Hotel design accommodates 206 rooms, generating 124 trips during the road network peak hours.

5.1.4 Existing Land-use Traffic Activity

The site accommodates a mix of single dwellings and apartments of approximately 100 dwellings / apartments and as per the RMS Guide to Traffic Generating Developments, each unit will generate 0.19 trips in the peak hour, totalling 19 trips. As per the RMS Guidelines, trips generated by the existing land uses should be deducted from the proposed new generation traffic.

5.2 Traffic Generation Summary

The traffic generating areas within the club component of the concept have reduced slightly compared with the approved concept, due to the more detailed building design associated with a DA. This results in a reduced projected peak hour traffic activity of 309 movements (a reduction of 39 trips).

The hotel room provision has increased by 6 rooms, which at a rate of 0.6 trips per room results in an increase of 3.6 trips compared with the approved concept. The revised hotel will generate 124 trips during the road network peak hours.

The development generated traffic can be offset by the existing uses within the site, which accommodates approximately 100 dwelling / apartments. This results in a reduction of 19 peak hour trips.

In total, the development will generate 414 trips during the evening peak hour, being 35 fewer trips compared with the approved concept. In this regard the traffic impact on the surrounding road network will be lesser than that of the approved concept.

That said, the amended scheme includes revised access driveway locations and road upgrades that change the flow of traffic to and from the site, therefore a revised traffic analysis has been prepared. A summary of the peak hour entry and exit volumes is presented in the following table and has been adopted for both the Thursday evening and Saturday peak periods.

Table 7 - Trip Generation

	Land Use Component	Entry	Exit	Total
1	Club	247	62	309
2	Hotel	99	25	124
3	Existing Dwelling Unit	-15	-4	-19
Total		331	83	414

5.3 Trip Distribution

As per the proposed development plan, the distribution of traffic is derived based on the existing traffic characteristics of the club. The proposed Trip distribution for the opening year (2022) is shown in Figure 21.

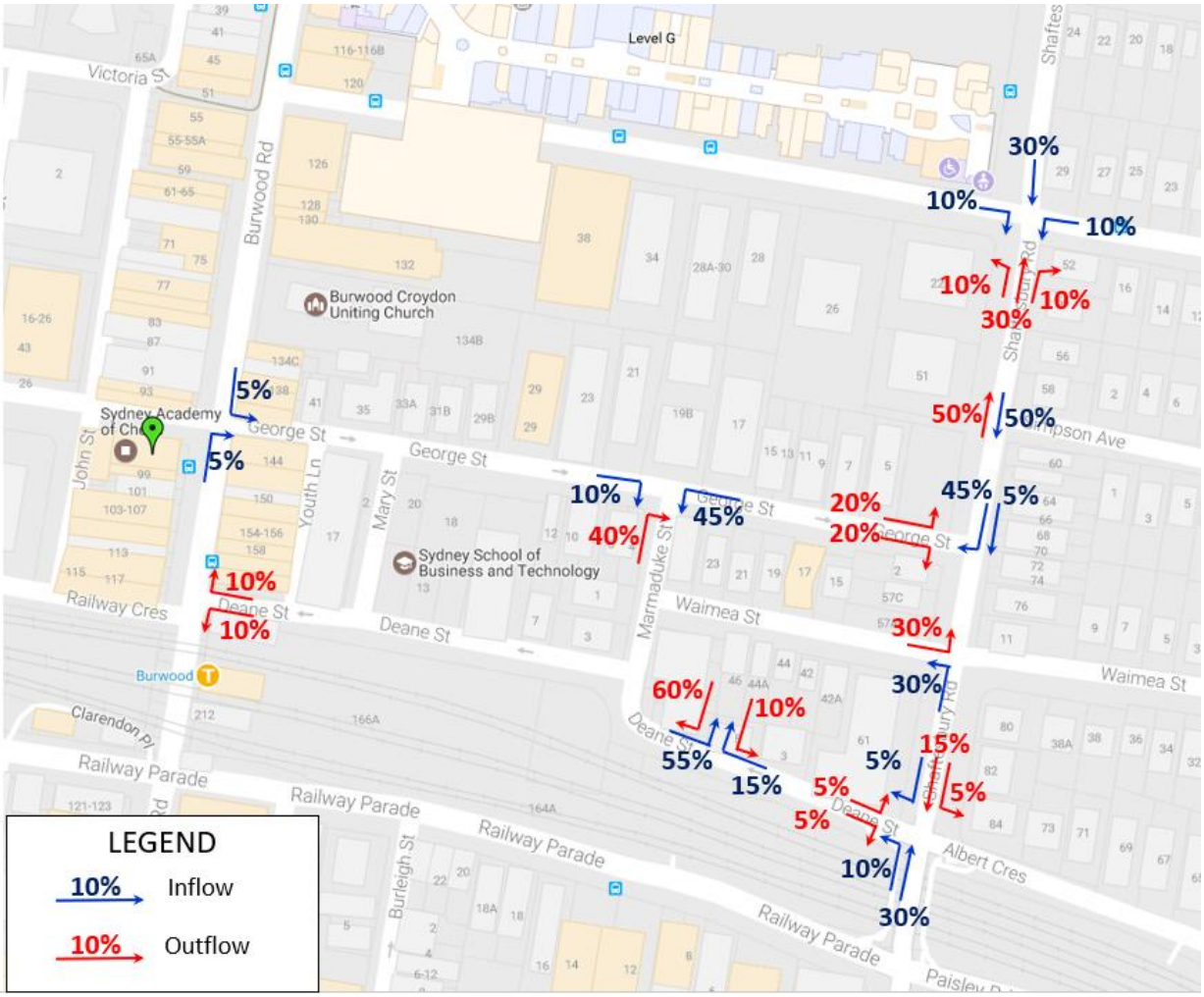


Figure 21 - Trip Distribution (Thursday Evening Peak and Saturday Peak Hour)

5.4 Traffic Modelling Scenarios

In order to assess the potential traffic impact associated with the project and the impacts of background traffic growth, a number of modelling scenarios have been developed and modelled. The assessment scenarios are summarised in the following table:

Table 8 - Traffic Modelling Scenarios

Scenario	Year	Network description
S1	2016	As existing – do nothing
S2	2020	As existing (1.5% Growth) – do nothing
S3	2020	As existing (1.5% Growth) + Development Traffic + Road Network Changes
S4	2020	As existing (1.5% Growth) + Development Traffic + Road Network Changes + Signals

Since the proposed development peak hours are anticipated in the evening, either a weekday or Saturday peak hours are not considered for the future year intersection analysis.

The road network changes in the post-development scenario include converting the George Street to two directional Road from Shaftesbury Road to Marmaduke Street and the signalisation of the Shaftesbury Road & George Street Intersection (including an additional left turn lane on Shaftesbury Road).

The proposed new traffic signals will assist in improving the capacity and safety of the road network as well as reducing the queue lengths at the intersection, which will ease traffic movements to and from the proposed Club.

5.5 Traffic Modelling Results

The results of the traffic modelling are presented and are summarised in the following Tables 8 (Weekday PM peak) and 9 (PM peak): SIDRA modelling results for all the scenarios are presented in Table 9.

