

# 18-34 John Street, Lidcombe

Dooleys Lidcombe Catholic Club Phase 1 Club Expansion  
Transport Impact Assessment



Prepared by: GTA Consultants (NSW) Pty Ltd for Dooleys Lidcombe Catholic Club  
on 1/06/20  
Reference: N128983  
Issue #: B



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## Dooleys Lidcombe Catholic Club Phase 1 Club Expansion Transport Impact Assessment

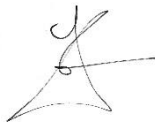
Client: Dooleys Lidcombe Catholic Club

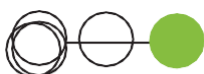
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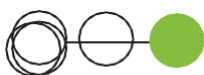
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18-34 John Street, Lidcombe, Dooleys Lidcombe Catholic Club Phase 1 Club Expansion

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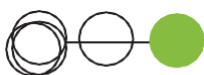
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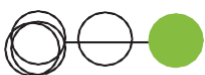
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# 1. INTRODUCTION

01



## 1.1. Background

GTA Consultants (GTA) has been engaged by Dooleys Lidcombe Catholic Club to assist with development planning in association with their existing Lidcombe asset. Planning for the asset includes a long-term strategy around the sites staged re-development. Plans are currently being prepared for the proposal as part of an overall Master Plan. Delivery of the overall Master Plan is proposed over stages or phases and subject to the adoption of the draft Cumberland Council Local Environment Plan.

This report supports a Development Application (DA) for the proposed initial phase (Phase 1) of development. Phase 1 includes the extension and expansion of the existing Club, including extension of the existing basement car park from 60 to 111 car spaces, within its existing land holdings bounded by Olympic Drive, Church Street, John Street and Board Street in the Lidcombe Town Centre.

The following transport impact assessment report sets out a review of the transport impacts associated with Phase 1 of the project. It is noted that that future stages of the Masterplan will be subject to separate development applications and do not form part of this assessment.

## 1.2. Purpose of this Report

This report sets out an assessment of the anticipated transport implications of the proposed development, including consideration of:

1. the existing traffic and parking conditions surrounding the site
2. the adequacy of existing public transport services
3. the suitability of the proposed car parking in terms of supply (quantum)
4. the traffic generating characteristics of the proposed development
5. the suitability of the proposed access arrangements for the proposed development
6. the transport impact of the development proposal on the surrounding road network, including potential mitigation measures which may need to be completed to offset these traffic impacts.

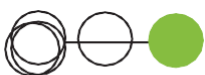
## 1.3. References

In preparing this report, reference has been made to the following:

- Auburn Council Development Control Plan (DCP) 2010
- plans prepared for the proposed development by PTW Architects including plans updated with revised floor area GFA calculations required by Council
- traffic surveys undertaken by Matrix as referenced in the context of this report
- numerous inspections of the site and its surrounds carried out by GTA staff during multiple weekday AM, PM and Saturday midday road network peak hours
- Deferral of Determination – Development Application DA2019/0467, William Attard, Cumberland City Council, dated 23 April 2020
- other documents and data as referenced in this report.

## 2. SITE CONTEXT

02



## 2.1. Overview

### 2.1.1. Dooleys Lidcombe Catholic Club

Dooleys Lidcombe Catholic Club is located within Lidcombe Town Centre. The existing club has a floor area of 5,937m<sup>2</sup> (excluding back of house and circulation areas, and a separate gymnasium of 1,414m<sup>2</sup>) and comprises a number of land use sub-components as summarised in Table 2.1.

**Table 2.1: Existing Club Land Uses/Floor Areas**

| Description            | Area [1]                  |
|------------------------|---------------------------|
| Gaming                 | 1,335m <sup>2</sup>       |
| <b>Members Areas</b>   | 875m <sup>2</sup>         |
| Food & Beverage        | 1,443m <sup>2</sup>       |
| Function               | 776m <sup>2</sup>         |
| Staff & Administration | 1,356m <sup>2</sup>       |
| Amenities              | 152m <sup>2</sup>         |
| <b>Sub-total</b>       | <b>5,937m<sup>2</sup></b> |
| Gymnasium              | 1,414m <sup>2</sup>       |
| <b>Total</b>           | <b>7,350m<sup>2</sup></b> |

[1] Excludes back of house and circulation areas, as well as the 261m<sup>2</sup> of John Street retail land uses

Planning for the asset includes a long-term strategy foreshadowing the sites complete re-development. Plans are currently being prepared for the development as part of an overall Master Plan with those plans considering a staged delivery of built form and land use.

### 2.1.2. Master Plan Vision

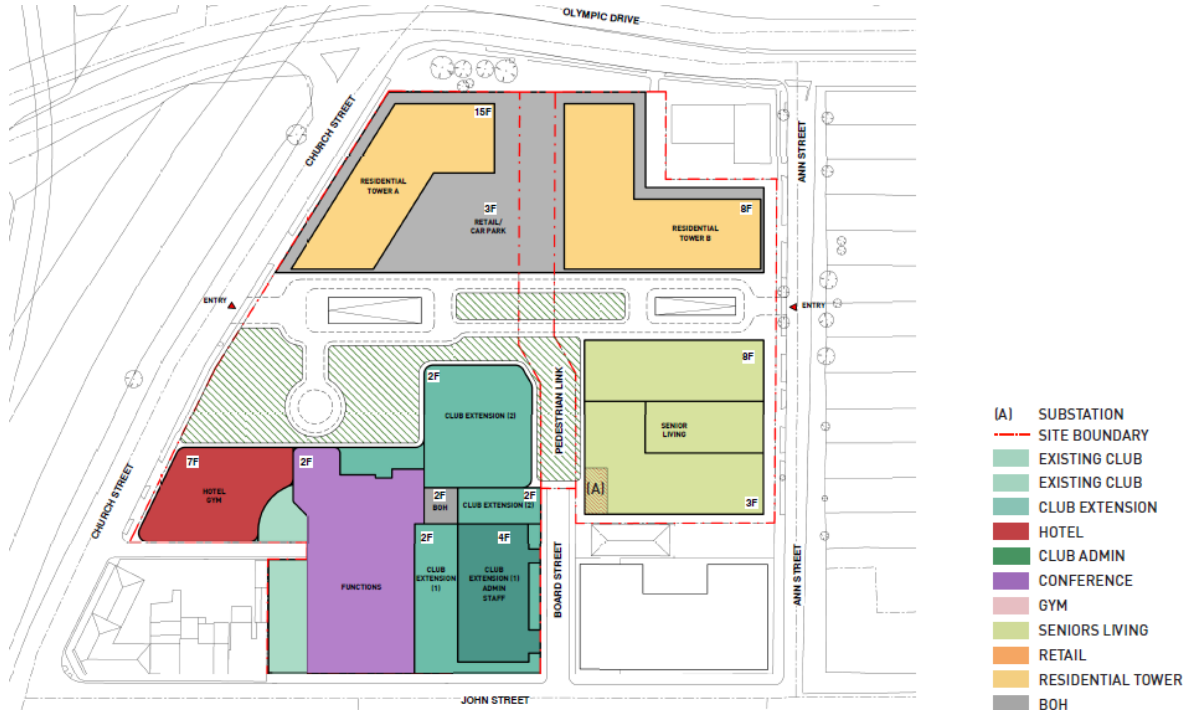
#### Land Uses

The ultimate Master Plan involves redevelopment of the broader site and other land holdings owned by Dooleys between Board Street and Ann Street to the north. The land uses that make up the ultimate scheme are as follows noting that the Master Plan is indicative only and subject to ongoing review and refinement:

- club (including club administration and function / conference)
- gymnasium
- hotel
- retail/ commercial
- residential
- senior living.

The Master Plan is illustrated at Figure 2.1.

Figure 2.1: Dooleys Masterplan (Indicative Only) – Phasing shown in Parenthesis



Source: PTW Architects

## Board Street Role & Function (Phase 1 and under Master Plan)

Currently and following Phase 1 of the development, pedestrian access will occur via the John Street and Church Street frontages. Board Street on the other hand will support a tertiary role with pedestrian access limited to emergencies. This role will not change until after Phase 1 when additional land uses are delivered on the subject land and a permeable and walkable network of streets and laneway are realised consistent with aspirations set out in the Master Plan shown at Figure 2.1.

Vehicular access under Phase 1 is proposed to occur via John Street using the existing club basement car park vehicle entry. With car parking in the basement increasing from 60 to 111 car parking spaces, the role and function of Board Street is proposed to remain unchanged, that is, it will retain a meaningful *'movement'* function<sup>1</sup>. In this initial phase, no physical changes or modifications are proposed to be made to the cross-sectional make up of Board Street.

Beyond Phase 1 and under the Master Plan, the role and function of Board Street is proposed to be altered to reflect a more balanced approach between *'movement and place'*. Under this guise, a higher emphasis on place is proposed. In support of this more balanced approach, the cross-sectional make-up of Board Street is proposed to be modified to either provide a formal *'shared space'* between pedestrians and motor vehicle drivers or alternatively treat the public realm in a manner which improves pedestrian permeability, movement and mobility. This could include wider footpaths, materiality variations which improve tactility, removal of upright kerbs (levelling) and selective landscape treatments which improve shade and visual interest. This will be subject to future development applications.

<sup>1</sup> In the context of movement versus place planning ideologies.



## 3. EXISTING CONDITIONS

03



## 3.1. Subject Site – Phase 1 Development

The subject site is located in the Lidcombe Town Centre and is generally bound by Olympic Drive, Church Street, John Street and Board Street.

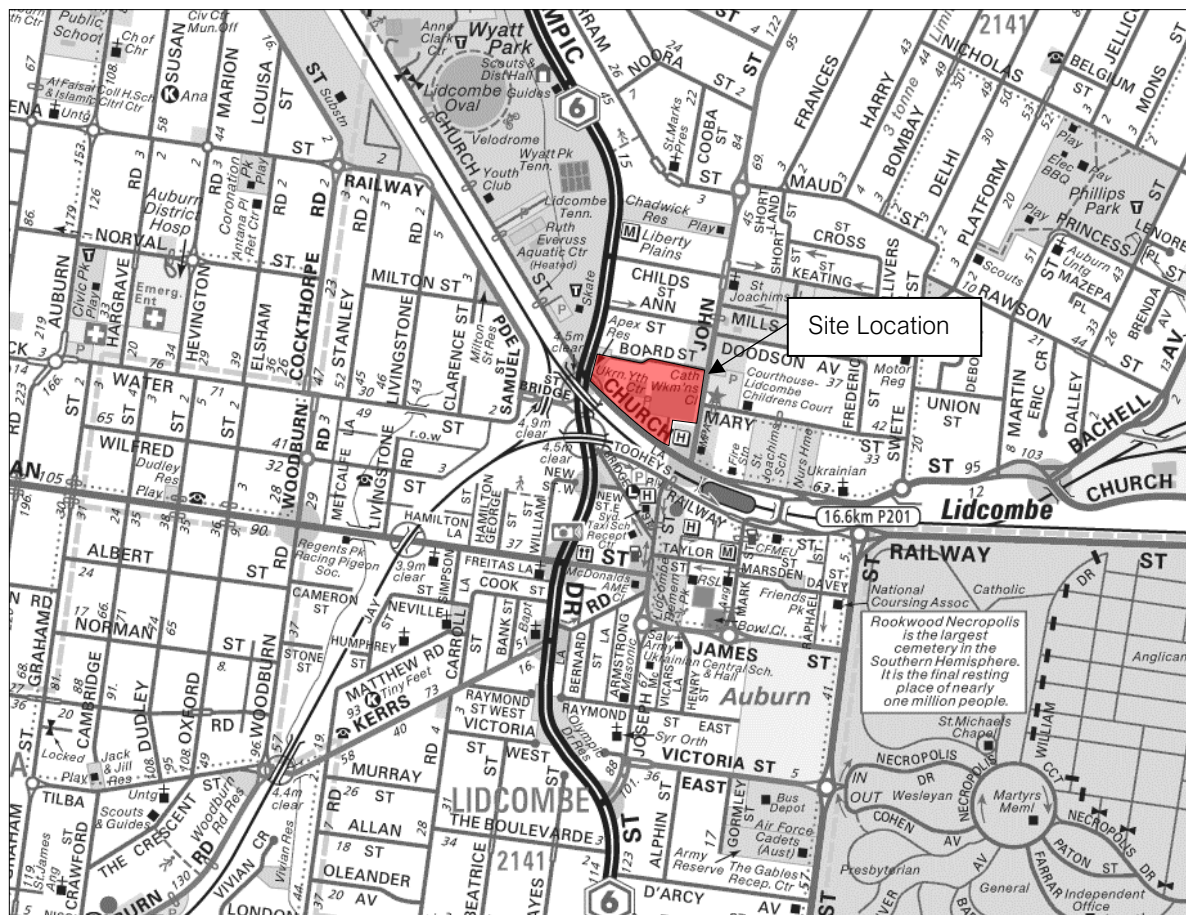
The subject site is currently Zoned B4 – Mixed Use and is occupied predominantly by the existing Dooleys Lidcombe Catholic Club (the 'Club'). Floor areas for the existing Club were summarised at Section 2.1.1 earlier. A total of 519 car spaces are also currently provided on the site, with vehicle access via a single connection to Board Street (for 60 of these car spaces) and three connections to Church Street (for the remainder of car parking).

The surrounding properties are predominantly residential in nature to the north, with commercial/ retail to the east and south (including over the railway line). Other notable land uses in the vicinity of the site include Lidcombe Public School to the east and Wyatt Park, which contains tennis courts, an aquatic centre and sporting fields, to the west.

Lidcombe Railway Station is located to the south-east of the site and is in short walking distance of the subject site.

The location of the subject site (Phase 1) and its surrounding environs is shown at Figure 3.1, with an aerial photo of the site provided at Figure 3.2.

Figure 3.1: Phase 1 Subject Site and Its Environs



Base map Source: Sydway Publishing Pty Ltd

Figure 3.2: Aerial Photo of the Phase 1 Site



Base image source: Nearmap

## 3.2. Road Network

### 3.2.1. Abutting Roads

#### Olympic Drive

Olympic Drive is a classified Roads and Maritime Classified Road (State Road, GG38) and runs along the western boundary of the site.

It is a major north-south link through Lidcombe and beyond and carries high volumes of traffic. Olympic Drive has a 6-lane divided carriageway in the vicinity of the site, and is shown in Figure 3.3 and Figure 3.4.

Figure 3.3: Olympic Drive (looking North)



Figure 3.4: Olympic Drive (looking South)



#### Church Street

Church Street is a classified Roads and Maritime Classified Road (Regional Road, GG38) and runs along the southern boundary of the site.



## EXISTING CONDITIONS

It has a four-lane, two-way carriageway and provides access to the site. Kerbside car parking provided on the north side of the carriageway effectively reduces Church Street to three lanes, noting that indented reverse in only angle car parking is provided on the south side.

Church Street is shown at Figure 3.5 and Figure 3.6.

Figure 3.5: Church Street (looking East)



Figure 3.6: Church Street (looking West)



### John Street

John Street operates as a higher order local road and travels in a north-south direction parallel to Olympic Drive. John Street is a two-way road and runs along the eastern boundary of the site, as shown at Figure 3.7 and Figure 3.8.

Figure 3.7: John Street (looking North)



Figure 3.8: John Street (looking South)



### Board Street

Board Street functions as both a local road (eastern section) and private road (western section) and is generally aligned in an east-west direction parallel to Church Street. The eastern section of Board Street is a two-way public road providing vehicle access into Dooleys basement car park and a residential complex. The road width is approximately 7.5 metres with three kerbside parking spaces on the northern side of the carriageway with 30-minute restrictions (1/2P), between 8.30am and 6pm; Mon-Fri and 8.30am and 12noon; Sat. The western section is temporarily closed off with boom gate/ swipe access. This section of Board Street is a private roadway.

## EXISTING CONDITIONS

Board Street is shown at Figure 3.9 and Figure 3.10.

Figure 3.9: Board Street (looking East)



Figure 3.10: Board Street (looking West)



### Ann Street

Ann Street functions as a local road and runs along the northern boundary of the ultimate Masterplan site.

It is a two-way road and is generally aligned in an east-west direction. It has a road width of 12.7 metres and kerbside parking is permitted on each side which are generally unrestricted except the section near the eastern end which is restricted to 1/2P parking between 8.30am and 6pm on weekdays and 8.30am and 12noon on Saturdays. The western end of the road is closed to vehicles exiting onto Olympic Drive, with only entry from Olympic Drive into Ann Street permitted.

Ann Street is shown in Figure 3.11 and Figure 3.12.

Figure 3.11: Ann Street (looking East)



Figure 3.12: Ann Street (looking West)



### 3.2.2. Surrounding Intersections

The following intersections currently exist in the vicinity of the site:

- Olympic Drive/ Church Street (signalised)
- Church Street/ John Street (signalised)
- Olympic Drive/ Childs Street (priority controlled)
- John Street/ Childs Street (priority controlled)
- John Street/ Ann Street (priority controlled)
- John Street/ Board Street (priority controlled).

### 3.3. Traffic Volumes

#### 3.3.1. Road Network

In October 2019, GTA commissioned traffic movement counts at the intersections of Board Street/ John Street, John Street/ Church Street and John Street/ Ann Street during the following periods:

- Thursday, 24 October 2019: 6:00am to 10:00am
- Thursday, 24 October 2019: 3:00pm to 7:00pm
- Saturday, 26 October 2019: 11:00am to 3:00pm.

The peak hour for traffic demand for the surveyed network as assessed from the traffic counts are as follows:

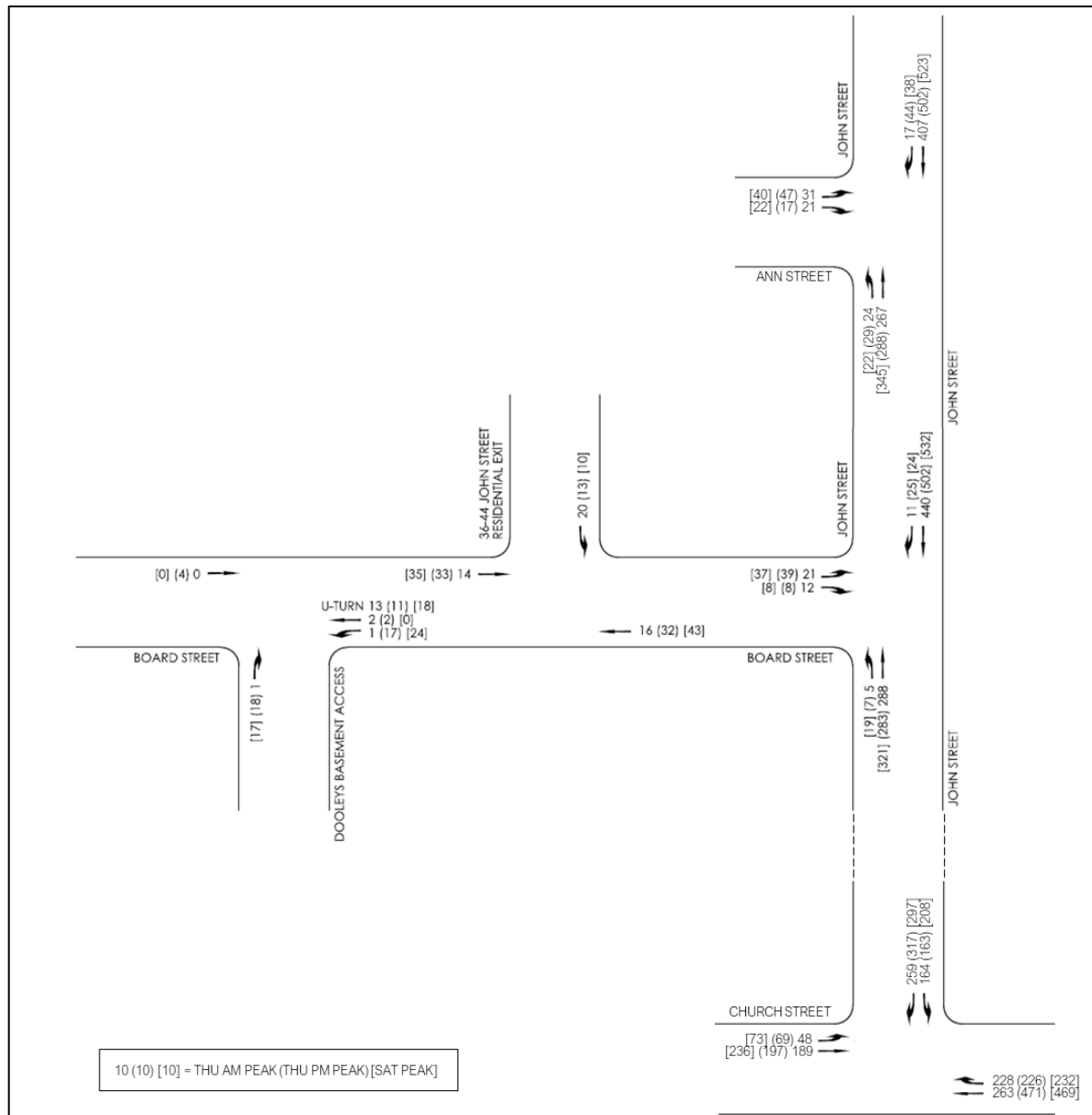
- Weekday AM: 8:15am to 9:15am
- Weekday PM: 4:45pm to 5:45pm
- Saturday: 12:00pm to 1:00pm.

GTA also completed a review of traffic generated by the existing access driveways along Board Street, including the Dooley's basement access and residential egress driveway from the development at 36-44 John Street, for the same peak periods.

The weekday AM and PM and Saturday midday peak hour traffic flows for the key intersections, as well as the existing access driveways on Board Street, are summarised at Figure 3.13. Full survey results are contained at Appendix A.



Figure 3.13: Existing AM (PM) [Sat] Peak Hour Traffic Volumes



The breakdown of traffic generated at each of the Board Street access driveways, as detailed in Figure 3.13, are summarised at Table 3.1.

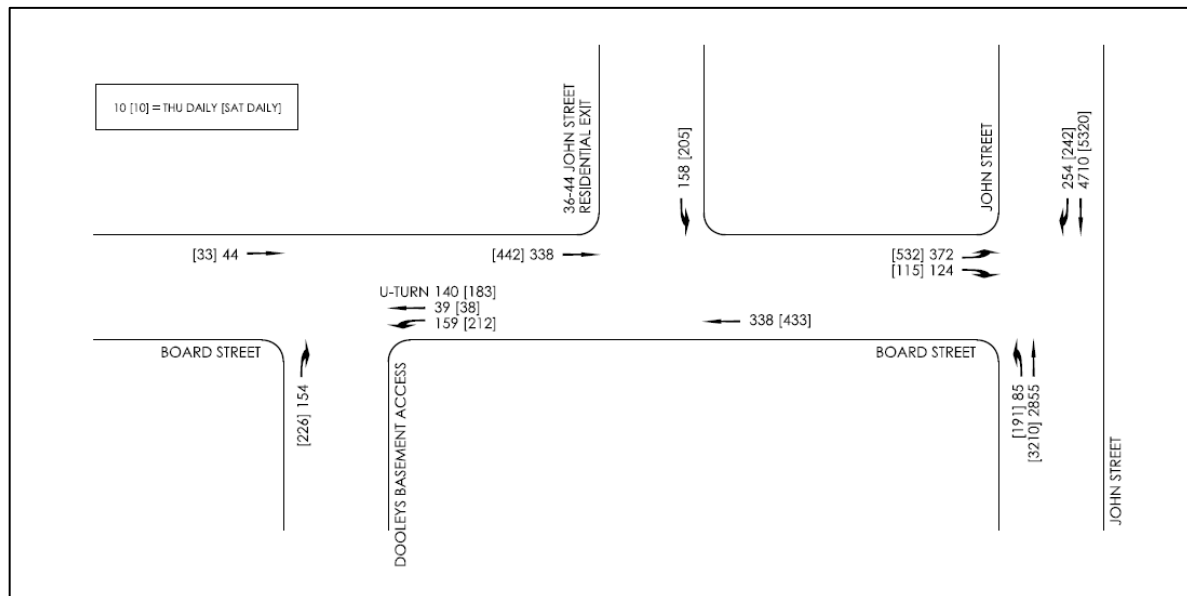
**Table 3.1: Existing Board Street Site Access Peak Hour Traffic Volumes**

| Peak Period    | Club Basement |     |       | 36-44 John Street |     |       |
|----------------|---------------|-----|-------|-------------------|-----|-------|
|                | IN            | OUT | TOTAL | IN                | OUT | TOTAL |
| Weekday AM     | 1             | 1   | 2     | 0                 | 20  | 20    |
| Weekday PM     | 17            | 18  | 35    | 0                 | 13  | 13    |
| Saturday Middy | 24            | 17  | 41    | 0                 | 10  | 10    |

Table 3.1 illustrates that during the weekday AM peak hour, approximately 10 per cent of traffic along Board Street is generated by the club whereas in the weekday PM and Saturday MID peak hours, 60 to 80 per cent of traffic along Board Street is generated by the Club.

The Weekday and Saturday daily traffic demands along Board Street and John Street near Board Street are summarised at Figure 3.14.

**Figure 3.14: Existing Weekday and [Saturday] Daily Traffic Volumes**



## 3.3.2. Existing Loading Dock

GTA completed twenty-four-hour observational surveys at the existing loading dock on the southern side of the Club on Saturday, 19 October, Thursday, 24 October and Friday, 25 October 2019. Vehicles accessing the loading dock were classified into the following standard design vehicle categories:

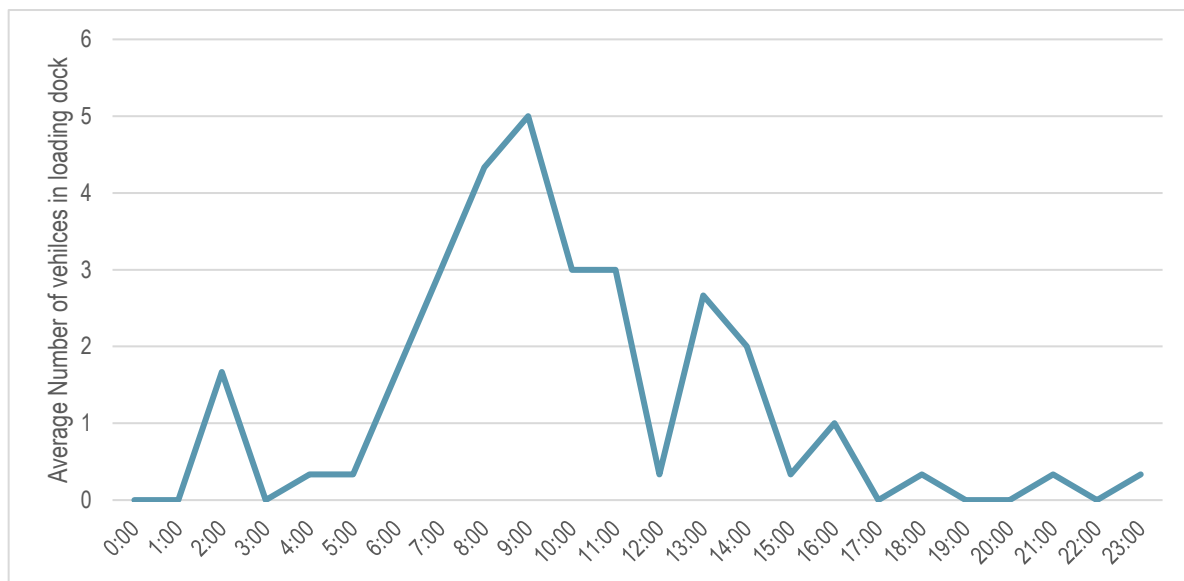
- B99 Car, Van or Ute (5.2-metre-long vehicle that represents 99 percent of the vehicle fleet on Australian roads)
- Small rigid vehicle (SRV, 6.4-metre-long truck)
- Medium rigid vehicle (MRV, 8.8-metre-long truck)
- Heavy rigid vehicle (HRV, 12.5-metre-long truck).



The surveys showed that an average of 30 vehicles accessed the dock per day, with an average vehicle duration of stay within the loading dock of 11 minutes per vehicle. The majority of deliveries to the existing loading dock were completed by B99 light vehicles (47 per cent) or small to medium rigid vehicles (45 per cent), with few heavy rigid vehicle deliveries (eight per cent).

A summary of the arrival time and demand for vehicles within the existing loading dock across a 24-hour period is illustrated at Figure 3.15. As shown, peak arrival activity for the loading dock occurs between 6am and 2pm. From survey, it was observed that the peak arrivals in any hour were seven vehicles between the hours of 9:00am and 10:00am on the Friday. This equates to approximately one vehicle every eight to nine minutes.

**Figure 3.15: Existing Loading Dock Usage – Vehicle Demand & Arrival Time Summary**



The breakdown of traffic generated by the loading dock during the peak periods previously identified are summarised at Table 3.2.

**Table 3.2: Existing Loading Dock Peak Hour Traffic Volumes**

| Peak Period    | Period            | Club Basement |     |       |
|----------------|-------------------|---------------|-----|-------|
|                |                   | IN            | OUT | TOTAL |
| Weekday AM     | 8:15am to 9:15am  | 4             | 4   | 8     |
| Weekday PM     | 4:45pm to 5:45pm  | 0             | 0   | 0     |
| Saturday Middy | 12:00pm to 1:00pm | 0             | 1   | 1     |

## 3.4. Intersection Operation

The operation of the key intersections within the study area have been assessed using SIDRA INTERSECTION<sup>2</sup>, a computer-based modelling package which calculates intersection performance.

<sup>2</sup> Program used under license from Akcelik & Associates Pty Ltd.

The commonly used measure of intersection performance, as defined by the Roads and Maritime, is vehicle delay. SIDRA INTERSECTION determines the average delay that vehicles encounter and provides a measure of the level of service.

Table 3.3 shows the criteria that SIDRA INTERSECTION adopts in assessing the level of service.

**Table 3.3: SIDRA INTERSECTION Level of Service Criteria**

| Level of Service (LOS) | Average Delay per vehicle (secs/veh) | Traffic Signals, Roundabout                                   | Give Way & Stop Sign                      |
|------------------------|--------------------------------------|---------------------------------------------------------------|-------------------------------------------|
| A                      | Less than 14                         | Good operation                                                | Good operation                            |
| B                      | 15 to 28                             | Good with acceptable delays and spare capacity                | Acceptable delays and spare capacity      |
| C                      | 29 to 42                             | Satisfactory                                                  | Satisfactory, but accident study required |
| D                      | 43 to 56                             | Near capacity                                                 | Near capacity, accident study required    |
| E                      | 57 to 70                             | At capacity, at signals incidents will cause excessive delays | At capacity, requires other control mode  |
| F                      | Greater than 70                      | Extra capacity required                                       | Extreme delay, major treatment required   |

SCATS signal information has been obtained from Transport for NSW (Roads and Maritime) to assist with coding the signalised intersection. The phase time data was used to obtain the average peak period cycle times and phase times. Pedestrian counts were also collected at the key intersections within the study area on the same day for each peak. Based on survey results and site observation, significant pedestrian activities occurred along Church Street in the vicinity of Lidcombe railway station. This has been reflected in the model. Furthermore, a site visit was conducted on the same day as the traffic surveys. The purpose of this site visit was to understand the key congestion areas and carry out spot checks on queuing, general traffic movements, driver behaviour and pedestrian movements and vehicle-pedestrian interaction in order to calibrate the model.