Table 9 - Opening Year Intersection Analysis - Weekday - PM Peak

ID	Intersection	Proposed Scenarios			
		S1	S2	S3	S4
1	Shaftesbury Road and Victoria Street E	LOS E	LOS F	LOS F	LOS F
2	Shaftesbury Road and George Street	LOS C	LOS C	LOS F	LOS A
3	Shaftesbury Road and Waimea Street	LOS F	LOS F	LOS F	LOS E
4	Shaftesbury Road and Deanne Street	LOS A	LOS A	LOS A	LOS A
5	Marmaduke Street and Deanne Street	LOS A	LOS A	LOS A	LOS A
6	George Street and Marmaduke Street	LOS A	LOS A	LOS A	LOS A
7	Burwood Road and George Street	LOS A	LOS A	LOS A	LOS A
8	Burwood Road, Deanne Street and Railway Crescent	LOS A	LOS A	LOS A	LOS B

Table 10 - Opening Year Intersection Analysis - Weekend PM Peak

ID	Intersection	Proposed Scenarios			
		S1	S2	S3	S4
1	Shaftesbury Road and Victoria Street E	LOS E	LOS E	LOS F	LOS F
2	Shaftesbury Road and George Street	LOS C	LOS C	LOS C	LOS A
3	Shaftesbury Road and Waimea Street	LOS F	LOS F	LOS F	LOS D
4	Shaftesbury Road and Deanne Street	LOS A	LOS A	LOS A	LOS A
5	Marmaduke Street and Deanne Street	LOS A	LOS A	LOS A	LOS A
6	George Street and Marmaduke Street	LOS A	LOS A	LOS A	LOS A
7	Burwood Road and George Street	LOS A	LOS A	LOS A	LOS A
8	Burwood Road, Deanne Street and Railway Crescent	LOS A	LOS A	LOS A	LOS B

The road network adjacent to the proposed new development is running at high degree of saturation and all the main road intersections will be reaching their maximum capacities in the short-term as a result of background traffic growth. The changes to the road network and the introduction of traffic signals will provide additional capacity as highlighted by the results.

The intersection of Shaftesbury Road and Victoria Street is operating beyond its current capacity in the existing scenario as well as without the development.

The intersection of Shaftesbury Road and Waimea Street is displaying a Level of Service F in all scenarios due to the right turn from Waimea Street east on to Shaftesbury Road. This movement is not impacted by the Club movements, and all other movements at this intersection are operating with acceptable average delays.

Following the introduction of traffic signals, the intersection of Shaftesbury Road and George Street has improved capacity and Level of Service.

The modelling confirms that the proposed Club and the background traffic growth to 2020 will be accommodated by the road network due to the changes in permitted traffic directions, as well as the signalisation of key intersections proposed by Council.

6. Car Parking Facilities

6.1 Car Parking Policy Requirements

The car parking rates associated with proposed uses within the Club are presented in the Burwood Development Control Plan (BDCP) 2013 and represent minimum parking requirements. The car parking rates applicable to the proposed uses are summarised in the table below. It is anticipated that given the uses proposed, the applicable car parking rates will be those specified for hotel accommodation and registered clubs.

Land Use	Required Spaces
Hotel or motel accommodation	• 1 space per accommodation unit for visitors. • 2 spaces for employees involved in the Tourist and visitor accommodation business.
Business/office premises	Middle Ring • 1 space for the first 400sqm (GFA) or part thereof, plus; • 1 space per 120sqm (GFA) or part thereof additional to the first 400 sqm. Perimeter • 1 space for the first 400sqm (GFA) or part thereof, plus; • 1 space per 80sqm (GFA) or part thereof additional to the first 400 sqm.
Registered Club	• 1 space per 5sqm (GFA) of bar, lounge, dining, auditorium or entertainment area (this is both the minimum and maximum requirement)
Restaurant/Food and Drink	• 1 space for the first 400sqm (GFA) or part thereof, plus; • 1 space per 40sqm (GFA) or part thereof additional to the first 400 sqm
Entertainment facilities; function centres	As determined by Council having regard to a Transport, Traffic and Parking Impact Report and Management Plan, or a Transport, Traffic and Parking Impact Report, as applicable.

Preliminary investigations outline the following parking requirements in line with the DCP rates:

Land Use	Unit of Measure	Unit of Measurement	Rate	Parking Requirements	
Club	Gaming:	1,630	1 per 5m^2	326	spaces
	Food & Beverage:	400	1 for first 400m^2	1	spaces
		7,751	1 per 40m^2	194	spaces
	Event Theatre:	856	1 per 5m^2	171	spaces
	Leisure, Pool, Gym:	400	1 for first 400m^2	1	spaces
		202	1 per 5m^2	40	spaces
	Office:	400	1 for first 400m^2	1	spaces
		1,187	1 per 80m^2	15	spaces
	Conference :	1,300	1 per 3 seats	433	spaces
Hotel	Hotel:	206	1 per room +	206	spaces
			2 for employees	2	spaces
	TOTAL			1,391	spaces

The proposed basement will accommodate 1,250 parking spaces, representing a shortfall of 141 spaces.

It is noted that the parking requirement as per the DCP results in a high parking provision, which is likely due to the following factors:

- the parking requirement for the club floor area of per 5m^2 is related to the RMS parking provisions for a small club (data collected in 1978). There is likely a reduction in the parking demand per square metre as the size of a Club increases, i.e. this rate is not necessarily scalable as a linear regression,
- the rate does not account for the shared / multi-use function of the facilities within the Club, i.e. patrons within one part of the Club (e.g. gaming) will likely use another part of the facility during the same visit,
- the application of multiple rates does not account for the differing peak usage times for the various uses, e.g. gym use likely peaks during the early mornings, whereas the dining areas will peak during lunchtimes and evenings,
- the club operates a shuttle bus service, which provides free transport to patrons living within the catchment of the club,
- the club is located adjacent to the Burwood commercial centre, which accommodates high-density residential developments, and the railway station, which is 190 metre walk from the entry to the club.

As a part of this study, we have reviewed the car parking provisions of an existing large club in the Sydney Metropolitan area. This club comprises a floor area of 12,622m^2 (GFA) and a parking provision of 482 spaces. This equates to a provision ratio of 3.8 spaces per 100m^2 (or 1 space per 26.2m^2). as opposed to 20 spaces per 100m^2. The club is reasonably well served by public transport, including a shuttle bus, but is not located in the vicinity of a rail station.

The data provided by the example club indicates that the DCP rate is not representative of larger clubs and perhaps there is no direct relationship between the floor area and the parking provision, or at least that linier regression is not applicable.

Application of the rate of 3.8 spaces per 100m^2 to the proposed club (24,582m^2 excluding the Hotel and Conference areas) will result in parking provision of 944 spaces. In this regard, it is appropriate to apply a reduction to the minimum parking requirements for the club component.

The total parking provision for the proposed will be 1,250 car parking spaces, which includes 206 spaces for the Hotel.

This calculation makes no reduction due to the combination of uses within the Club and therefore represents a conservative estimate of the actual peak demand. For example, the provision assumes full utilisation of the Club and the Hotel separately. The more likely scenario involves the shared use of the facilities, where if the hotel was fully occupied, those guests would also represent a reasonably large population within the Club. Likewise, a function within the conferencing facility would likely involve use of the Club, and potentially the Hotel as a support facility.

The proposed parking provision (application of a reduction to the Club parking rate), and the ability for the car park to serve multiple user groups represents a complimentary use of the car park, reducing the overall scale of the basement and the potential for parts of the car park to be underutilised.