Accordingly, Table 3.4 presents a summary of the existing operation of the key intersections, with full results presented at Appendix B of this report.

**Table 3.4: Existing Intersection Operation**

| Intersection               | Peak | Leg            | Degree of Saturation (DOS) | Average Delay (sec) | Average Queue (m) | Level of Service (LOS) |
|----------------------------|------|----------------|----------------------------|---------------------|-------------------|------------------------|
| John Street/ Church Street | AM   | East           | 0.64                       | 24                  | 37                | B                      |
|                            |      | North          | 0.71                       | 25                  | 41                | B                      |
|                            |      | West           | 0.35                       | 28                  | 21                | B                      |
|                            |      | <b>Overall</b> | <b>0.71</b>                | <b>25</b>           | <b>41</b>         | <b>B</b>               |
|                            | PM   | East           | 0.53                       | 22                  | 65                | B                      |
|                            |      | North          | 0.91                       | 41                  | 75                | C                      |
|                            |      | West           | 0.37                       | 30                  | 24                | C                      |
|                            |      | <b>Overall</b> | <b>0.91</b>                | <b>30</b>           | <b>75</b>         | <b>C</b>               |

| Intersection                            | Peak | Leg            | Degree of Saturation (DOS) | Average Delay (sec) | Average Queue (m) | Level of Service (LOS) |
|-----------------------------------------|------|----------------|----------------------------|---------------------|-------------------|------------------------|
|                                         | SAT  | East           | 0.58                       | 22                  | 60                | B                      |
|                                         |      | North          | 0.95                       | 42                  | 71                | C                      |
|                                         |      | West           | 0.48                       | 30                  | 26                | C                      |
|                                         |      | <b>Overall</b> | <b>0.95</b>                | <b>30</b>           | <b>71</b>         | <b>C</b>               |
| John Street/ Board Street               | AM   | South          | 0.16                       | 5                   | 0                 | A                      |
|                                         |      | North          | 0.25                       | 6                   | 0                 | A                      |
|                                         |      | West           | 0.04                       | 9                   | 0                 | A                      |
|                                         | PM   | South          | 0.16                       | 5                   | 0                 | A                      |
|                                         |      | North          | 0.29                       | 6                   | 1                 | A                      |
|                                         |      | West           | 0.05                       | 9                   | 1                 | A                      |
|                                         | SAT  | South          | 0.19                       | 5                   | 0                 | A                      |
|                                         |      | North          | 0.31                       | 6                   | 1                 | A                      |
|                                         |      | West           | 0.05                       | 10                  | 1                 | A                      |
|                                         |      |                |                            |                     |                   |                        |
| John Street/ Ann Street/ Doodson Avenue | AM   | South          | 0.18                       | 6                   | 1                 | A                      |
|                                         |      | East           | 0.08                       | 11                  | 1                 | A                      |
|                                         |      | North          | 0.27                       | 5                   | 1                 | A                      |
|                                         |      | West           | 0.09                       | 10                  | 1                 | A                      |
|                                         | PM   | South          | 0.18                       | 7                   | 0                 | A                      |
|                                         |      | East           | 0.07                       | 13                  | 1                 | A                      |
|                                         |      | North          | 0.33                       | 5                   | 2                 | A                      |
|                                         |      | West           | 0.09                       | 12                  | 1                 | A                      |
|                                         | SAT  | South          | 0.21                       | 7                   | 1                 | A                      |
|                                         |      | East           | 0.08                       | 17                  | 1                 | A                      |
|                                         |      | North          | 0.34                       | 6                   | 2                 | A                      |
|                                         |      | West           | 0.11                       | 14                  | 1                 | A                      |

Table 3.4 indicates that the intersections currently operate satisfactorily, with reasonable queuing and delays in all road network peak hours.

### 3.5. Car Parking

#### 3.5.1. Supply

##### On-site Car Parking

A total of approximately 519 car parking spaces are currently provided on the site, including:

- 60 basement car spaces (accessed off Board Street),
- 202 multi-level car spaces (accessed via Church Street),
- 257 ground level car spaces (accessed via Church Street).

This car parking is provided for members and guests of the Club, as well as associated staff members.

##### On-street Car Parking

On-street car parking is also provided along a number of the site's frontages, including:

- 20 parallel car spaces on the northern side of Church Street along the site's frontage,
- 22 parallel car spaces on the western side of John Street between Church Street and Board Street
- 28 angled (reverse in) car spaces along the southern side of Church Street opposite the site.

#### 3.5.2. Demand

##### October 2011 Surveys

On Friday 28 and Saturday 29 October 2011, comprehensive car parking demand surveys of the on-site car parking supply were undertaken as part of a previous Development Application for the Club. It is noted that at this time, a total of 533 on-site car spaces were recorded; compared to 519 car spaces as recently recorded.

The peak demands recorded during the evening are summarised as follows:

- On the Friday, a peak demand of 382 car spaces at 7:00pm
- On the Saturday, a peak demand of 418 car spaces at 9:00pm.

Day-time demands (as measured at 5pm) were generally equal to less than 50 per cent of the available car parking supply, at 270 car spaces (51 per cent) on the Friday and 213 car spaces (40 per cent) on the Saturday.

##### October 2015 Surveys

On Saturday, 3 October 2015, GTA undertook spot counts of the on-site car parking; recording a peak car parking demand of 420 car spaces at 9:00pm, as summarised at Table 3.5.

It is noted that this demand is almost identical to the peak demand recorded in 2011 on the same day of week and time of day, suggesting that the car parking demands on "*regular*" evenings do not exceed the on-site car parking provision.

Table 3.5: On-site Car Parking Demands – October 2015

| Car Park                    | Supply     | Occupancy       |            |                 |            |                 |            |
|-----------------------------|------------|-----------------|------------|-----------------|------------|-----------------|------------|
|                             |            | Thursday 7:00pm |            | Thursday 8:00pm |            | Thursday 9:00pm |            |
| Main at Grade Car Park East | 27         | 23              |            | 26              |            | 24              |            |
| Main at Grade Car Park West | 230        | 189             |            | 201             |            | 225             |            |
| Multi-Storey Car Park       | 202        | 101             |            | 115             |            | 129             |            |
| Basement Car Park           | 60         | 40              |            | 39              |            | 42              |            |
| <b>Total</b>                | <b>519</b> | <b>353</b>      | <b>68%</b> | <b>381</b>      | <b>73%</b> | <b>420</b>      | <b>81%</b> |

### October 2019 Surveys

On Thursday 24 October and Saturday 26 October 2019, GTA undertook spot counts of the on-site car park, recording a peak car parking demand of 317 car spaces at 6:30pm on a Thursday and 375 car spaces at 2:00pm on a Saturday, as summarised at Table 3.6.

Table 3.6: On-site Car Parking Demands – October 2019

| Car Park                    | Supply | Occupancy           |     |                    |     |                    |     |                    |     |
|-----------------------------|--------|---------------------|-----|--------------------|-----|--------------------|-----|--------------------|-----|
|                             |        | Thursday<br>10:00am |     | Thursday<br>4:00pm |     | Thursday<br>6:30pm |     | Saturday<br>2:00pm |     |
| Main at Grade Car Park East | 27     | 17                  |     | 21                 |     | 24                 |     | 25                 |     |
| Main at Grade Car Park West | 230    | 57                  |     | 108                |     | 166                |     | 162                |     |
| Multi-Storey Car Park       | 202    | 76                  |     | 91                 |     | 87                 |     | 141                |     |
| Basement Car Park           | 60     | 5                   |     | 43                 |     | 40                 |     | 47                 |     |
| Total                       | 519    | 155                 | 30% | 263                | 51% | 317                | 61% | 375                | 72% |

### Other Surveys

Additional car parking data was also provided by the Club in the form of car parking occupancy surveys of the existing at-grade and multi-level car parks at half hourly intervals, extensively collected for the period between September 2013 and May 2016.

For all Saturdays within the survey period (131 Saturdays), the data revealed the following:

- A minimum peak on-site car parking demand of 357 car spaces
- An average peak on-site car parking demand of 486 car spaces
- A maximum peak on-site car parking demand of 519 car spaces (100 per cent occupied), which occurred on 43 per cent of all days.



## 3.6. Sustainable Transport

### 3.6.1. Public Transport

Lidcombe Railway Station, which is located to the immediate south-east of the site has excellent services and connectivity within the Sydney Trains Network. Trains operate at less than 5-minute intervals to/ from the Station during peak times, providing connections to areas throughout Sydney.

Several bus services (401, 915, 925 and M92) are also located within 5 minutes' walk of the site. Bus services between the site and Sydney Olympic Park operate every 20 minutes during peak times and Sutherland and Parramatta every 10-30 minutes during peak times.

### 3.6.2. Cycling

Twelve bicycle spaces are currently provided on site, eight within the multi-storey car park and four adjacent to the gym entrance, as respectively shown in Figure 3.16 and Figure 3.17.

Figure 3.16: Bicycle Racks (Multi-Storey Car Park)

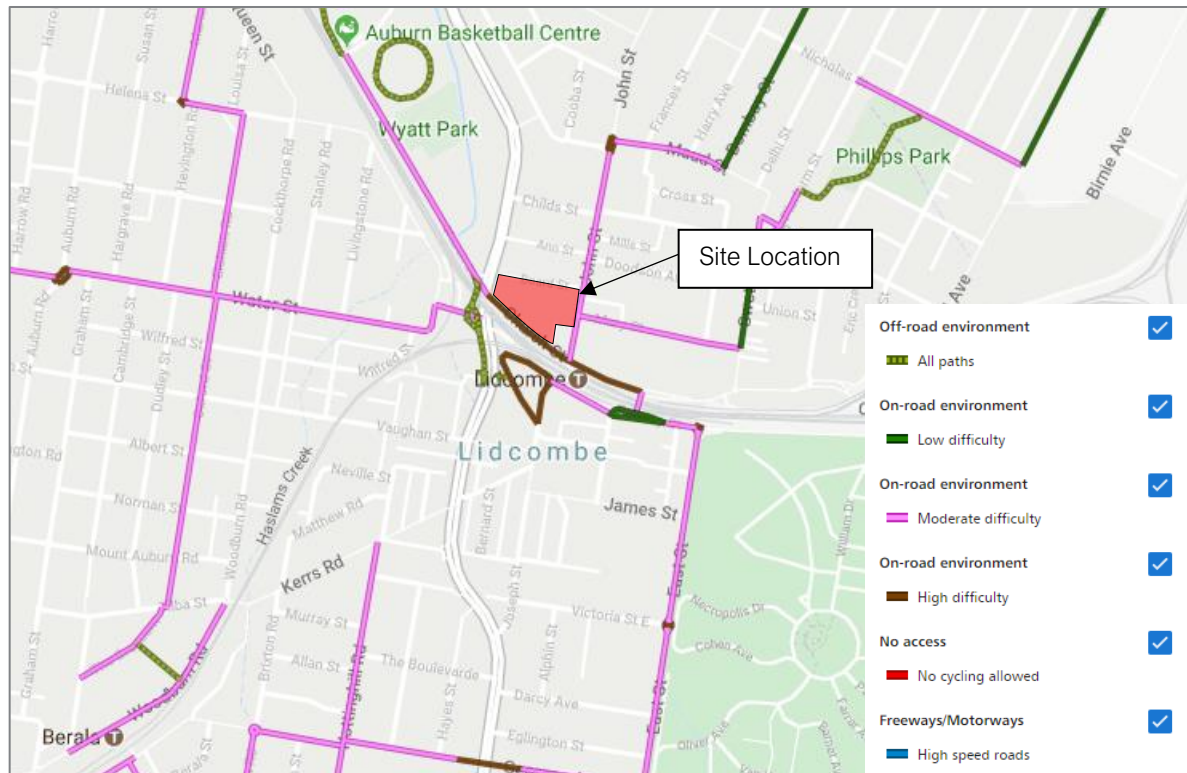


Figure 3.17: Bicycle Racks (Gym Entrance)



Several cycle routes are available in the immediate vicinity of the site. A dedicated on-road cycle route is located along Church Street providing convenient connection between the site and the surrounding areas (Figure 3.18).

Figure 3.18: Cycle Route Map



Source: RMS Cycleway Finder

## 3.6.3. Walking

Footpaths are provided on both sides of Church Street, Board Street and John Street along the southern, centre and eastern sides of the site respectively. At the intersection between Church Street and Olympic Drive, signalised pedestrian crossings are available on three approaches. Signalised pedestrian crossings are also available at the intersection between Church Street and Board Street on the eastern side of the site.

## 3.7. Crash Statistics

A review of available crash data has been completed for the last five years for the following three key intersections and locations where margin traffic impacts will be greatest including:

1. John Street & Board Street,
2. John Street & Church Street, and
3. John Street & Ann Street, and
4. Mid-block on John Street between Church Street and Ann Street.

A summary for each intersection is provided as follows.

### John Street & Board Street

Records indicate that no accidents have occurred at this intersection in the last available five-year period.

### John Street & Church Street

Records indicate five accidents including one involving a pedestrian and another a parked car in the last available five-year period. Of thee, one occurred in 2014, two in 2016 and two in 2018.

Accident severity varied between no casualty and serious injuries. Two of the five accidents included right-through vehicle accident types.

### **John Street & Ann Street**

Records indicate three casualty accidents at this intersection in the last available five-year period including one in 2014 and two in 2018. All three accidents included collisions between vehicles and resulted in either moderate or minor injuries. There are no observable trends in these accidents.

### **Mid-Block**

Seven crashes have been recorded on John Street between Church Street and Ann Street. Four of these included pedestrians and two vehicles parked. Casualty severity varies between minor to serious. There are no observable trends in these accidents.

## 4. PROPOSED DEVELOPMENT

04

## 4.1. Preamble

### 4.1.1. Phase 1 (Proposed Development)

The proposed development incorporates the expansion of the existing club into land at the corner of John Street/ Board Street, currently occupied by existing club and local shops fronting John Street, to provide an increased total floor area of 14,895m<sup>2</sup> GFA.

It is noted that Dooleys does not expect that the upgrade will alter the day to day occupancy of the premises by any material margin, but rather improve the members experience with a more intuitive and contemporary floor plan, whilst increasing the capacity of the food and beverage offer, function/ conference areas, gymnasium and administration components.

The Phase 1 development also incorporates an increased provision of 570 car spaces through a proposed extension of the basement car parking levels beneath the Club from 60 to 111 car spaces. The expected changes in area and parking are summarised at Table 4.1.

**Table 4.1: Existing and Proposed Area and Car Parking**

| Phase                     | Total Floor Area (GFA)     | Car Parking Provision |
|---------------------------|----------------------------|-----------------------|
| Existing Condition        | 9,889m <sup>2</sup> [1]    | 519 spaces            |
| Phase 1 DA                | 14,895m <sup>2</sup>       | 570 spaces            |
| <i>Increase or Change</i> | <i>+5,006m<sup>2</sup></i> | <i>+51 spaces</i>     |

[1] Includes 261m<sup>2</sup> retail land use along John Street, demolished in Phase 1

### 4.1.2. Vehicle Access

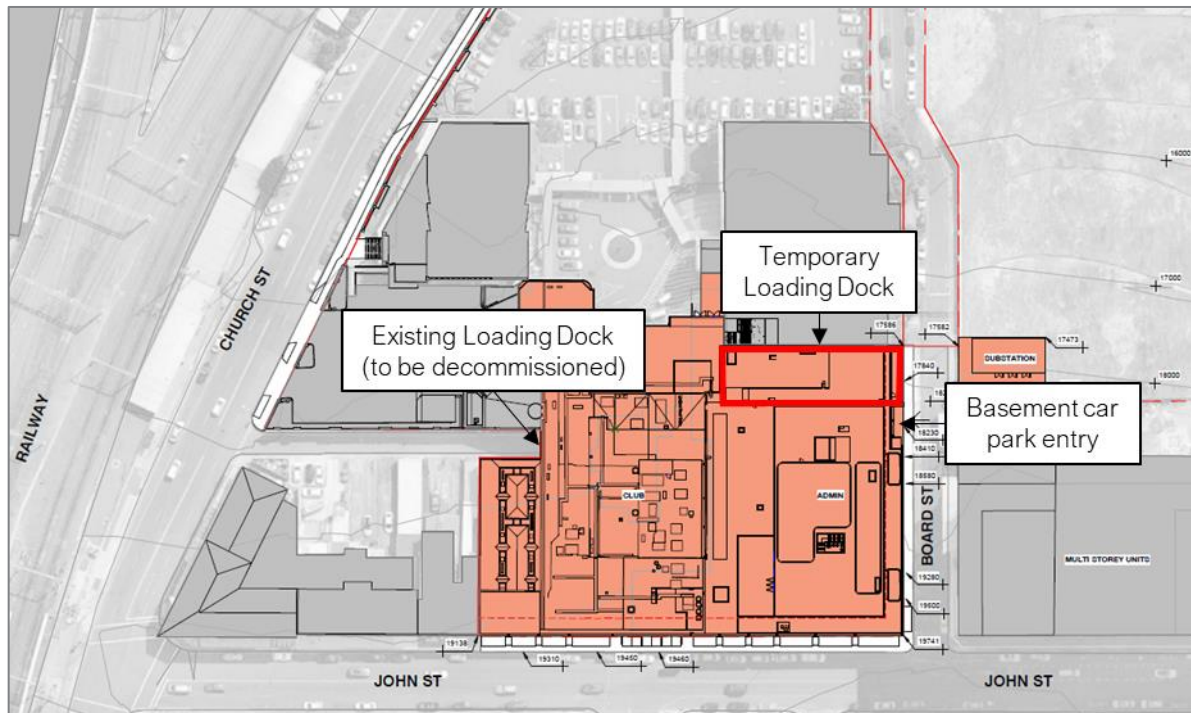
With the expansion of the club and no other development on-site planned for Phase 1, existing vehicle access arrangements will be maintained with two access points on Church Street providing access to the two main at-grade car parks as well as the multi storey car park.

The access driveway to the basement parking on Board Street will also be maintained, though with altered traffic volumes from an increase in capacity of the basement car park. Adjacent to the basement access will be a new driveway providing access to the relocated temporary loading dock off Board Street.

## 4.2. Loading Arrangements

The existing loading area is proposed to be **temporarily relocated** from the southern side of the site with access from Church Street, to the northern end of the site with access off Board Street, as shown at Figure 4.1. The existing dock will be decommissioned once the proposed dock is operational, resulting in a redistribution of all existing service vehicle activity from Church Street to Board Street. Dock operation is proposed to remain the same with any increase in delivery requirements from the expanded food and beverage offerings met by increased quantities being delivered within the existing delivery schedule, resulting in no anticipated increase in the size or number of delivery vehicles.

Figure 4.1: Temporary Loading Dock Location



Source: Site Plan, Drawing No. DA-00-0020 Rev. 05, prepared by PTW dated 5 December 2019

The temporary loading dock has been suitably designed to provide improved servicing/ loading capacity compared to the existing dock, with two loading bays compared to the existing one. The access arrangements and loading provision have been designed to accommodate all heavy vehicle movements requiring access to this new loading area. Service vehicles are proposed to access the dock with a reverse in manoeuvre, discussed further at Section 5.3.

The temporary loading dock will be replaced with a new and permanent basement level facility as part of delivering on the broader site Master Plan.



## 5. ACCESS AND CAR PARKING ASSESSMENT

05

### 5.1. Car Parking

This section sets out a review of car parking requirements for the development set out under the Auburn Development Control Plan 2010 (DCP 2010) for Phase 1 of the proposed development.

DCP 2010 sets out various objectives and performance criteria under the document's general provisions for off-street parking. These are reproduced below for further reference:

#### *Objectives*

- a. *To ensure that an acceptable level of parking is provided on-site to minimise adverse impacts on surrounding streets.*
- b. *To provide for the reasonable parking needs of business and industry to support their viability, but discourage unnecessary or excessive parking.*

#### *Performance criteria:*

- P1 *New development provides adequate off-street parking to service the likely parking demand for the development*
- P2 *New development does not introduce unnecessary or excessive off-street parking*
- P3 *Parking provided for development which is not defined in this Part is based on sound and detailed parking assessment.*

Enquiries made with Council<sup>3</sup> indicate their preference for the development to apply *individual use* car parking rates set down in the Auburn DCP 2010.

The Auburn DCP sets out a general requirement for 15 car spaces per 100m<sup>2</sup> GFA, or 1 space per 3 seats whichever is greater, for function centres and 1 car space per 5m<sup>2</sup> of public or licensed floor area, which includes bar, lounges, dining and gambling areas, for a Club. These car parking rates apply to any location within the broader Cumberland LGA.

By way of alternate assessment, we also make reference to the minimum and maximum car parking requirements for Commercial developments located in a B4 Mixed Use Zone within one kilometre of Lidcombe Railway Station, noting the site itself is located within 200 metres of Lidcombe Railway Station within a B4 Mixed Use Zone (Section 5.1.5 of the DCP). We consider these provisions apply to the subject site and include a minimum requirement for 1 car space per 60m<sup>2</sup> GFA and maximum requirement for 4 car spaces per 40m<sup>2</sup> GFA for Commercial uses.

Commercial development objectives set out under the DCP for Commercial development (General Controls Business Areas) include:

#### *Objectives:*

- a. *To provide sufficient vehicular access and car parking on-site to meet user demands.*
- b. *To ensure the design of access, parking and servicing areas is efficient, safe, convenient, discrete and suitably landscaped.*
- c. *To ensure traffic generation of proposed development is compatible with the surrounding road network.*
- d. *To minimise potential conflicts between vehicular movements and pedestrians.*

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<sup>3</sup> Pre-Development Application Advisory Panel Meeting 18-34 John Street, 1-28 Board Street & 1-21 Ann Street, Lidcombe, Michael Lawani Cumberland Council, dated 28 November 2019

## ACCESS AND CAR PARKING ASSESSMENT

The two methods for calculating DCP 2010 car parking requirements for the Phase 1 development are set out at Table 5.1.

**Table 5.1: DCP 2010 Car Parking Requirements – Phase 1**

| Land use                         | Size                                                  | DCP 2010 Rate                                                                       | DCP 2010 Requirement |
|----------------------------------|-------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------|
| LGA Applicable Car Parking Rates |                                                       |                                                                                     |                      |
| Club                             | 4,747m <sup>2</sup> [1] public or licensed floor area | 1 space per 5m <sup>2</sup> of public or licensed floor area                        | 949 spaces           |
| Function                         | 983m <sup>2</sup> GFA<br>440 seats                    | 15 spaces per 100m <sup>2</sup> GFA, or 1 space per 3 seats whichever is greater    | 147 spaces           |
| <b>Total</b>                     |                                                       |                                                                                     | <b>1,097 spaces</b>  |
| B4 Mixed Use Zone Rates          |                                                       |                                                                                     |                      |
| Commercial                       | 14,895m <sup>2</sup> GFA                              | Minimum of 1 space per 60m <sup>2</sup><br>Maximum of 4 spaces per 40m <sup>2</sup> | 248 to 1,490 spaces  |

[1] Includes gaming, food and beverage and member areas front of house areas i.e. the area available to patrons

Depending on which car parking requirement is applied, Table 5.1 indicates a requirement for either 1,097 car spaces using the general LGA applicable car parking rates or a requirement anywhere between 248 and 1,490 car spaces for a Commercial land uses located within 1km of Lidcombe Railway Station for Phase 1.

Application of the LGA wide rates indicates a shortfall of 527 car parking spaces. Application of the Commercial land use rates which apply in the threshold proximity of Lidcombe Railway Station indicates that the proposed car parking provision sits within the specified car parking range.

On the appropriateness of the proposed car parking provision, a review of the general objectives and performance criteria indicates a need for an 'acceptable' level of car parking which caters for reasonable parking needs, that is, not necessarily all car parking needs or needs which might from time to time rely on areas outside the Subject Site and within other parts of the broader Activity Centre. On this, a centre-wide approach to managing car parking is generally recognised as the most efficient approach to the provision and use of car parking within an Activity Centre catering for varying temporal activity profiles for individual uses within the Centre and a desire to match supply with historical rates of demand.

In comparison, objectives set out for land use located within a B4 Zone and within 1km of Lidcombe Station recognises the importance of ensuring car parking provision does not support travel behaviours which are counter-productive to the efficiency and efficacy of the road network.

In particular, guidance can be sought from objective (c) which states a requirement:

*"To ensure traffic generation of proposed development is compatible with the surrounding road network."*

From this requirement, we observe a need to ensure parking provisions meet demand, without encouraging undesirable modal behaviours or an excessive attraction to road-based transport which could undermine the overall functionality of the transport system.

In addition, Objective (d) notes a requirement to manage conflict between vehicular movements and pedestrians. Providing car parking for the proposed land use in accordance with the general provisions set out in the DCP, requiring 1,097 on-site car spaces would in our view be inconsistent with this objective.

Finally, and given that the proposed Master Plan involves the delivery of land use over phases or stages, the rate of car parking could potentially increase (on a unit floor area basis) following the delivery of Phase 1 in both Phases 2 and 3.

Accordingly, the proposed provision of car parking for Phase 1 is considered satisfactory.

### 5.2. Sustainable Transport Infrastructure

#### 5.2.1. Pedestrian

Much of the pedestrian activity will occur internal to the site, with pedestrian entries provided along Church Street and John Street. As discussed in Section 2.1.2, until later stages of the Masterplan development, Board Street will retain its existing function, providing vehicle access to the club basement car park, a temporary loading dock and adjacent residential development.

#### 5.2.2. Cycling

The Auburn DCP 2010 states that bicycle racks must be provided for developments over 1,000 square metres gross floor area (GFA) in accordance with AS2890.3 – Bicycle Parking Facilities (Figure 1 and 2). In the absence of guidance from AS2890.3 on quantum of bicycle parking required for staff and visitors, guidance is sought from NSW Planning Guidelines for Walking and Cycling guidelines (NSW Guidelines).

Review of the NSW Guidelines indicates that bicycle parking should be provided for three to five per cent of staff and three to five per cent of seating capacity. Based on approximately 80 staff, it is considered that four bicycle parking spaces will be sufficient for this user group. Based on a seating capacity of approximately 2,020 seats, the NSW Guidelines suggest a minimum of 57 bicycle parking spaces should be provided for visitors. However, considering the demographic of Club patrons, that is, more mature, less able-bodied sub-category of the community, it is recommended only 50 per cent of this is provided, resulting in a recommended provision of 30 bicycle parking spaces for visitors.

On the proposed provision, twelve bicycle spaces are currently provided on site, eight within the multi-storey car park and four adjacent to the gym entrance. These are shown at Figure 3.16 and Figure 3.17. These spaces are only used sparingly at present and provide a guide to present day usage levels. The remaining 22 bicycle racks are proposed at the main pedestrian entry at the south-west corner of the building near the Church Street at-grade car park. It is recommended bicycle parking racks are provided in accordance with AS2890.3.

It is noted that during future stages of development, if bicycle racks need to be relocated, they should be relocated elsewhere on site in a convenient and safe location to ensure no net loss in bicycle parking.

### 5.3. Loading and Service Area Configuration

This section sets out a review of loading requirements for the development set out under the Auburn Development Control Plan 2010 (DCP 2010) for Phase 1 of the proposed development.

DCP 2010 sets out various objectives and performance criteria under the document's general provisions for off-street parking. These are reproduced below for further reference:

#### *Objectives*

- a. *To ensure that all development proposals for industry and business are adequately provided with appropriate loading and unloading facilities.*
- b. *To prevent industrial and business development giving rise to adverse impacts associated with truck and service vehicles being parked off-site.*

#### *Performance criteria:*

- P1 *Separation is provided between service areas (i.e. loading and unloading areas) and parking.*
- P2 *Size of service vehicle bays are adequate for the likely vehicles utilising the spaces.*

*P3 Service areas are located and designed to facilitate convenient and safe usage.*

The Auburn DCP sets out a general requirement for 1 bay per 2,000m<sup>2</sup> GFA for other land uses. Application of this rate indicates the development is required to provide seven loading bays. The development proposes two loading bays hence results in a shortfall of five loading bays.

On the appropriateness of the proposed loading bay provision, a review of the general objectives and performance criteria indicates a need for an '*appropriate*' loading and unloading facilities which caters for reasonable loading needs to '*prevent truck and service vehicles being parked off-site*'.

On this, DCP 2012 has not been based on an assessment of loading demands, having regard to the real or '*practical*' loading demand of the proposal. These demands are set out in Section 3.3.2 for the existing facility which is proposed to be relocated. This recorded quantum of activity will remain unchanged with any increase in delivery requirements from the expanded food and beverage offerings met by increased quantities being delivered within the existing delivery schedule, resulting in no anticipated increase in the size or number of delivery vehicles.

Notwithstanding this observation, the development proposes to increase the number of on-site loading bays from one to two, providing redundancy for any unusual fluctuations in loading activity. The use of the loading dock will also continue to be managed by the club to ensure service and loading demand is consistent with available capacity.

Accordingly, the provision of two loading bays for Phase 1 is considered satisfactory and recommended for approval.

## 5.4. Design Review

### 5.4.1. Car Parking Layout Review

The car park extension and temporary loading area layouts have been reviewed against the requirements of DCP 2010 and the Australian Standard for off street parking facilities (AS/NZS2890.1:2004, AS2890.2:2018 and AS/NZS2890.6:2009) and Auburn DCP 2010. This assessment included a review of the following:

- parking spaces and any such aisle widths
- turnaround facilities
- circulation roads and any such areas of ramping
- internal queuing
- loading arrangements and practicality of use
- heavy vehicle manoeuvring areas
- parking for persons with disabilities.

The review indicates that the proposed car parking layout is satisfactory. It is noted that public parking spaces are marked as 2.6 metres wide in accordance with AS2890.1:2004.

As discussed, service vehicles are proposed to access the dock with a reverse in manoeuvre. Considering the temporary nature of the dock, located on a terminating street which will have little to no pedestrian activity during Phase 1 of the development, this is considered an acceptable design outcome. It is noted that the loading dock will be relocated during future stages of the Masterplan development to basement levels, removing any potential interaction of heavy vehicle movements with future pedestrian movements along Board Street at ground level.