It is also important to assess the parking provision in relation to the surrounding public transport network and the density of the resident area in the vicinity of the site. Burwood Town Centre is currently undergoing a large increase in the residential density through new developments in the town centre. This will greatly increase the population within walking distance of the Club, as well as the existing proximity to the Rail Station and the high frequency rail services.

In this context, the limiting of parking will be key to balancing the mode share across a number of transport options, reducing car dependency and use. This is an important consideration in the assessment of the road network, which would be adversely affected if unconstrained parking were proposed within the development.

6.2 Parking Provision & Circulation

This application seeks approval for a basement car park of six levels to accommodate up to 1,250 vehicles, which will include 75 VIP spaces within two dedicated areas. The car park has been designed to maximise the parking provision while providing an efficient and safe circulation system and a generous parking layout.

6.2.1 VIP Parking

The car park will include reserved VIP parking within a dedicated area on Levels P2 and P3. During normal operation, these areas will be separated by way of boomgates which can be operated by VIP members using their membership card. During these periods it is unlikely that the car park will be operating at capacity and therefore the total provision is able to accommodate the dedication of 75 spaces.

The car park may reach capacity during events within the club, and under these circumstances the club would be able to open the VIP parking for all users to ensure that the entire parking provision is available. This form of management is beneficial to the club during events as it maximises the number of patrons who can use the car park.

6.2.2 Parking Circulation

The following section presents an assessment of the proposed development with reference to the requirements of AS2890.1: 2004 (Off – street parking), AS 2890.3: 2015 (Bicycle Parking) and AS2890.6:2009 (Off – Street parking for people with disabilities).

The car park access and parking arrangements have been designed in accordance with the requirements of Section 2 of AS2890.1.

Table 1.1 of AS2890.1 presents a number of classifications applicable to different land-uses. According to the Table, the most appropriate car park classification applicable to the subject car park will be a Class 2 facility, which is suitable for generally medium-term parking (incl. entertainment centres, hotels etc.).

The parking space dimensions and associated aisle widths for each classification are presented in Table 2.2, and accordingly, a Class 2 facility requires parking space dimensions of 2.5 x 5.4 metres with an access aisle width of 5.8 metres. The proposed car park has been designed to provide compliant parking space widths of 2.5 metres and aisle widths of at least 5.8m, which meets the minimum requirement.

An assessment of the car park design has been undertaken including column locations, aisle extensions and ramp grades and in this regard, the car park design complies with the requirements of AS2890.1.

6.2.3 Customer Experience

While the design of the car park is compliant with the minimum standards presented in AS2890.1, the design of the car park has been centred around providing a good customer experience, which is fundamental to the success of development. In this regard, all aspects of the design, including the ramp grades, aisle and circulation widths, the circulation and search routes etc. represent a more generous arrangement than required.

The provision of two separate ramp systems is proposed to provide choice and also a suitable capacity to fill or empty the car park during peak periods of movement. Connected to two separate connections at the street level also provides the ability to distribute traffic onto different parts of the road network.

The provision of traffic signals at the intersection of George Street and Shaftesbury Road is related to the car park and circulation design in that it will facilitate a guaranteed and safe access to Shaftesbury Road, rather than the existing Give Way control. This also aligns with Council's strategic plan for the road network. The preference would be to upgrade the Deane Street intersection to traffic signals; however, this has been rejected by TfNSW.

The following images present a sample of the key swept paths within the carpark and demonstrate the generous arrangement that is proposed so that the car park is easy to use and functions well for customers.

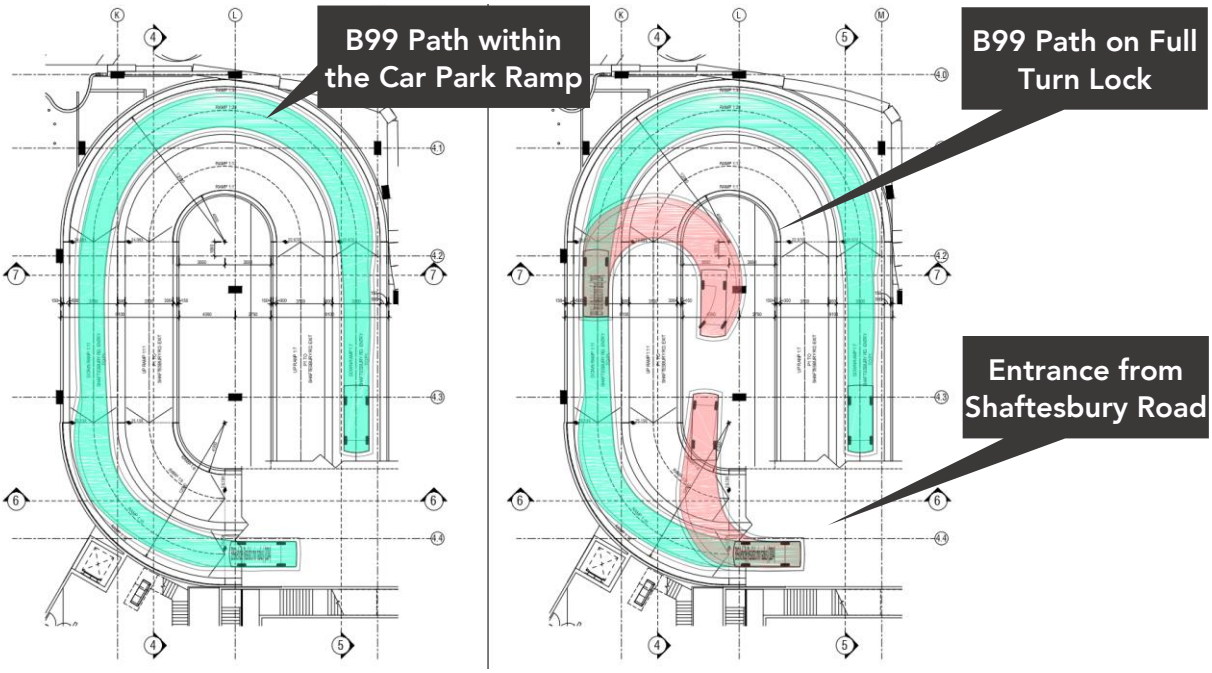


Figure 22 - Swept Paths of a B99 Entering the Car Park from Shaftesbury Road

Figure 22 represents a B99 vehicle paths using the design ramps (aqua) in comparison to a full turn lock swept path of the same vehicle (red).