## ACCESS AND CAR PARKING ASSESSMENT

Swept path assessment of the site has been undertaken using AutoTURN and indicates that the design vehicles can independently enter the temporary loading dock from Board Street. It is noted that 12.5-metre heavy rigid vehicles require the full width of Board Street to enter and exit the dock. To accommodate this movement, it is recommended that 'no stopping' signage is along the northern edge of Board Street. This will result in the loss of three-time restricted parking spaces along the northern edge of Board Street as depicted at Figure 5.1 and Figure 5.2. It is also noted that the existing residential dwelling located at 2 Board St is owned by Dooleys and will be demolished prior to the loading dock being commissioned, thus removing any potential source of vehicular and pedestrian conflict between dock movements and activity associated with that property.

Figure 5.1: Parking Restrictions on Board Street (Aerial Photographic Representation)



Base image source: Nearmap

Figure 5.2: Parking restrictions on Board Street (Looking South-West)



We have been instructed that the applicant is in the process of acquiring Board Street west of the existing club car park entry. This acquisition will ensure that any vehicle reversing associated with the loading and service area remains in a controlled area; on private land meeting the test set out in the DCP. Under these arrangements, all truck movements travelling to/ from the loading dock will be entering and exiting public land in a forward direction.



Key swept paths and recommendations are provided in Appendix C of this report.

### 5.4.2. Pedestrian treatment at John Street/ Board Street

Council have queried the impact of the proposed development on pedestrian mobility, and the need for any interim safety measures, at the intersection of John Street / Board Street<sup>4</sup>.

On our review of the development proposal, changes in travel demand in and around the subject site, particularly as it relates to traffic movement in and around Board Street indicates that any uplift in demand is will be modest. Despite this modest uplift and in response to queries raised by Council, an upgrade of the existing pedestrian crossing over Board Street is proposed.

Any final upgrade solution for the intersection will be subject to Council's consent however a threshold treatment is proposed to improve the conspicuousness of the crossing as well as improve accessibility for vulnerable road users.

The principles of any upgrade treatment are proposed to include:

- A raised pavement or threshold treatment to match the footpath levels on either side of Board Street,
- DDA tactile markers on either side of Board Street in advance of the new treatment,
- Select and contrasting materiality to highlight the pedestrian flow path.

The proposed treatment will attenuate vehicle speeds within Board Street whilst highlighting the pedestrian crossing location and increasing driver awareness of this crossing location. An example of the proposed treatment is shown at Figure 5.3.

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<sup>4</sup> Deferral of Determination – Development Application DA2019/0467, William Attard, Cumberland City Council, dated 23 April 2020

Figure 5.3: Proposed Threshold Treatment Example<sup>5</sup>



Source: Global Design Cities Initiative

## 5.4.3. Sight Line Review at John Street

GTA has completed a Safe Intersection Stopping Distance (SISD) and Approach Site Distance (ASD) assessment along John Street and Board Street to inform the potential requirement for a visibility splay on Board Street relative to the north-east corner of the proposed building envelope at the corner of John Street and Board Street.

The definition of SISD in the *Glossary of Terms* (Austroads, 2015) is the “distance required for a driver or rider on the priority road to observe a vehicle from a side road moving into a collision situation, and to decelerate to a stop before reaching the collision point”.

<sup>5</sup> This helps calm traffic, improve accessibility, and increase visibility between motorists and pedestrians.

## ACCESS AND CAR PARKING ASSESSMENT

The definition of ASD in the *Guide to Road Design* (Austroads, 2010) is the “minimum level of sight distance which must be available on the minor road approaches to all intersections to ensure that drivers are aware of the presence of an intersection”.

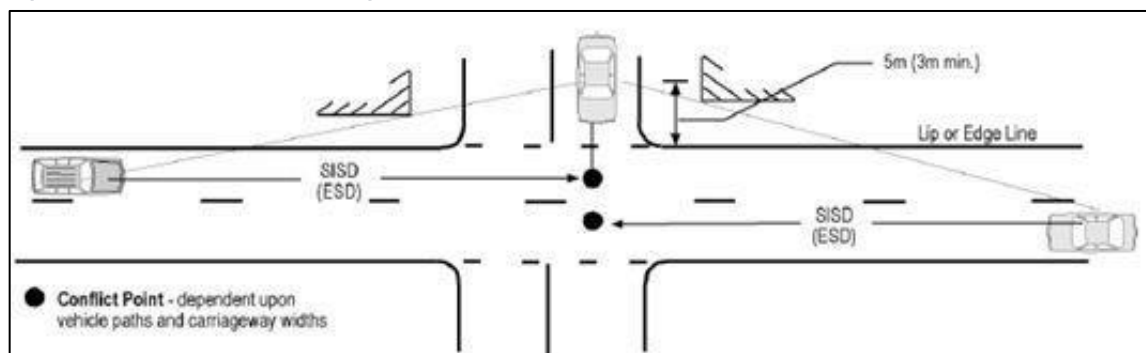
The *Guide to Road Design Part 4A: Unsignalised and Signalised Intersections* (Austroads, 2017) set out the SISD and ASD requirements, reproduced in Figure 5.4 to Figure 5.7.

Figure 5.4: Austroads Part 4A Table 3.1 - SISD Calculation

| Design speed (km/h) | Based on safe intersection sight distance for cars <sup>(1)</sup><br>$h_1 = 1.1; h_2 = 1.25, d = 0.36^{(2)}$ ; Observation time = 3 sec |     |                         |     |                         |     |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------|-----|-------------------------|-----|-------------------------|-----|
|                     | $R_T = 1.5 \text{ sec}^{(3)}$                                                                                                           |     | $R_T = 2.0 \text{ sec}$ |     | $R_T = 2.5 \text{ sec}$ |     |
|                     | SISD (m)                                                                                                                                | K   | SISD (m)                | K   | SISD (m)                | K   |
| 40                  | 67                                                                                                                                      | 4.9 | 73                      | 6   | –                       | –   |
| 50                  | 90                                                                                                                                      | 8.6 | 97                      | 10  | –                       | –   |
| 60                  | 114                                                                                                                                     | 14  | 123                     | 16  | –                       | –   |
| 70                  | 141                                                                                                                                     | 22  | 151                     | 25  | –                       | –   |
| 80                  | 170                                                                                                                                     | 31  | 181                     | 35  | –                       | –   |
| 90                  | 201                                                                                                                                     | 43  | 214                     | 49  | 226                     | 55  |
| 100                 | 234                                                                                                                                     | 59  | 248                     | 66  | 262                     | 74  |
| 110                 | –                                                                                                                                       | –   | 285                     | 87  | 300                     | 97  |
| 120                 | –                                                                                                                                       | –   | 324                     | 112 | 341                     | 124 |
| 130                 | –                                                                                                                                       | –   | 365                     | 143 | 383                     | 157 |

Source: Table 3.2, Guide to Road Design Part 4A: Unsignalised and Signalised Intersections, Austroads 2017

Figure 5.5: Austroads Part 4A Figure 3.2 - SISD Criteria



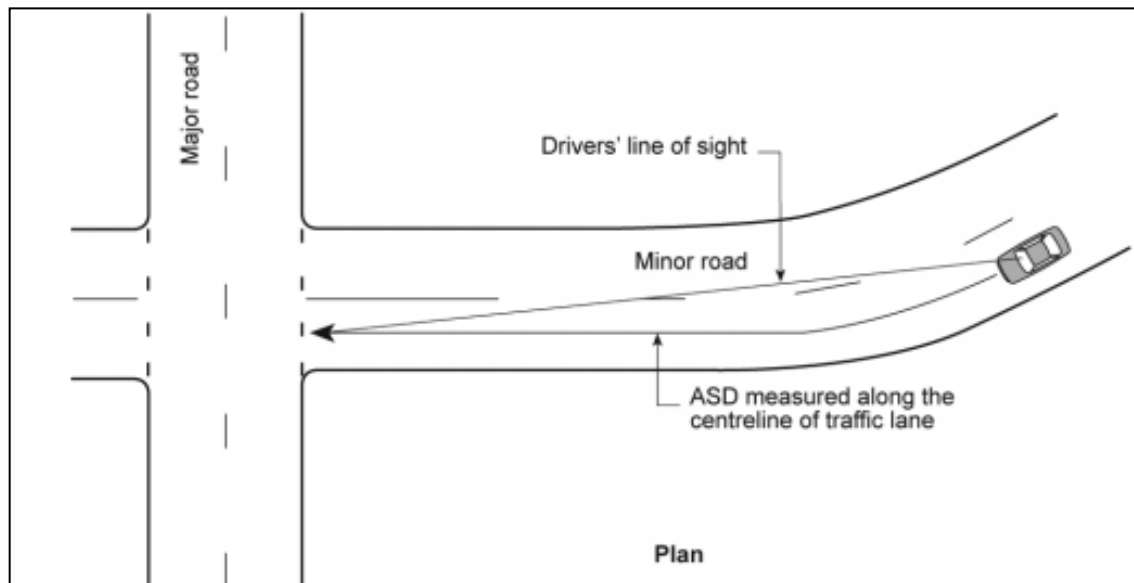
Source: Figure 3.2, Guide to Road Design Part 4A: Unsignalised and Signalised Intersections, Austroads 2017

Figure 5.6: Austroads Part 4A Table 3.1 - ASD Calculation

| Design speed (km/h) | Based on approach sight distance for a car <sup>(1)</sup><br>$h_1 = 1.1, h_2 = 0, d = 0.36^{(2)}$ |      |                         |      |                         |     |
|---------------------|---------------------------------------------------------------------------------------------------|------|-------------------------|------|-------------------------|-----|
|                     | $R_T = 1.5 \text{ sec}^{(3)}$                                                                     |      | $R_T = 2.0 \text{ sec}$ |      | $R_T = 2.5 \text{ sec}$ |     |
|                     | ASD (m)                                                                                           | K    | ASD (m)                 | K    | ASD (m)                 | K   |
| 40                  | 34                                                                                                | 5.3  | 40                      | 7.2  | –                       | –   |
| 50                  | 48                                                                                                | 10.5 | 55                      | 13.8 | –                       | –   |
| 60                  | 64                                                                                                | 18.8 | 73                      | 24.0 | –                       | –   |
| 70                  | 83                                                                                                | 31.1 | 92                      | 38.9 | –                       | –   |
| 80                  | 103                                                                                               | 48.5 | 114                     | 59.5 | –                       | –   |
| 90                  | 126                                                                                               | 72.3 | 139                     | 87.3 | 151                     | 104 |
| 100                 | 151                                                                                               | 104  | 165                     | 124  | 179                     | 146 |
| 110                 | –                                                                                                 | –    | 193                     | 171  | 209                     | 198 |
| 120                 | –                                                                                                 | –    | 224                     | 229  | 241                     | 264 |
| 130                 | –                                                                                                 | –    | 257                     | 301  | 275                     | 344 |

Source: Table 3.1, Guide to Road Design Part 4A: Unsignalised and Signalised Intersections, Austroads 2017

Figure 5.7: Austroads Part 4A Figure 3.1 - ASD Criteria

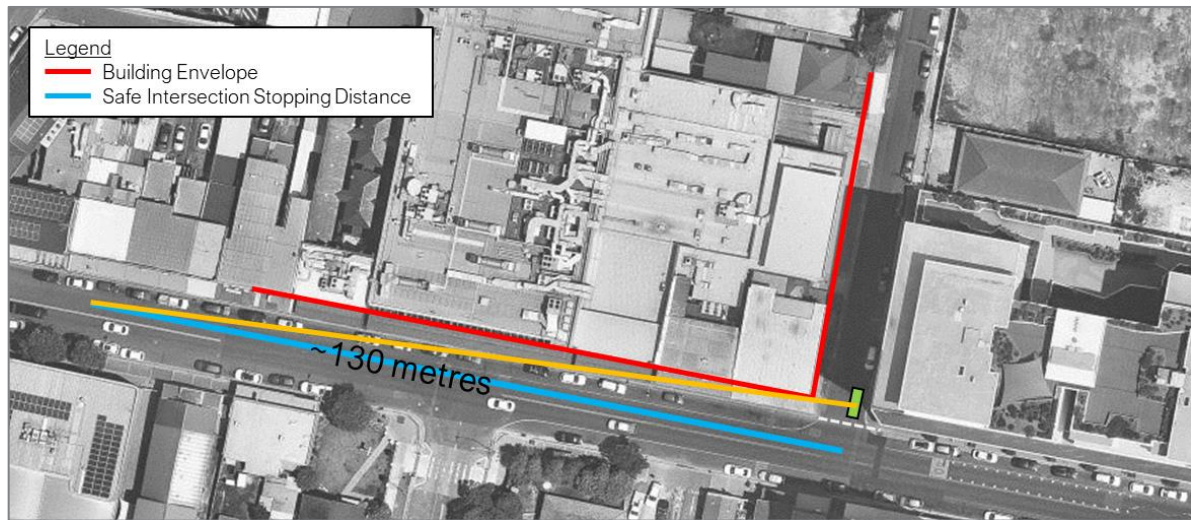


Source: Figure 3.1, Guide to Road Design Part 4A: Unsignalised and Signalised Intersections, Austroads 2017

Figure 5.4 indicates that for a sign posted speed limit of 50 kilometres per hour (design speed of 60 kilometres per hour), and application of a conservative reaction time of 2.0 seconds, the corresponding SISD is 123 metres. Figure 5.6 indicates that for a sign posted speed limit of 40 kilometres per hour (design speed of 50 kilometres per hour), and application of a conservative reaction time of 2.0 seconds, the corresponding ASD is 55 metres.

GTA inspected the site on Thursday 24 October 2019 and measured key site distances from a three-metre set back from the stop line to John Street, as illustrated in Figure 5.8.

Figure 5.8: Sight Distance Measurement



Base Image Source: Nearmap

As shown in Figure 5.8, the key site distances comply with the SISD and ASD requirements outlined in the Australian Standards. As such, no adjustments to built-form outcomes on the edge of the proposed building envelope at its north-eastern corner near the John Street/ Board Street intersection is required.

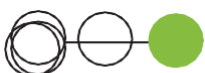
### 5.5. Operational Parking Management

The following is noted with regards to parking management:

- During construction, the basement car park will be partially closed, noting that Dooleys will seek to keep as many spaces available as possible.
- Some existing parking demand for the basement car park will therefore need to be accommodated in the main car park accessed from Church Street.
- Considering the demand for parking on site during peak times, it is likely that partial closure of the basement car park will result in a reduced demand for parking as visitors to the site find alternate means to access the site.
- As Dooleys does expect that the upgrade will alter the day to day occupancy of the premises, but rather improve the members experience with a more intuitive and contemporary floor plan, it is not expected to generate any significant uplift in car parking.
- Following Phase 1 development, car parking demand is expected to remain a function of supply.

## 6. TRAFFIC IMPACT ASSESSMENT

06





## 6.1. Traffic Generation

### 6.1.1. Basement Car Park – Club Patrons

The provision of an additional 51 car parking spaces for Club patrons will result in an increase in traffic generation to/ from the site.

To assist with estimating likely traffic impacts associated with Phase 1, reference is made to surveys completed in October 2019 and November 2015 for each site access. The November 2015 surveys revealed an overall traffic generation in and out of the on-site car park (for the whole of the development) of 53 and 237 vehicle movements per hour during the morning and evening road network peak hour. The October 2019 surveys revealed an overall traffic generation in and out of the on-site car park (for the whole of the development) of 211 vehicle movements per hour during the Saturday midday road network peak hour.

Application to the existing 519 on-site car parking spaces indicates a generation equating to 0.10, 0.46 and 0.41 vehicle movements per car space respectively in the weekday AM, weekday PM and Saturday MID road network peak hour. Application of this rate to the expanded basement car park accessed via Board Street indicates an increase of five, 23 and 21 vehicle movements respectively during the weekday AM, weekday PM and Saturday MID road network peak hours.

### 6.1.2. Loading Dock Activity

The relocation of the loading dock to a temporary location on Board Street will result in the redistribution of traffic from Church Street onto Board Street. While the loading dock is not expected to result in any increased trips, we have sought to evaluate the impact of these redistributed trips to the intersection of Board Street/ John Street.

Table 3.2 details a breakdown of traffic generated by the loading dock during peak periods. This includes eight, none and one vehicle movement(s) respectively during the weekday AM, weekday PM and Saturday MID road network peak hour.

### 6.1.3. Summary of Loading Vehicle Activities

Based on the above, an additional 13, 23 and 22 vehicle movements respectively during the weekday AM, weekday PM and Saturday MID road network peak hours are expected to use Board Street following Phase 1 Development.

This level of demand equates to an additional vehicle every three (3) minutes during the evening and Saturday midday peak hours. This value is not considered significant in the context of overall demand generated by the existing site, as well as demand on the adjacent road network.

## 6.2. Traffic Distribution and Assignment

Given the proposed uplift in car parking is proposed at basement level and accessed only via Board Street, increased activity is expected to be contained to the network comprising Board Street, John Street and after that, the broader network comprising Church Street, Ann Street and Olympic Drive.

Having consideration to the above and for the purposes of estimating vehicle movements, the directional distributions have primarily been influenced by the existing travel patterns exhibited for traffic entering and exiting Board Street during the road network peak hours. Based on recorded turning volumes these are broadly as follows:

- Weekday AM Peak: 70 per cent from north, 30 per cent from south.
- Weekday PM Peak: 80 per cent to/ from north, 20 per cent to/ from south
- Saturday MID peak:
  - 80 per cent to north, 20 per cent to south
  - 60 per cent from north, 40 per cent from south.

In addition to the directional distribution of traffic, the traffic assignment between entering and exiting vehicles is detailed at Table 6.1.

**Table 6.1: Assumed Entering & Existing Traffic Assignment**

| Peak Period     | Club Basement   |                  |           | Temporary Loading Dock |                |          | Total            |                  |           |
|-----------------|-----------------|------------------|-----------|------------------------|----------------|----------|------------------|------------------|-----------|
|                 | IN <sup>1</sup> | OUT <sup>1</sup> | TOTAL     | IN                     | OUT            | TOTAL    | IN               | OUT              | TOTAL     |
| Weekday AM      | 3 <sup>4</sup>  | 3 <sup>4</sup>   | <b>6</b>  | 4 <sup>2</sup>         | 4 <sup>2</sup> | <b>8</b> | 7 <sup>2,4</sup> | 7 <sup>2,4</sup> | <b>14</b> |
| Weekday PM      | 11              | 12               | <b>23</b> | 0                      | 0              | <b>0</b> | 11               | 12               | <b>23</b> |
| Saturday Midday | 12              | 9                | <b>21</b> | 0                      | 1 <sup>3</sup> | <b>1</b> | 12               | 10 <sup>3</sup>  | <b>22</b> |

[1] Assuming a similar directional distribution of traffic as existing traffic generated by the club basement, detailed in Table 3.1

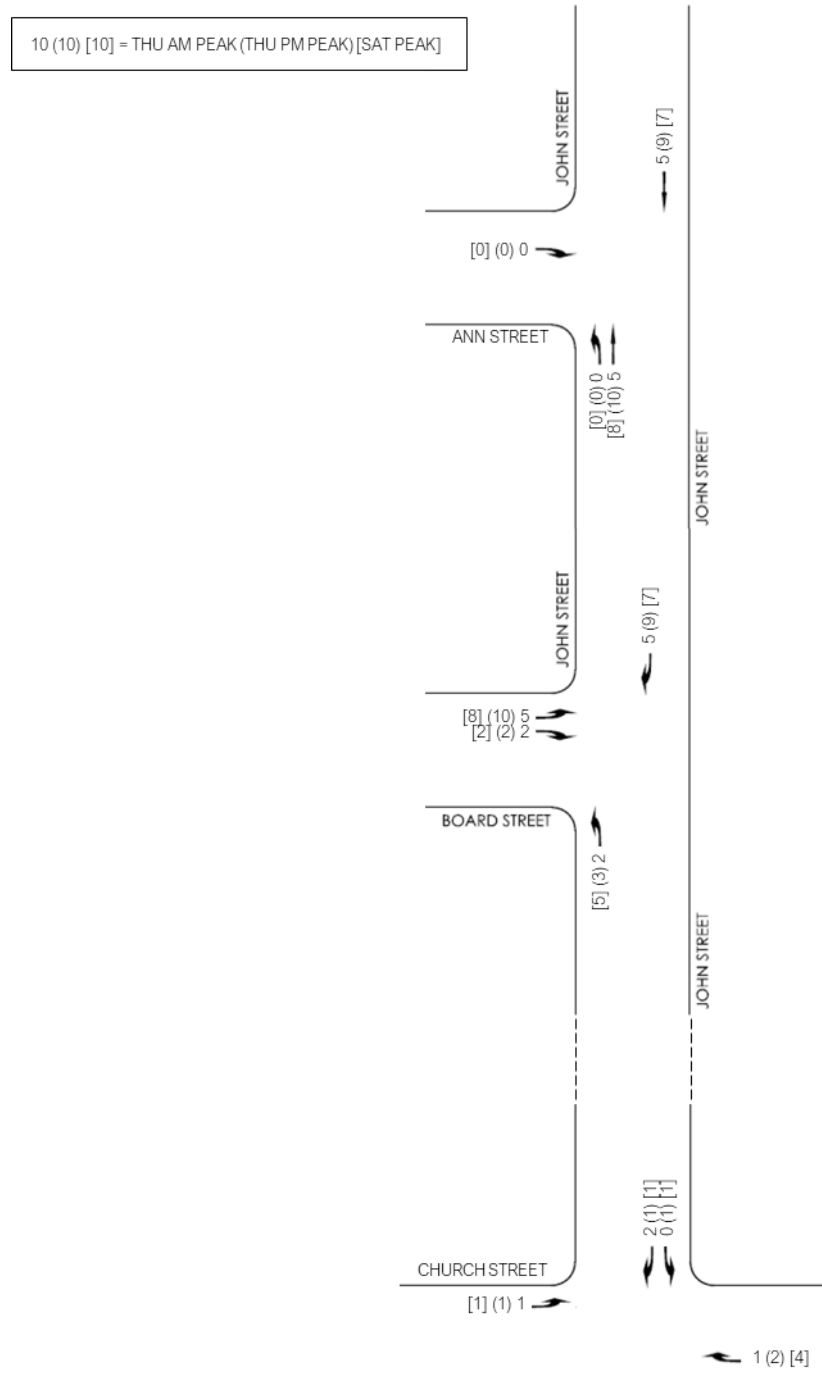
[2] Comprises three light vehicles and one heavy vehicle

[3] Comprises one light vehicle and no heavy vehicles

[4] Rounded up

Based on the traffic generation, traffic distribution and traffic assignment assumptions, Figure 6.1 has been prepared to show the estimated marginal increase in turning movements near the subject property following full site development.

Figure 6.1: AM (PM) [Sat] Post-Development Peak Hour Traffic Volumes



### 6.3. Background Traffic Growth

An assessment of the future case scenarios is also critical in understanding the traffic impacts of Phase 1 development on the surrounding road network and in particular John Street. A comparison of November 2015 and October 2019 traffic survey data for John Street at its intersection with Board Street, detailed in Table 6.2, provides an indication of traffic growth in recent years and the possible anticipated traffic growth in future years.

**Table 6.2: 2015 and 2019 Traffic Flow Comparison for John Street**

| Year        | AM Peak (8:15am to 9:15am) |            | PM Peak (4:45pm to 5:45pm) |            | Combined AM and PM peak |
|-------------|----------------------------|------------|----------------------------|------------|-------------------------|
|             | Northbound                 | Southbound | Northbound                 | Southbound |                         |
| 2015        | 333                        | 486        | 273                        | 539        | 1,631                   |
| 2019        | 287                        | 423        | 283                        | 502        | 1,495                   |
| Difference  | -46                        | -63        | +10                        | -37        | -136                    |
| Percentage  | -13.8%                     | -13.0%     | +3.7%                      | -6.9%      | -8.3%                   |
| Growth p.a. | -3.5%                      | -3.2%      | +0.9%                      | -1.7%      | -2.1%                   |

It is observed that 2019 traffic volumes on John Street have noticeably decreased over the four-year period, with an overall decrease of 8.3 per cent on all through movements, equating to an average of around 2 per cent per year. For the purpose of a conservative assessment analysis assumes stable flow along John Street for the foreseeable planning horizon. As such, analysis has assumed no further reduction in traffic demand along John Street a for a future year 2026 design evaluation.

### 6.4. Traffic Impact

Table 6.3 presents a summary of the anticipated future operation of the key study intersections (without any modification) following full development of the site, with full results presented in Appendix B of this report.

**Table 6.3: Post Development Intersection Operation**

| Intersection               | Peak | Leg            | Degree of Saturation (DOS) | Average Delay (sec) | Average Queue (m) | Level of Service (LOS) |
|----------------------------|------|----------------|----------------------------|---------------------|-------------------|------------------------|
| John Street/ Church Street | AM   | East           | 0.64                       | 24                  | 37                | B                      |
|                            |      | North          | 0.72                       | 25                  | 42                | B                      |
|                            |      | West           | 0.35                       | 28                  | 21                | B                      |
|                            |      | <b>Overall</b> | <b>0.72</b>                | <b>25</b>           | <b>42</b>         | <b>B</b>               |
|                            | PM   | East           | 0.53                       | 22                  | 65                | B                      |
|                            |      | North          | 0.91                       | 41                  | 76                | C                      |
|                            |      | West           | 0.37                       | 30                  | 24                | C                      |
|                            |      | <b>Overall</b> | <b>0.91</b>                | <b>30</b>           | <b>76</b>         | <b>C</b>               |
|                            | SAT  | East           | 0.58                       | 21                  | 60                | B                      |

| Intersection                            | Peak | Leg            | Degree of Saturation (DOS) | Average Delay (sec) | Average Queue (m) | Level of Service (LOS) |
|-----------------------------------------|------|----------------|----------------------------|---------------------|-------------------|------------------------|
|                                         |      | North          | 0.95                       | 43                  | 72                | D                      |
|                                         |      | West           | 0.49                       | 30                  | 26                | C                      |
|                                         |      | <b>Overall</b> | <b>0.95</b>                | <b>30</b>           | <b>72</b>         | <b>C</b>               |
| John Street/ Board Street               | AM   | South          | 0.16                       | 5                   | 0                 | A                      |
|                                         |      | North          | 0.26                       | 6                   | 0                 | A                      |
|                                         |      | West           | 0.05                       | 9                   | 0                 | A                      |
|                                         | PM   | South          | 0.16                       | 5                   | 0                 | A                      |
|                                         |      | North          | 0.30                       | 6                   | 1                 | A                      |
|                                         |      | West           | 0.06                       | 10                  | 1                 | A                      |
|                                         | SAT  | South          | 0.19                       | 5                   | 0                 | A                      |
|                                         |      | North          | 0.31                       | 7                   | 1                 | A                      |
|                                         |      | West           | 0.06                       | 10                  | 1                 | A                      |
| John Street/ Ann Street/ Doodson Avenue | AM   | South          | 0.18                       | 6                   | 1                 | A                      |
|                                         |      | East           | 0.08                       | 12                  | 1                 | A                      |
|                                         |      | North          | 0.28                       | 5                   | 1                 | A                      |
|                                         |      | West           | 0.09                       | 10                  | 1                 | A                      |
|                                         | PM   | South          | 0.19                       | 7                   | 0                 | A                      |
|                                         |      | East           | 0.08                       | 13                  | 1                 | A                      |
|                                         |      | North          | 0.34                       | 5                   | 2                 | A                      |
|                                         |      | West           | 0.09                       | 12                  | 1                 | A                      |
|                                         | SAT  | South          | 0.22                       | 7                   | 1                 | A                      |
|                                         |      | East           | 0.09                       | 17                  | 1                 | A                      |
|                                         |      | North          | 0.35                       | 6                   | 2                 | A                      |
|                                         |      | West           | 0.11                       | 14                  | 1                 | A                      |

Table 6.3 indicates that following the Phase 1 development, the intersections are expected to continue operating with a similar level of service to that presently available under the existing condition, with increases in delay of up to 1 second, increases in queues of up to 1 metre and increases in the Degree of Saturation (DOS) of up to 0.01.

## 6.5. Control Point Queuing Assessment

GTA also completed a review of traffic generated by the existing Dooley's basement access driveways along Board Street between Thursday, 24 October 2019 and Saturday 26 October 2019. The review indicated that the basement driveway currently generates a peak demand for 27 ingress movements on Friday midday (12:15pm to 1:15pm) and Saturday evening (6:15pm to 7:15pm), as well as 29 egress movements on Friday night (6:30pm to 7:30pm).

Assuming a linear increase in parking demand based on the provision of an additional 51 parking spaces, this could equate to a peak of around 54 ingress and egress movements following Phase 1 development during the road network peak periods.

Adopting a typical service rate of 300 vehicles per hour, a queuing assessment has been completed to determine the extent of queues that may form during peak periods on entry and exit to/ from the car park. The equation for calculating queue lengths is detailed in Table 6.4 with a summary of the analysis presented below.

Given the low ingress and egress volumes expected, a sensitivity scenario has been completed, assuming that 78 vehicles (70 per cent churn of the car park) enter or exit the car park across an hour period.

**Figure 6.2: Equation for Calculating Queue Lengths**

Equation 17-37 is used to calculate the 95th-percentile queue.

$$Q_{95} \approx 900T \left[ \frac{v_x}{c_{m,x}} - 1 + \sqrt{\left( \frac{v_x}{c_{m,x}} - 1 \right)^2 + \frac{\left( \frac{3600}{c_{m,x}} \right) \left( \frac{v_x}{c_{m,x}} \right)}{150T}} \right] \left( \frac{c_{m,x}}{3600} \right)$$

where

- $Q_{95}$  = 95th-percentile queue (veh),
- $v_x$  = flow rate for movement x (veh/h),
- $c_{m,x}$  = capacity of movement x (veh/h), and
- $T$  = analysis time period (h) ( $T = 0.25$  for a 15-min period).

Source: Highway Capacity Manual 2000

**Table 6.4: Basement Car Park Queuing Assessment**

| Description                              | Expected peak ingress/ egress | Maximum probable ingress/ egress |
|------------------------------------------|-------------------------------|----------------------------------|
| Entry Configuration                      | One boom gate                 |                                  |
| Approach Volume                          | 54                            | 78                               |
| Service Capacity                         | 300 vehicles/ hour            |                                  |
| Number of Lanes                          | 1 lane                        |                                  |
| 95 <sup>th</sup> Percentile Queue Length | 0.7 vehicles/ lane            | 1.4 vehicles/ lane               |
|                                          | 4 metres/ lane                | 7 metres/ lane                   |
|                                          | 15 seconds                    | 16 seconds                       |
| 99 <sup>th</sup> Percentile Queue Length | 1.7 vehicles/ lane            | 2.4 vehicles/ lane               |
|                                          | 10 metres/ lane               | 15 metres/ lane                  |
|                                          | 15 seconds                    | 16 seconds                       |

With an available queuing area of up to 7 metres between entry boom gates and Board Street, the anticipated 95<sup>th</sup> percentile queue of up to 1 vehicle (4 metres) per lane can be comfortably accommodated at the basement car park control point (and importantly within the curtilage of the land).

The provision of a single boom gate control on entry and exit is therefore considered acceptable.