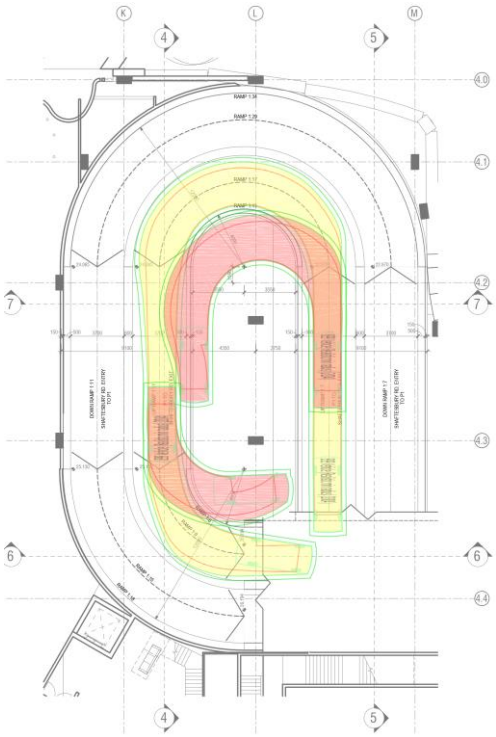


Figure 23 - B99 Paths Exiting the Car Park into Shaftesbury Road

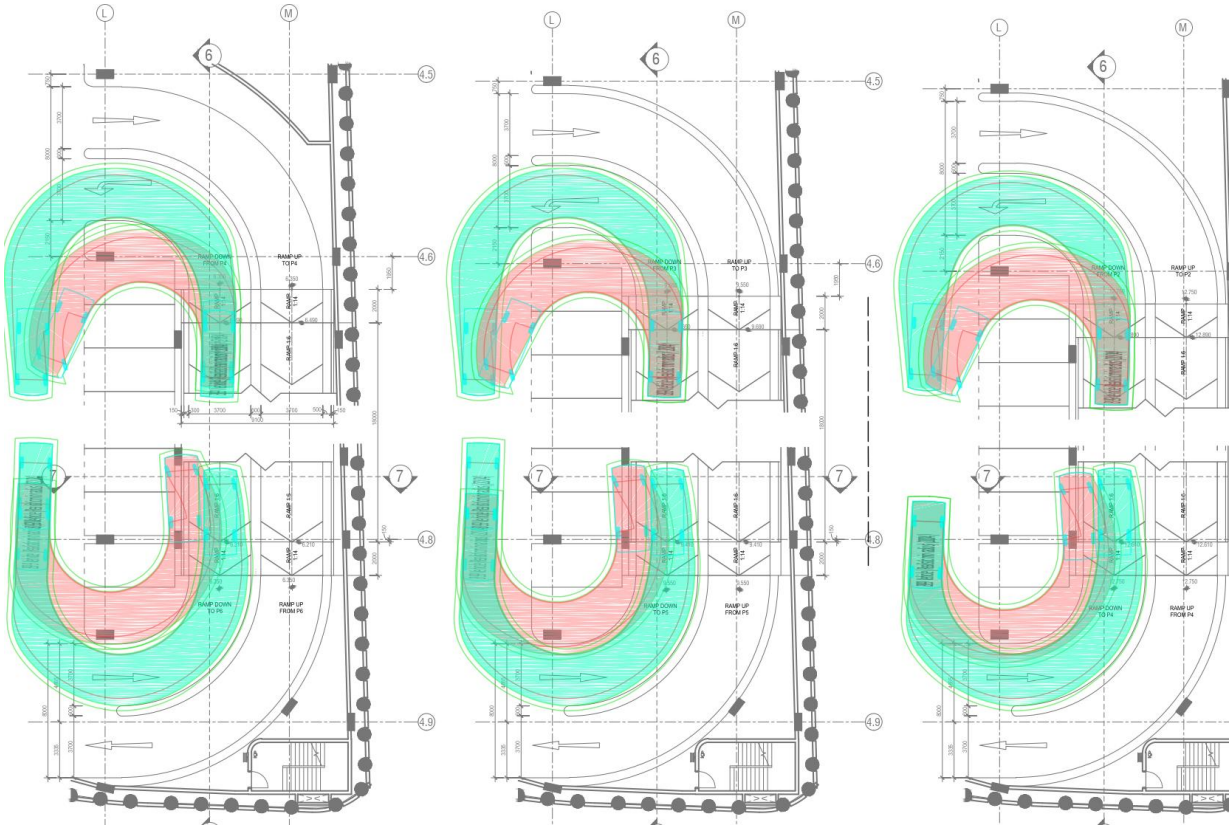


Figure 24 - B99 Swept Paths within the Internal Ramps

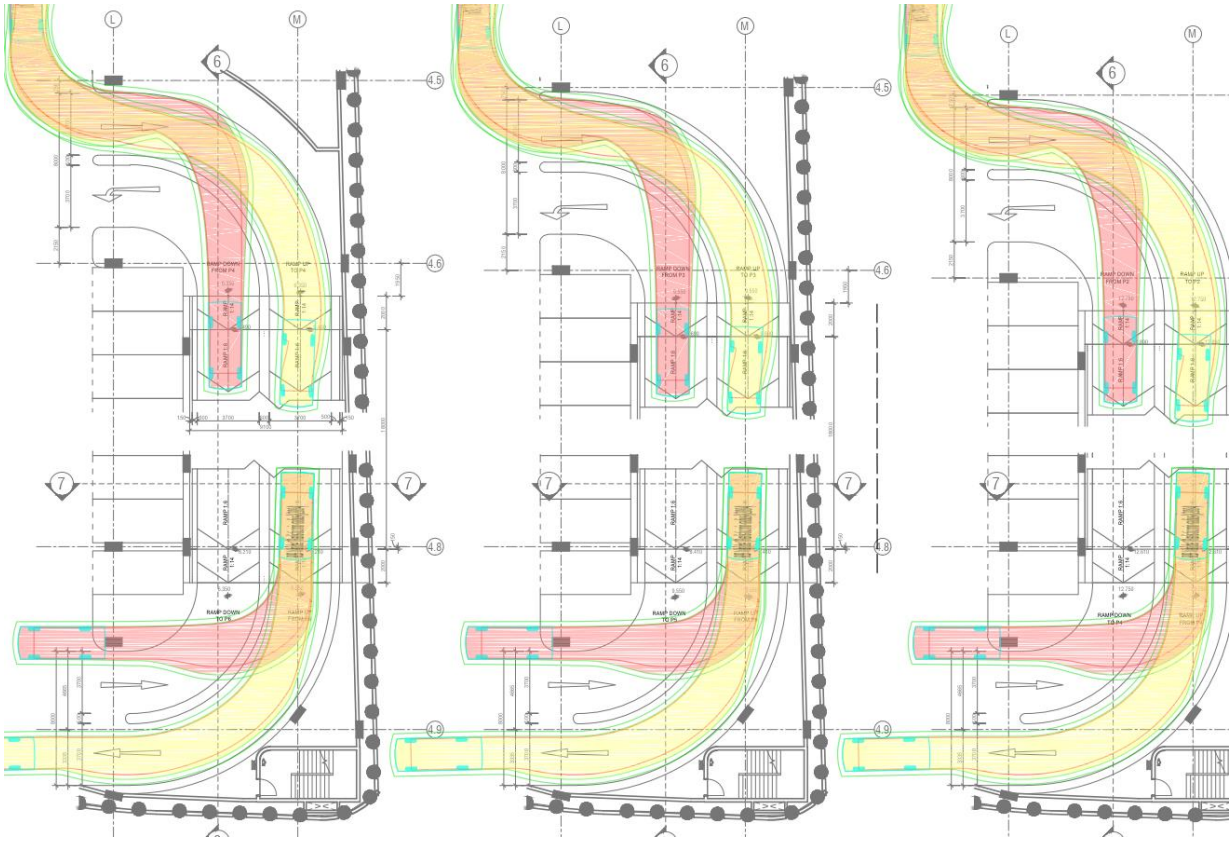


Figure 25 - B99 Swept Paths within the Internal Ramp

6.2.4 Customer Car Wash

The proposal includes the provision of a car wash located in the southern part of the Level 1 basement. The car wash will be operated by the club. The car wash will be fully automated with payment options including cards or membership points, which is operated through a vending machine with an intercom for support. It is proposed that the car wash will operate during the hours that the car park is open for use (24/7). Signage will be provided at the entry to the car wash aisle. The design of the car park means that the car wash will be in a dedicated area with no impact on the primary circulation aisles.