## 7. CONCLUSION

07

Based on the analysis and discussions presented within this report, the following conclusions are made:

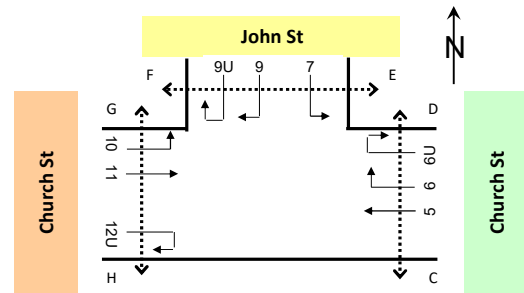
- The Phase 1 development incorporates the expansion of the existing club to provide an increased total floor area of 14,895m<sup>2</sup> GFA
- Dooleys does not expect that the upgrade will alter the day to day occupancy of the premises by any material margin, but rather improve the members experience with a more intuitive and contemporary floor plan, whilst increasing the capacity of the food and beverage offer, function/ conference areas, gymnasium and administration components.
- The site and surrounding transport system is capable of supporting the proposed land uses with visitors and staff able to travel to and from the site with relative ease during peak operating periods on the road network.
- Given the proposed uplift in car parking is proposed at basement level and accessed only via Board Street, increased activity is expected to be concentrated in and around Board Street and John Street and after that the broader network comprising Church Street, Ann Street and Olympic Drive.
- The proposal is expected to generate a net increase of approximately 5, 23 and 21 vehicle trips respectively in the weekday AM, weekday PM and Saturday MID peak hours.
- The temporary relocation of the loading dock will result in eight, zero and one service vehicle trips redistributed from Church Street to Board Street respectively in the weekday AM, weekday PM and Saturday midday peak periods, noting two of these trips involve commercial vehicles.
- The total additional traffic on Board Street equates to an additional vehicle every three (3) minutes during the Thursday evening and Saturday MID peak hours. These values are modest and not considered significant in the context of overall demand generated by the proposed use as well as demand on the adjacent road network.
- The calculated traffic volumes and review of intersection operation indicates that development traffic generation is modest and will not materially change traffic conditions throughout Lidcombe Town Centre.
- Parking for 570 vehicles complies with Auburn DCP 2010 Commercial land use car parking rates.
- 34 bicycle racks are provided generally within the Church Street main car park area, in accordance with DCP 2010. It is recommended bicycle parking racks are provided in accordance with AS2890.3.
- The provision of relocated loading facilities in Board Street for vehicles of a size up to and including 12.5m HRV's is expected to operate satisfactorily, with reverse entry and forward exit an acceptable outcome until the delivery of further phases under the Master Plan, when loading arrangements will be relocated to basement level.

# A.SURVEY RESULTS



**Job No.** : N5390  
**Client** : GTA  
**Suburb** : Lidcombe  
**Location** : 12. John St / Church St

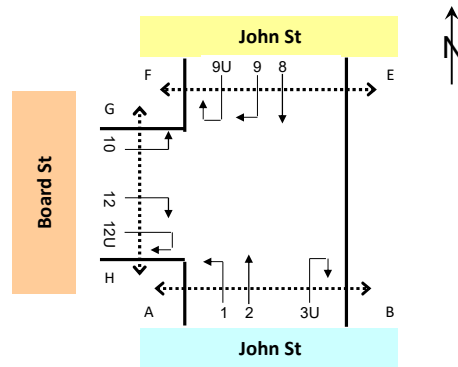
**Day/Date** : Saturday, 26th October 2019  
**Weather** : Fine  
**Description** : Classified Intersection Count  
 : Peak Hour Summary



| Approach       |  | Church St |         |       |       | John St |         |       |       | Church St |         |       |       | Grand Total |
|----------------|--|-----------|---------|-------|-------|---------|---------|-------|-------|-----------|---------|-------|-------|-------------|
| Time Period    |  | Lights    | Heavies | Buses | Total | Lights  | Heavies | Buses | Total | Lights    | Heavies | Buses | Total |             |
| 13:15 to 14:15 |  | 727       | 10      | 7     | 744   | 478     | 3       | 4     | 485   | 302       | 1       | 1     | 304   |             |

| Approach       |  | Church St |         |       |       | John St |         |       |       | Church St |         |       |       | Grand Total |
|----------------|--|-----------|---------|-------|-------|---------|---------|-------|-------|-----------|---------|-------|-------|-------------|
| Time Period    |  | Lights    | Heavies | Buses | Total | Lights  | Heavies | Buses | Total | Lights    | Heavies | Buses | Total |             |
| 11:00 to 12:00 |  | 603       | 14      | 6     | 623   | 391     | 8       | 4     | 403   | 264       | 2       | 0     | 266   |             |
| 11:15 to 12:15 |  | 614       | 13      | 6     | 633   | 431     | 4       | 4     | 439   | 293       | 2       | 0     | 295   | 1,367       |
| 11:30 to 12:30 |  | 628       | 12      | 8     | 648   | 485     | 7       | 4     | 496   | 306       | 1       | 0     | 307   | 1,451       |
| 11:45 to 12:45 |  | 664       | 6       | 8     | 678   | 499     | 5       | 3     | 507   | 297       | 1       | 0     | 298   | 1,483       |
| 12:00 to 13:00 |  | 687       | 4       | 10    | 701   | 495     | 5       | 5     | 505   | 308       | 1       | 0     | 309   | 1,515       |
| 12:15 to 13:15 |  | 706       | 5       | 11    | 722   | 493     | 7       | 6     | 506   | 281       | 1       | 2     | 284   | 1,512       |
| 12:30 to 13:30 |  | 726       | 5       | 11    | 742   | 485     | 4       | 5     | 494   | 279       | 1       | 2     | 282   | 1,518       |
| 12:45 to 13:45 |  | 720       | 11      | 9     | 740   | 475     | 5       | 6     | 486   | 286       | 2       | 2     | 290   | 1,516       |
| 13:00 to 14:00 |  | 721       | 11      | 8     | 740   | 477     | 4       | 3     | 484   | 289       | 2       | 3     | 294   | 1,518       |
| 13:15 to 14:15 |  | 727       | 10      | 7     | 744   | 478     | 3       | 4     | 485   | 302       | 1       | 1     | 304   | 1,533       |
| 13:30 to 14:30 |  | 722       | 10      | 5     | 737   | 463     | 3       | 4     | 470   | 304       | 1       | 1     | 306   | 1,513       |
| 13:45 to 14:45 |  | 725       | 7       | 8     | 740   | 439     | 3       | 3     | 445   | 287       | 0       | 1     | 288   | 1,473       |
| 14:00 to 15:00 |  | 723       | 9       | 9     | 741   | 415     | 2       | 3     | 420   | 265       | 0       | 1     | 266   | 1,427       |
| Total          |  | 2,734     | 38      | 33    | 2,805 | 1,778   | 19      | 15    | 1,812 | 1,126     | 5       | 4     | 1,135 | 5,752       |

**Job No.** : N5390  
**Client** : GTA  
**Suburb** : Lidcombe  
**Location** : 10. Board St / John St  
  
**Day/Date** : Saturday, 26th October 2019  
**Weather** : Fine  
**Description** : Classified Intersection Count  
: Peak Hour Summary

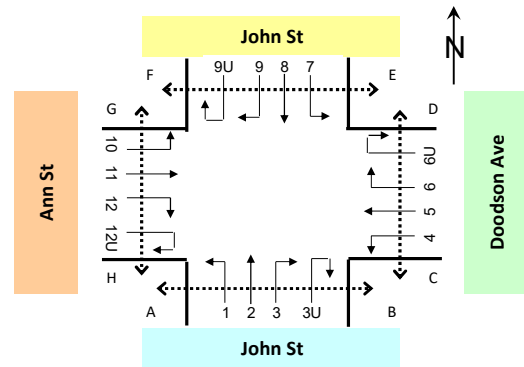


| Approach       | John St |         |       |       | John St |         |       |       | Board St |         |       |       | Grand Total |
|----------------|---------|---------|-------|-------|---------|---------|-------|-------|----------|---------|-------|-------|-------------|
| Time Period    | Lights  | Heavies | Buses | Total | Lights  | Heavies | Buses | Total | Lights   | Heavies | Buses | Total |             |
| 12:00 to 13:00 | 331     | 4       | 5     | 340   | 552     | 3       | 5     | 560   | 45       | 0       | 0     | 45    |             |

| Approach       | John St      |           |           |              | John St      |           |           |              | Board St   |          |          |            | Grand Total  |
|----------------|--------------|-----------|-----------|--------------|--------------|-----------|-----------|--------------|------------|----------|----------|------------|--------------|
| Time Period    | Lights       | Heavies   | Buses     | Total        | Lights       | Heavies   | Buses     | Total        | Lights     | Heavies  | Buses    | Total      |              |
| 11:00 to 12:00 | 289          | 4         | 3         | 296          | 492          | 8         | 5         | 505          | 31         | 0        | 0        | 31         | 832          |
| 11:15 to 12:15 | 287          | 6         | 4         | 297          | 527          | 5         | 5         | 537          | 35         | 0        | 0        | 35         | 869          |
| 11:30 to 12:30 | 290          | 4         | 4         | 298          | 555          | 5         | 4         | 564          | 37         | 0        | 0        | 37         | 899          |
| 11:45 to 12:45 | 322          | 3         | 4         | 329          | 559          | 3         | 5         | 567          | 44         | 0        | 0        | 44         | 940          |
| 12:00 to 13:00 | 331          | 4         | 5         | 340          | 552          | 3         | 5         | 560          | 45         | 0        | 0        | 45         | 945          |
| 12:15 to 13:15 | 330          | 1         | 4         | 335          | 520          | 3         | 6         | 529          | 37         | 0        | 0        | 37         | 901          |
| 12:30 to 13:30 | 324          | 1         | 4         | 329          | 503          | 4         | 5         | 512          | 39         | 0        | 0        | 39         | 880          |
| 12:45 to 13:45 | 298          | 2         | 4         | 304          | 502          | 3         | 4         | 509          | 34         | 0        | 0        | 34         | 847          |
| 13:00 to 14:00 | 272          | 1         | 4         | 277          | 495          | 2         | 3         | 500          | 40         | 0        | 0        | 40         | 817          |
| 13:15 to 14:15 | 280          | 1         | 3         | 284          | 506          | 2         | 4         | 512          | 47         | 0        | 0        | 47         | 843          |
| 13:30 to 14:30 | 262          | 1         | 3         | 266          | 485          | 0         | 4         | 489          | 43         | 0        | 0        | 43         | 798          |
| 13:45 to 14:45 | 272          | 0         | 4         | 276          | 462          | 1         | 3         | 466          | 46         | 0        | 0        | 46         | 788          |
| 14:00 to 15:00 | 281          | 1         | 4         | 286          | 456          | 1         | 3         | 460          | 37         | 0        | 0        | 37         | 783          |
| <b>Total</b>   | <b>1,173</b> | <b>10</b> | <b>16</b> | <b>1,199</b> | <b>1,995</b> | <b>14</b> | <b>16</b> | <b>2,025</b> | <b>153</b> | <b>0</b> | <b>0</b> | <b>153</b> | <b>3,377</b> |

**Job No.** : N5390  
**Client** : GTA  
**Suburb** : Lidcombe  
**Location** : 9. Ann St / John St / Doodson Ave

**Day/Date** : Saturday, 26th October 2019  
**Weather** : Fine  
**Description** : Classified Intersection Count  
 : Peak Hour Summary



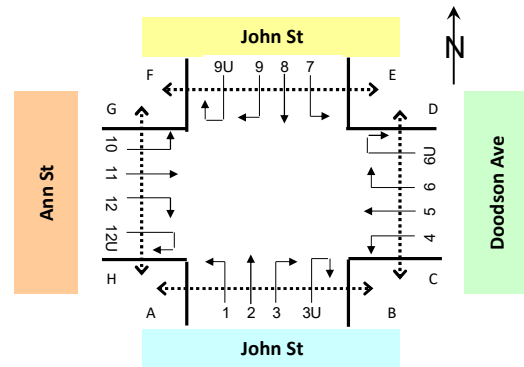
| Approach       | John St |         |       |       | Doodson Ave |         |       |       | John St |         |       |       | Ann St |         |       |       | Grand Total |
|----------------|---------|---------|-------|-------|-------------|---------|-------|-------|---------|---------|-------|-------|--------|---------|-------|-------|-------------|
| Time Period    | Lights  | Heavies | Buses | Total | Lights      | Heavies | Buses | Total | Lights  | Heavies | Buses | Total | Lights | Heavies | Buses | Total |             |
| 12:00 to 13:00 | 368     | 3       | 5     | 376   | 34          | 2       | 0     | 36    | 573     | 3       | 5     | 581   | 64     | 1       | 0     | 65    | 1,058       |

| Approach       | John St      |          |           |              | Doodson Ave |          |          |            | John St      |           |           |              | Ann St     |          |          |            | Grand Total  |
|----------------|--------------|----------|-----------|--------------|-------------|----------|----------|------------|--------------|-----------|-----------|--------------|------------|----------|----------|------------|--------------|
| Time Period    | Lights       | Heavies  | Buses     | Total        | Lights      | Heavies  | Buses    | Total      | Lights       | Heavies   | Buses     | Total        | Lights     | Heavies  | Buses    | Total      |              |
| 11:00 to 12:00 | 307          | 4        | 3         | 314          | 35          | 0        | 0        | 35         | 482          | 5         | 5         | 492          | 60         | 1        | 0        | 61         | 902          |
| 11:15 to 12:15 | 311          | 6        | 4         | 321          | 36          | 0        | 0        | 36         | 524          | 3         | 5         | 532          | 61         | 1        | 0        | 62         | 951          |
| 11:30 to 12:30 | 313          | 4        | 4         | 321          | 40          | 1        | 0        | 41         | 553          | 3         | 4         | 560          | 67         | 1        | 0        | 68         | 990          |
| 11:45 to 12:45 | 352          | 4        | 4         | 360          | 41          | 1        | 0        | 42         | 566          | 3         | 4         | 573          | 60         | 1        | 0        | 61         | 1,036        |
| 12:00 to 13:00 | 368          | 3        | 5         | 376          | 34          | 2        | 0        | 36         | 573          | 3         | 5         | 581          | 64         | 1        | 0        | 65         | 1,058        |
| 12:15 to 13:15 | 360          | 0        | 3         | 363          | 32          | 2        | 0        | 34         | 538          | 4         | 6         | 548          | 61         | 0        | 0        | 61         | 1,006        |
| 12:30 to 13:30 | 342          | 0        | 4         | 346          | 28          | 1        | 0        | 29         | 530          | 3         | 5         | 538          | 65         | 0        | 0        | 65         | 978          |
| 12:45 to 13:45 | 317          | 1        | 4         | 322          | 27          | 1        | 0        | 28         | 528          | 3         | 5         | 536          | 70         | 0        | 0        | 70         | 956          |
| 13:00 to 14:00 | 284          | 1        | 4         | 289          | 24          | 0        | 0        | 24         | 532          | 4         | 3         | 539          | 63         | 0        | 0        | 63         | 915          |
| 13:15 to 14:15 | 300          | 1        | 3         | 304          | 20          | 0        | 0        | 20         | 544          | 3         | 4         | 551          | 63         | 0        | 0        | 63         | 938          |
| 13:30 to 14:30 | 281          | 1        | 3         | 285          | 21          | 0        | 0        | 21         | 508          | 3         | 4         | 515          | 61         | 0        | 0        | 61         | 882          |
| 13:45 to 14:45 | 291          | 0        | 4         | 295          | 19          | 0        | 0        | 19         | 482          | 3         | 3         | 488          | 55         | 0        | 0        | 55         | 857          |
| 14:00 to 15:00 | 300          | 1        | 4         | 305          | 16          | 0        | 0        | 16         | 464          | 1         | 3         | 468          | 64         | 0        | 0        | 64         | 853          |
| <b>Total</b>   | <b>1,259</b> | <b>9</b> | <b>16</b> | <b>1,284</b> | <b>109</b>  | <b>2</b> | <b>0</b> | <b>111</b> | <b>2,051</b> | <b>13</b> | <b>16</b> | <b>2,080</b> | <b>251</b> | <b>2</b> | <b>0</b> | <b>253</b> | <b>3,728</b> |