The car wash layout is presented in Figure 26.

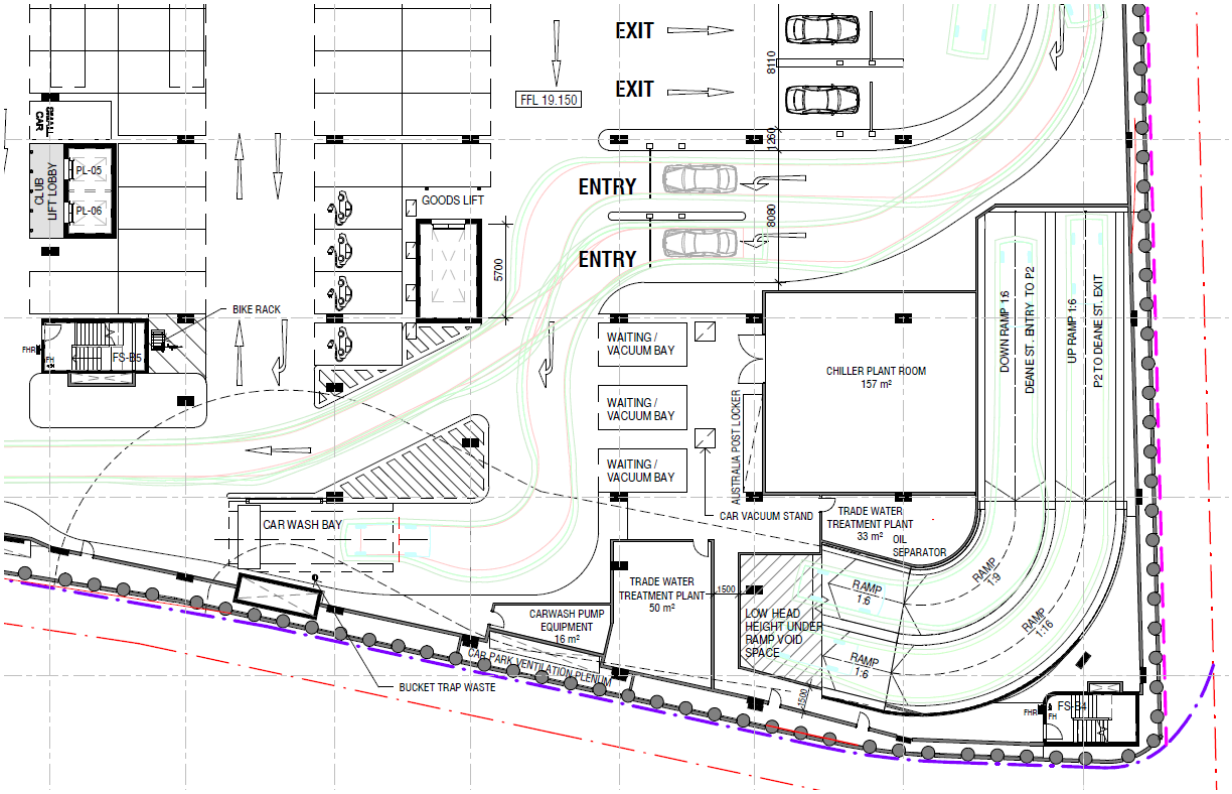


Figure 26 - Proposed Car Wash Layout

6.3 Porte Cochere

The design of the club includes the provision of a porte cochere which has been designed to accommodate vehicles up to a 14.5metre-long coach and to enable vehicles to pass parked vehicles.

The porte cochere is integral to the operation of the club and responds to the various travel choices available to patrons (club shuttle bus, chartered coaches, taxi, ride share or drop-off prior to accessing the car park). A coach standing area is proposed to the north of the porte cochere allowing coaches to pull off the Marmaduke Street carriageway and wait for short periods in situations where the porte cochere is occupied (to the extent that a coach won't fit) or while passengers are gathered and ready to board. The porte cochere will also be monitored by CCTV and club security to manage the traffic flow and pedestrian safety.

The porte cochere has been designed to accommodate the swept paths of all associated vehicles and a safe environment for pedestrians. The location of the porte cochere has been specifically established so that the passenger side of vehicles is aligned with the club entrance and this arrangement has been facilitated by the ability to widen Deane Street and provide eastbound access to Shaftesbury Road.

The following images present a sample of the key swept paths within the porte cochere:

Figure 27 - Swept Path of a Typical 14.5m Coach Bus through the Porte Cochere

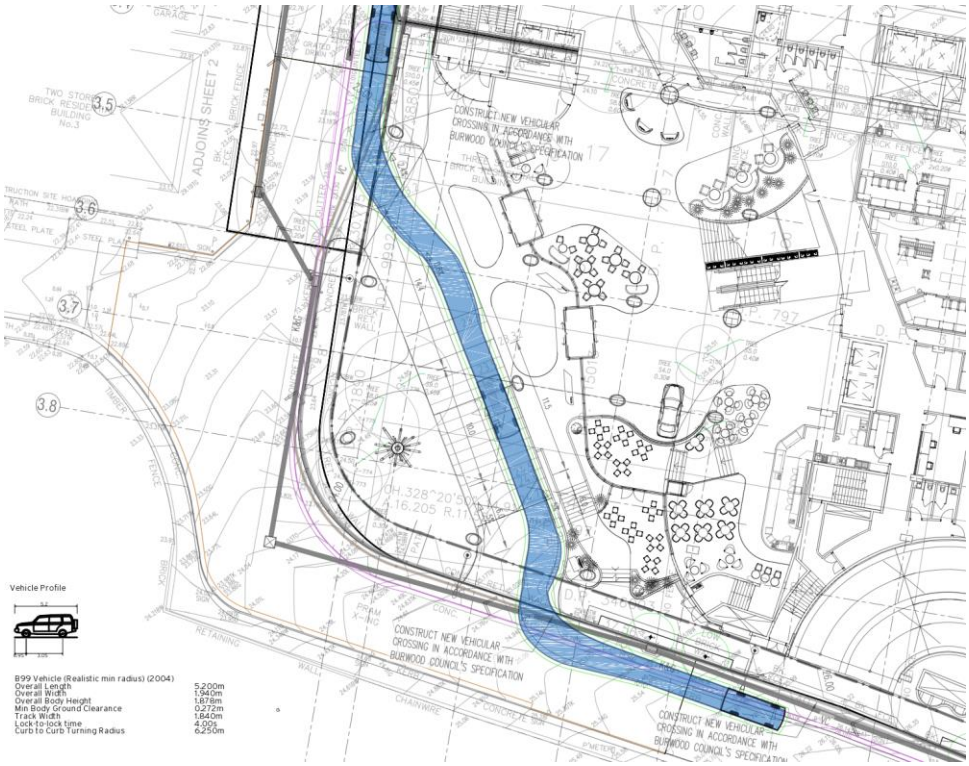


Figure 28 - Swept Path of a B99 Through the Porte Cochere

6.4 Car Park Entry Driveways

As discussed in Section 4.4, the access driveways into the car park are located on Shaftesbury Road and on Deane Street. The driveways have been designed to comply with Category 4 driveway requirements stipulated within the Australian Standards AS2890.1-2004 Section 3.2.1. The access driveway width for both driveways is 8 metres, inclusive of a 600mm median separating the entry and exit lanes. Figure 29 and Figure 30illustrates the swept paths of a B99 vehicle entering and exiting through the driveways.

Figure 29 - Car Park Entry and Exit on Deane Street

Figure 30 - Car Park Entry and Exit on Shaftesbury Road

6.5 Loading Dock

The loading dock that serves the development is located on the Ground Level and is accessed off a driveway located on Marmaduke Street. This access is illustrated in Figure 18 within Section 4.4.1. The loading dock layout has been designed to accommodate up to two heavy rigid vehicles (HRV), one medium rigid vehicle (MRV) and a collection hardstand for a 10.7m long compactor waste vehicle.

The management of the loading dock will under the supervision of the club, being the single user, which is beneficial compared to a shared dock situation (most mixed-use developments). This means that vehicles can be booked in to prevent any queuing on Marmaduke Street. It is noted that the access aisle leading to the dock can act as a holding area if required. Typically, a Loading Dock Management Plan is required as a condition of the consent, for preparation prior to the occupation Certificate.

A series of swept path analyses demonstrates the movements within the loading dock and is shown within the following figures.

Figure 31 - HRV Entry and Exit Paths from HRV Bay 1

Figure 32 - HRV Entry and Exit Paths from HRV Bay 2

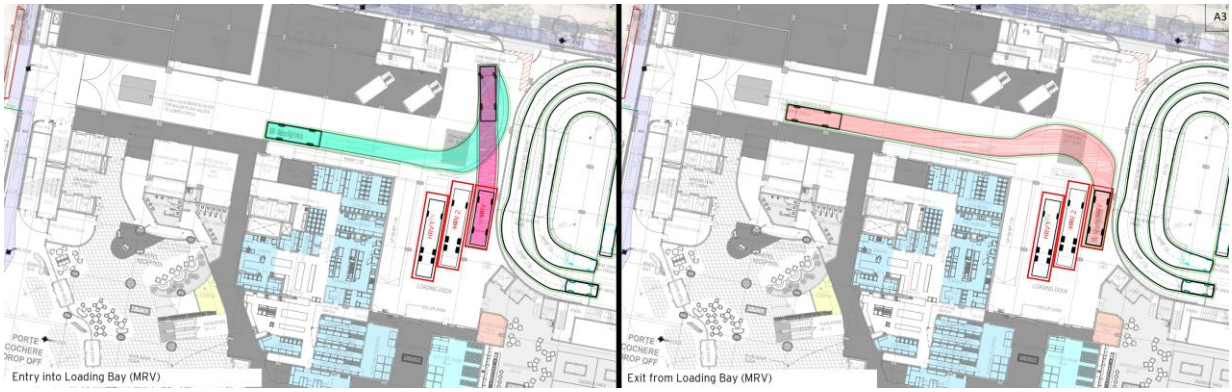


Figure 33 - MRV Entry and Exit Paths from MRV Bay

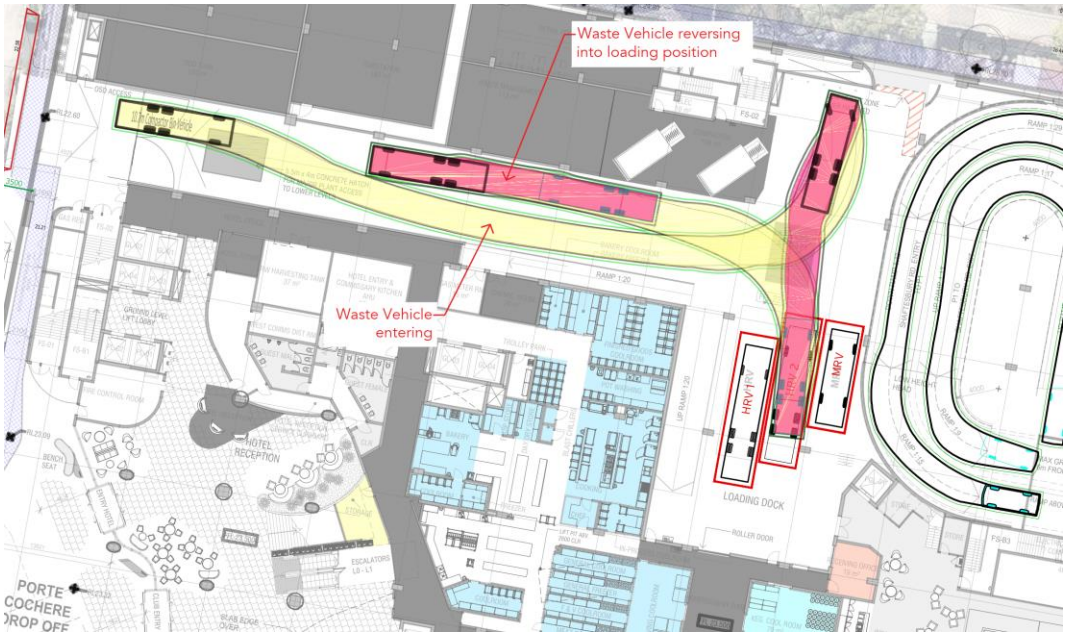


Figure 34 - Compactor Waste Vehicle Entry Path

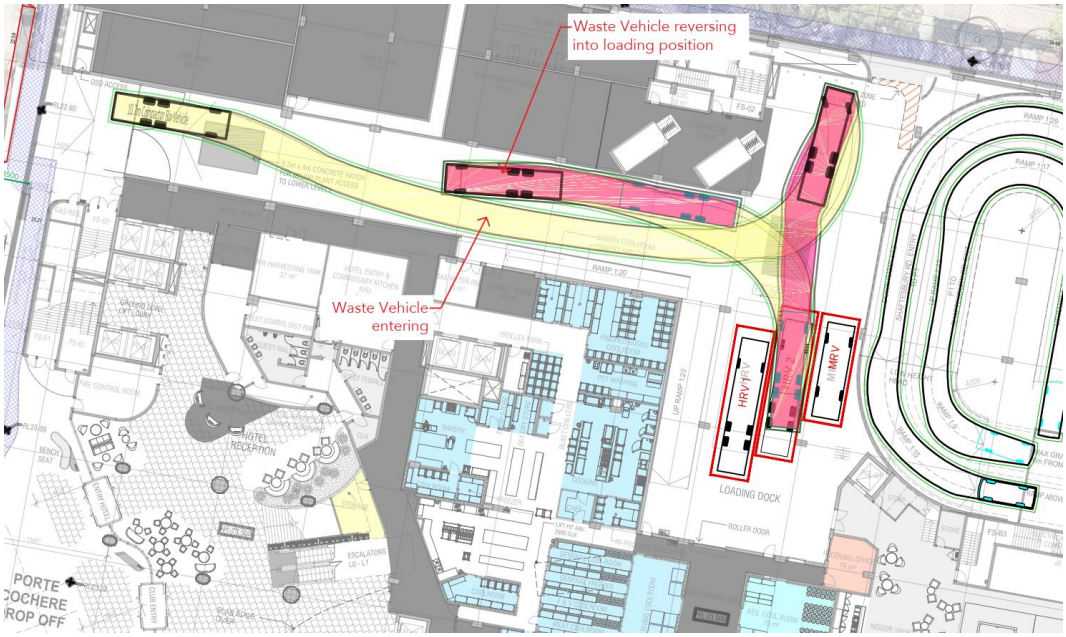


Figure 35 - Compactor Waste Vehicle Entry Path

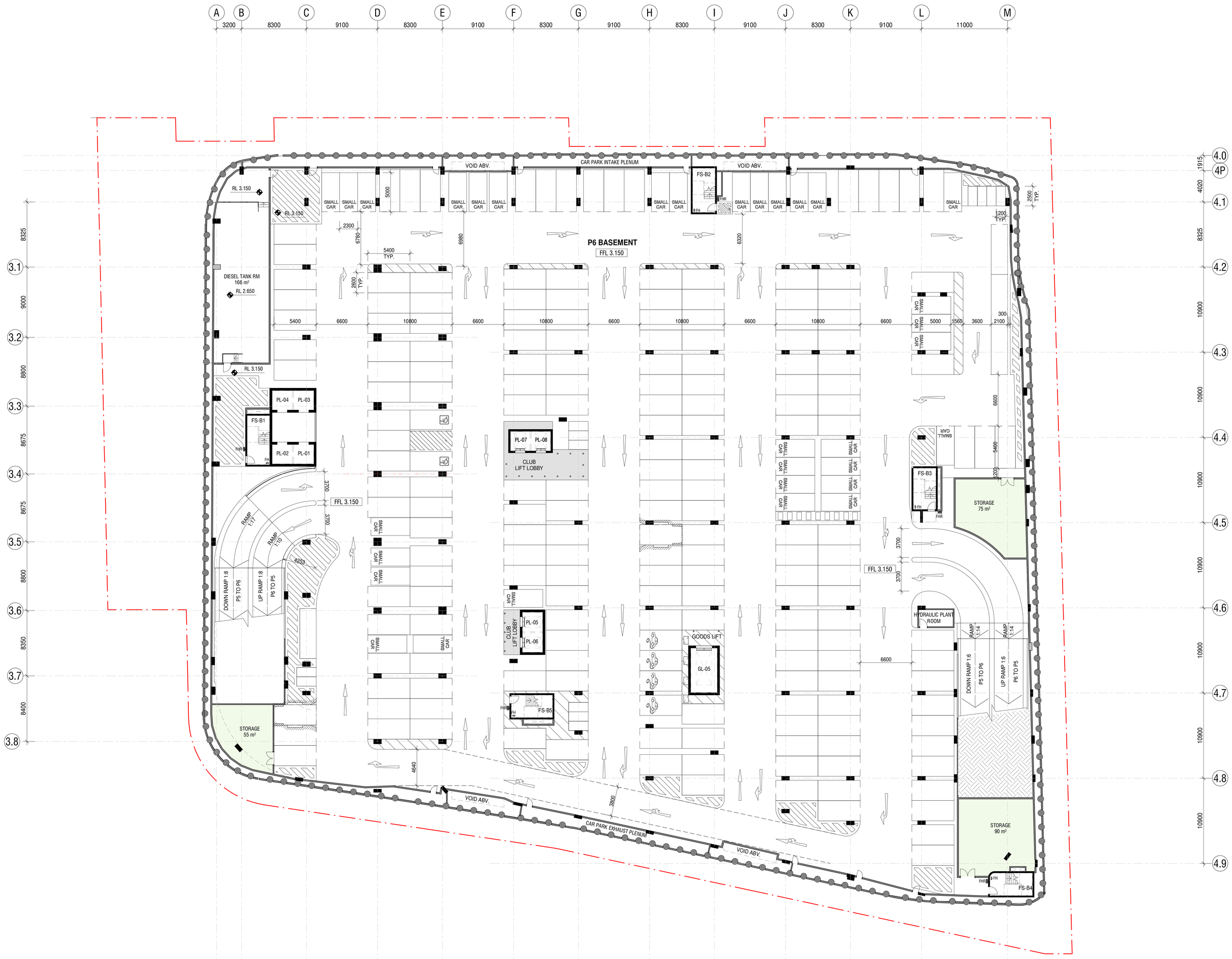
The waste room accommodates two compactors, each collected and hoisted sideways onto a collection truck. The swept paths shown in Figure 34 and Figure 35 demonstrate the spatial requirements for the waste truck to be able to manoeuvre and collect the compactor bins from the waste room. It is noted that HRV Bay 2 needs to be vacant for the waste truck to be able to manoeuvre and park on the hardstand adjacent to the waste room. This can be managed operationally by the loading dock manager by coordinating and scheduling the deliveries and waste collection.

7. Conclusion

This report has assessed the proposed parking provision, traffic impacts relating to an amending concept application for the proposed Club Burwood development. The assessment presented in this report has concluded that:

- The proposed development will result in 414 vehicular trips during the peak periods. The road network will be capable of accommodating these movements along with anticipated background growth following the introduction of road improvements included as part of the Development Application,
- The parking provision has been assessed based on recently collected data from a club of a similar scale and demonstrated that the proposed parking provision will be adequate to support the demands associated with the development,
- The proposed access arrangements have been determined to provide flexible entry and exit routes for patrons while limiting impacts on the surrounding road network,
- The proposal includes a Porte Cochere within the primary frontage to accommodate drop-off and pick-up of patrons with vehicles up to a 14.5-metre-long coach,
- The loading arrangements will be accessed via a dedicated access in isolation to all internal patron vehicle movements.

Attachment 1- Architectural Drawings



250 CAR SPACES (APPROX.)

	STANDARD	ACCESSIBLE
P1 =	168	4
P2 =	189	5
P3 =	217	4
P4 =	217	4
P5 =	217	4
P6 =	219	2
TOTAL	1227	23

Rev.	Date	Description	Iss.	Appr.
1	14-08-2020	ISSUED FOR DA INFORMATION	GY	AP
2	02-09-2020	ISSUDE FOR DA INFORMATION	GY	AP

File

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CLUB BURWOOD
2 GEORGE ST, BURWOOD, NSW

Project Number
216007

Status
INFORMATION

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Date Issued 02-09-2020
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P6-P3 - BASEMENT CARPARK

Drawing Number
A-ICS-1002

Revision
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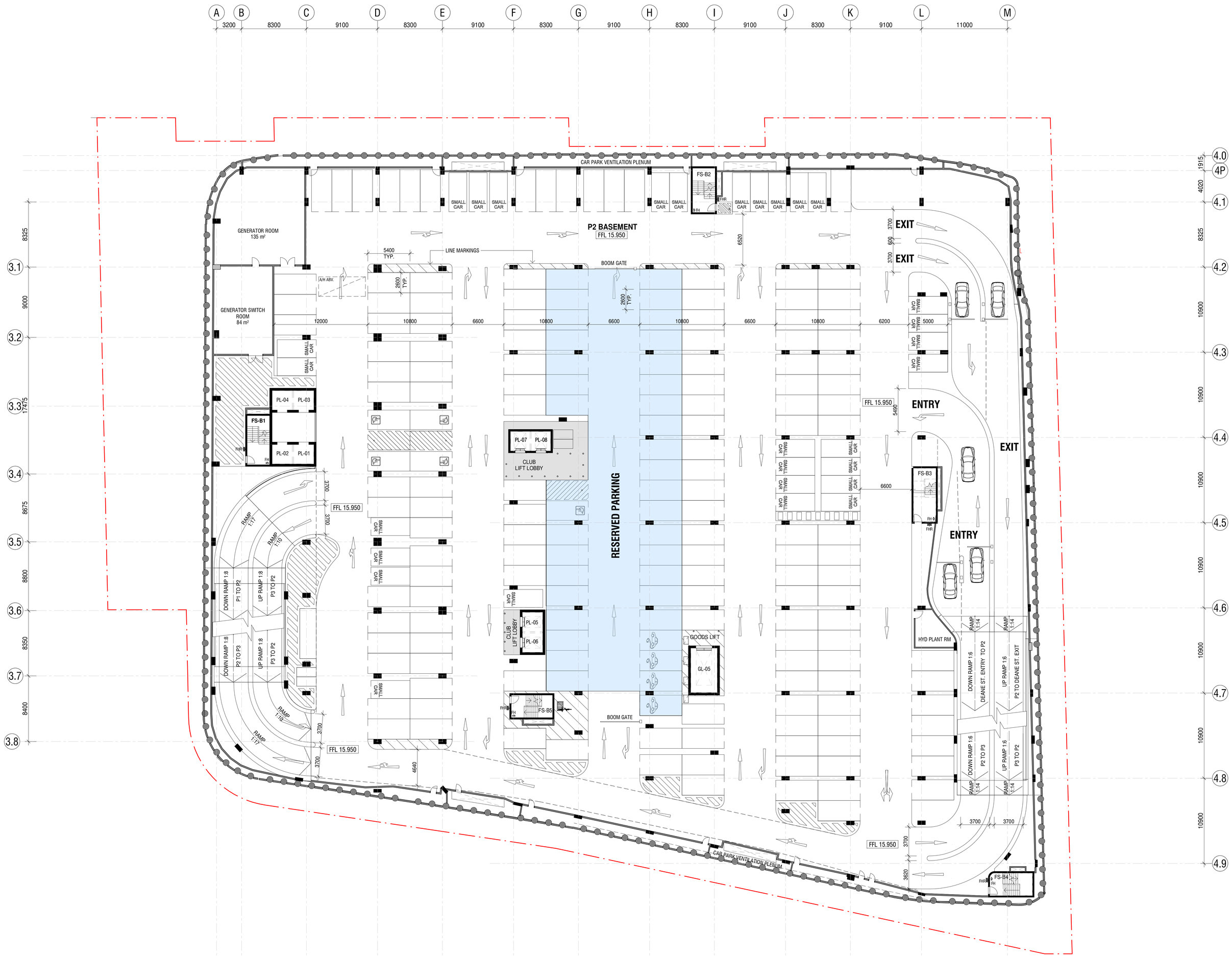

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Drawing Number
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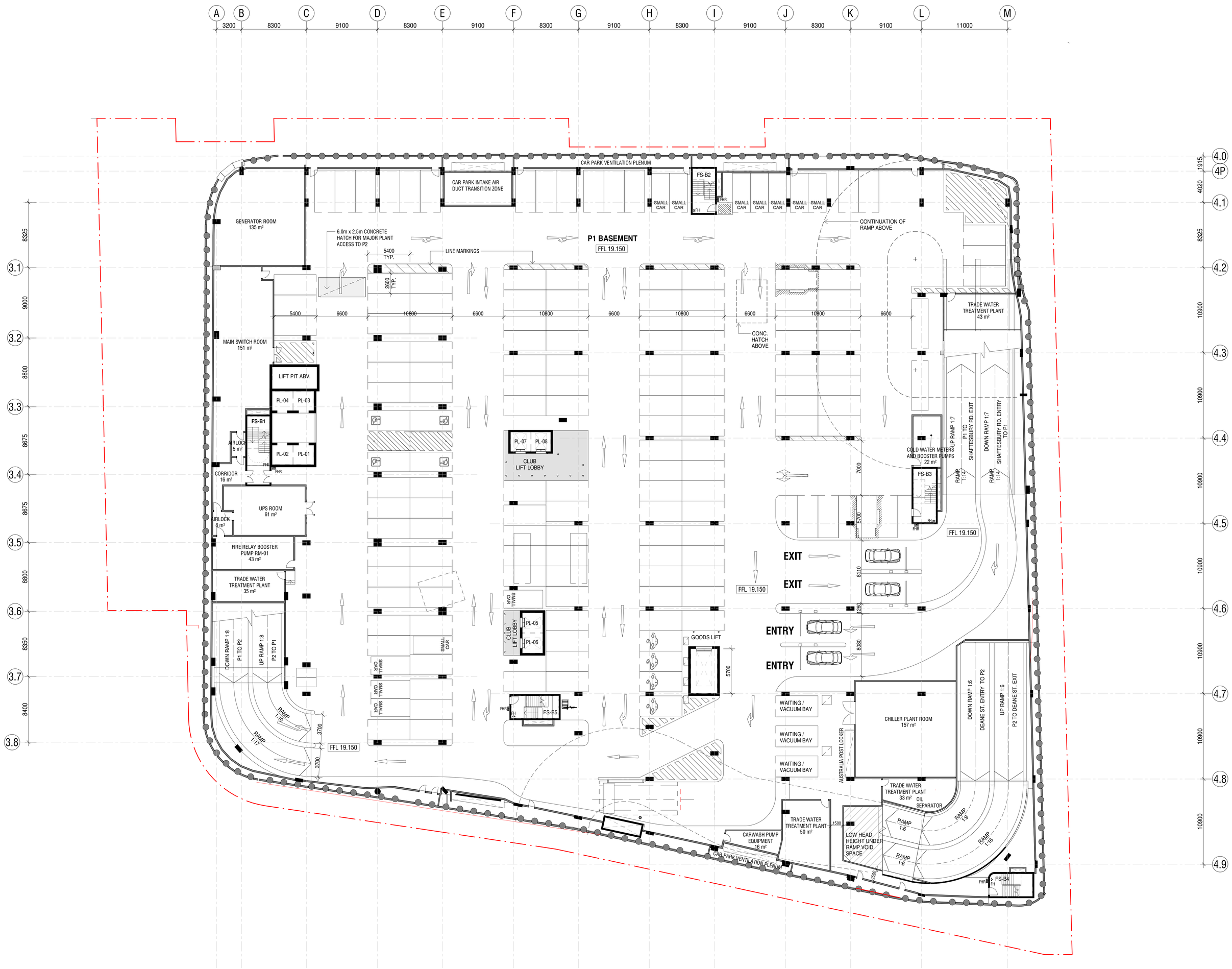

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P3 =	217	4
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P5 =	217	4
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TOTAL	1227	23

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Drawing Title
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P1 - BASEMENT CARPARK

Drawing Number
A-ICS-1007

Revision
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Drawing Number
A-ICS-1008

Revision
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Nominated Architect: Anthony Palamara NSW ARN 7274

File

Project
CLUB BURWOOD
2 GEORGE ST, BURWOOD, NSW

Project Number
216007

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INFORMATION

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Date Issued 02-09-2020

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Drawing Title
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L01 - CLUB PRECINCT

Drawing Number
A-ICS-1009

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