**Job No.** : N5390  
**Client** : GTA  
**Suburb** : Lidcombe  
**Location** : 9. Ann St / John St / Doodson Ave

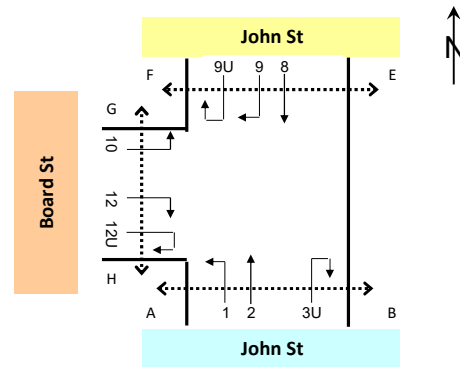
**Day/Date** : Thursday, 24th October 2019  
**Weather** : Fine  
**Description** : Classified Intersection Count  
 : Peak Hour Summary



| Approach    |                | John St |         |       |       | Doodson Ave |         |       |       | John St |         |       |       | Ann St |         |       |       | Grand Total |
|-------------|----------------|---------|---------|-------|-------|-------------|---------|-------|-------|---------|---------|-------|-------|--------|---------|-------|-------|-------------|
| Time Period |                | Lights  | Heavies | Buses | Total | Lights      | Heavies | Buses | Total | Lights  | Heavies | Buses | Total | Lights | Heavies | Buses | Total |             |
| AM          | 8:15 to 9:15   | 304     | 2       | 6     | 312   | 49          | 1       | 0     | 50    | 457     | 12      | 10    | 479   | 56     | 1       | 0     | 57    | 898         |
| PM          | 16:30 to 17:30 | 318     | 2       | 5     | 325   | 33          | 1       | 0     | 34    | 565     | 8       | 5     | 578   | 59     | 0       | 0     | 59    | 996         |

| Approach       |  | John St |         |       |       | Doodson Ave |         |       |       | John St |         |       |       | Ann St |         |       |       | Grand Total |
|----------------|--|---------|---------|-------|-------|-------------|---------|-------|-------|---------|---------|-------|-------|--------|---------|-------|-------|-------------|
| Time Period    |  | Lights  | Heavies | Buses | Total | Lights      | Heavies | Buses | Total | Lights  | Heavies | Buses | Total | Lights | Heavies | Buses | Total |             |
| 6:00 to 7:00   |  | 172     | 9       | 8     | 189   | 14          | 0       | 0     | 14    | 256     | 13      | 4     | 273   | 33     | 0       | 0     | 33    | 509         |
| 6:15 to 7:15   |  | 185     | 8       | 8     | 201   | 15          | 1       | 0     | 16    | 263     | 12      | 5     | 280   | 31     | 0       | 0     | 31    | 528         |
| 6:30 to 7:30   |  | 190     | 6       | 7     | 203   | 17          | 1       | 0     | 18    | 287     | 10      | 7     | 304   | 29     | 0       | 0     | 29    | 554         |
| 6:45 to 7:45   |  | 199     | 4       | 6     | 209   | 27          | 1       | 0     | 28    | 296     | 11      | 9     | 316   | 33     | 0       | 0     | 33    | 586         |
| 7:00 to 8:00   |  | 226     | 3       | 6     | 235   | 28          | 1       | 0     | 29    | 336     | 13      | 11    | 360   | 48     | 0       | 0     | 48    | 672         |
| 7:15 to 8:15   |  | 241     | 3       | 6     | 250   | 29          | 0       | 0     | 29    | 374     | 17      | 11    | 402   | 49     | 0       | 0     | 49    | 730         |
| 7:30 to 8:30   |  | 277     | 3       | 5     | 285   | 32          | 1       | 0     | 33    | 391     | 14      | 11    | 416   | 50     | 1       | 0     | 51    | 785         |
| 7:45 to 8:45   |  | 294     | 3       | 6     | 303   | 37          | 1       | 0     | 38    | 403     | 11      | 10    | 424   | 51     | 1       | 0     | 52    | 817         |
| 8:00 to 9:00   |  | 306     | 2       | 6     | 314   | 46          | 1       | 0     | 47    | 444     | 14      | 9     | 467   | 51     | 1       | 0     | 52    | 880         |
| 8:15 to 9:15   |  | 304     | 2       | 6     | 312   | 49          | 1       | 0     | 50    | 457     | 12      | 10    | 479   | 56     | 1       | 0     | 57    | 898         |
| 8:30 to 9:30   |  | 283     | 6       | 6     | 295   | 41          | 1       | 0     | 42    | 436     | 12      | 10    | 458   | 63     | 0       | 0     | 63    | 858         |
| 8:45 to 9:45   |  | 269     | 6       | 5     | 280   | 28          | 2       | 0     | 30    | 421     | 15      | 9     | 445   | 64     | 0       | 0     | 64    | 819         |
| 9:00 to 10:00  |  | 225     | 7       | 5     | 237   | 18          | 2       | 0     | 20    | 364     | 9       | 9     | 382   | 57     | 0       | 0     | 57    | 696         |
| AM Totals      |  | 929     | 21      | 25    | 975   | 106         | 4       | 0     | 110   | 1,400   | 49      | 33    | 1,482 | 189    | 1       | 0     | 190   | 2,757       |
| 15:00 to 16:00 |  | 304     | 10      | 7     | 321   | 42          | 0       | 0     | 42    | 533     | 4       | 6     | 543   | 61     | 1       | 0     | 62    | 968         |
| 15:15 to 16:15 |  | 294     | 10      | 7     | 311   | 28          | 0       | 0     | 28    | 511     | 5       | 6     | 522   | 52     | 1       | 0     | 53    | 914         |
| 15:30 to 16:30 |  | 291     | 8       | 8     | 307   | 32          | 0       | 0     | 32    | 496     | 5       | 4     | 505   | 52     | 1       | 0     | 53    | 897         |
| 15:45 to 16:45 |  | 310     | 9       | 9     | 328   | 30          | 0       | 0     | 30    | 495     | 6       | 5     | 506   | 51     | 0       | 0     | 51    | 915         |
| 16:00 to 17:00 |  | 334     | 6       | 6     | 346   | 37          | 1       | 0     | 38    | 500     | 9       | 6     | 515   | 55     | 0       | 0     | 55    | 954         |
| 16:15 to 17:15 |  | 327     | 4       | 7     | 338   | 40          | 1       | 0     | 41    | 527     | 9       | 5     | 541   | 55     | 0       | 0     | 55    | 975         |
| 16:30 to 17:30 |  | 318     | 2       | 5     | 325   | 33          | 1       | 0     | 34    | 565     | 8       | 5     | 578   | 59     | 0       | 0     | 59    | 996         |
| 16:45 to 17:45 |  | 316     | 1       | 6     | 323   | 27          | 1       | 0     | 28    | 566     | 7       | 6     | 579   | 65     | 0       | 0     | 65    | 995         |
| 17:00 to 18:00 |  | 318     | 0       | 6     | 324   | 23          | 0       | 0     | 23    | 560     | 4       | 4     | 568   | 70     | 0       | 0     | 70    | 985         |
| 17:15 to 18:15 |  | 316     | 0       | 7     | 323   | 23          | 0       | 0     | 23    | 553     | 4       | 5     | 562   | 88     | 0       | 0     | 88    | 996         |
| 17:30 to 18:30 |  | 319     | 0       | 8     | 327   | 28          | 0       | 0     | 28    | 540     | 3       | 6     | 549   | 89     | 0       | 0     | 89    | 993         |
| 17:45 to 18:45 |  | 340     | 0       | 6     | 346   | 31          | 0       | 0     | 31    | 513     | 2       | 4     | 519   | 88     | 0       | 0     | 88    | 984         |
| 18:00 to 19:00 |  | 314     | 0       | 6     | 320   | 33          | 0       | 0     | 33    | 489     | 1       | 4     | 494   | 81     | 0       | 0     | 81    | 928         |
| PM Totals      |  | 1,270   | 16      | 25    | 1,311 | 135         | 1       | 0     | 136   | 2,082   | 18      | 20    | 2,120 | 267    | 1       | 0     | 268   | 3,835       |

**Job No.** : N5390  
**Client** : GTA  
**Suburb** : Lidcombe  
**Location** : 10. Board St / John St  
  
**Day/Date** : Thursday, 24th October 2019  
**Weather** : Fine  
**Description** : Classified Intersection Count  
: Peak Hour Summary

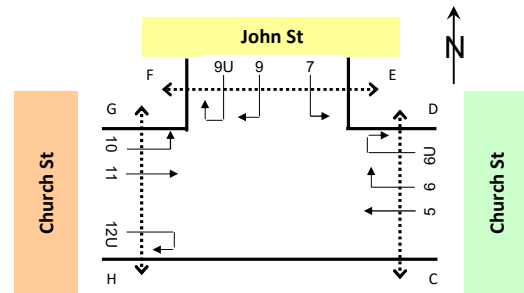


|                   | John St |         |       |       | John St |         |       |       | Board St |         |       |       | Grand Total |
|-------------------|---------|---------|-------|-------|---------|---------|-------|-------|----------|---------|-------|-------|-------------|
|                   | Lights  | Heavies | Buses | Total | Lights  | Heavies | Buses | Total | Lights   | Heavies | Buses | Total |             |
| AM 8:15 to 9:15   | 285     | 2       | 6     | 293   | 436     | 13      | 9     | 458   | 33       | 0       | 0     | 33    | 784         |
| PM 16:45 to 17:45 | 283     | 1       | 6     | 290   | 514     | 8       | 6     | 528   | 46       | 1       | 0     | 47    | 865         |

| Approach       | John St |         |       |       | John St |         |       |       | Board St |         |       |       | Grand Total |
|----------------|---------|---------|-------|-------|---------|---------|-------|-------|----------|---------|-------|-------|-------------|
|                | Lights  | Heavies | Buses | Total | Lights  | Heavies | Buses | Total | Lights   | Heavies | Buses | Total |             |
| 6:00 to 7:00   | 145     | 9       | 7     | 161   | 265     | 12      | 4     | 281   | 17       | 1       | 0     | 18    | 460         |
| 6:15 to 7:15   | 163     | 9       | 7     | 179   | 262     | 12      | 5     | 279   | 16       | 1       | 0     | 17    | 475         |
| 6:30 to 7:30   | 170     | 5       | 7     | 182   | 283     | 9       | 7     | 299   | 8        | 1       | 0     | 9     | 490         |
| 6:45 to 7:45   | 185     | 5       | 5     | 195   | 288     | 12      | 9     | 309   | 6        | 0       | 0     | 6     | 510         |
| 7:00 to 8:00   | 222     | 3       | 6     | 231   | 312     | 15      | 11    | 338   | 8        | 0       | 0     | 8     | 577         |
| 7:15 to 8:15   | 234     | 3       | 5     | 242   | 358     | 16      | 11    | 385   | 17       | 0       | 0     | 17    | 644         |
| 7:30 to 8:30   | 266     | 3       | 4     | 273   | 367     | 13      | 11    | 391   | 22       | 0       | 0     | 22    | 686         |
| 7:45 to 8:45   | 278     | 3       | 6     | 287   | 372     | 9       | 10    | 391   | 27       | 0       | 0     | 27    | 705         |
| 8:00 to 9:00   | 282     | 3       | 6     | 291   | 417     | 11      | 9     | 437   | 36       | 0       | 0     | 36    | 764         |
| 8:15 to 9:15   | 285     | 2       | 6     | 293   | 436     | 13      | 9     | 458   | 33       | 0       | 0     | 33    | 784         |
| 8:30 to 9:30   | 265     | 7       | 7     | 279   | 422     | 13      | 9     | 444   | 32       | 0       | 0     | 32    | 755         |
| 8:45 to 9:45   | 260     | 6       | 5     | 271   | 422     | 17      | 8     | 447   | 30       | 0       | 0     | 30    | 748         |
| 9:00 to 10:00  | 222     | 6       | 5     | 233   | 375     | 11      | 8     | 394   | 23       | 1       | 0     | 24    | 651         |
| AM Totals      | 871     | 21      | 24    | 916   | 1,369   | 49      | 32    | 1,450 | 84       | 2       | 0     | 86    | 2,452       |
| 15:00 to 16:00 | 269     | 10      | 7     | 286   | 481     | 5       | 6     | 492   | 50       | 0       | 0     | 50    | 828         |
| 15:15 to 16:15 | 274     | 11      | 7     | 292   | 468     | 6       | 6     | 480   | 33       | 0       | 0     | 33    | 805         |
| 15:30 to 16:30 | 275     | 7       | 8     | 290   | 454     | 6       | 4     | 464   | 27       | 0       | 0     | 27    | 781         |
| 15:45 to 16:45 | 284     | 8       | 9     | 301   | 470     | 4       | 5     | 479   | 33       | 0       | 0     | 33    | 813         |
| 16:00 to 17:00 | 301     | 5       | 6     | 312   | 471     | 9       | 6     | 486   | 37       | 1       | 0     | 38    | 836         |
| 16:15 to 17:15 | 295     | 2       | 7     | 304   | 481     | 9       | 5     | 495   | 40       | 1       | 0     | 41    | 840         |
| 16:30 to 17:30 | 276     | 2       | 5     | 283   | 511     | 8       | 5     | 524   | 49       | 1       | 0     | 50    | 857         |
| 16:45 to 17:45 | 283     | 1       | 6     | 290   | 514     | 8       | 6     | 528   | 46       | 1       | 0     | 47    | 865         |
| 17:00 to 18:00 | 281     | 0       | 6     | 287   | 512     | 5       | 4     | 521   | 42       | 0       | 0     | 42    | 850         |
| 17:15 to 18:15 | 289     | 0       | 7     | 296   | 510     | 5       | 5     | 520   | 49       | 0       | 0     | 49    | 865         |
| 17:30 to 18:30 | 304     | 0       | 8     | 312   | 492     | 4       | 6     | 502   | 44       | 0       | 0     | 44    | 858         |
| 17:45 to 18:45 | 323     | 0       | 6     | 329   | 478     | 3       | 4     | 485   | 49       | 0       | 0     | 49    | 863         |
| 18:00 to 19:00 | 303     | 0       | 6     | 309   | 459     | 1       | 4     | 464   | 48       | 0       | 0     | 48    | 821         |
| PM Totals      | 1,154   | 15      | 25    | 1,194 | 1,923   | 20      | 20    | 1,963 | 177      | 1       | 0     | 178   | 3,335       |

**Job No.** : N5390  
**Client** : GTA  
**Suburb** : Lidcombe  
**Location** : 12. John St / Church St

**Day/Date** : Thursday, 24th October 2019  
**Weather** : Fine  
**Description** : Classified Intersection Count  
 : Peak Hour Summary



| Approach    |                | Church St |         |       |       | John St |         |       |       | Church St |         |       |       | Grand Total |
|-------------|----------------|-----------|---------|-------|-------|---------|---------|-------|-------|-----------|---------|-------|-------|-------------|
| Time Period |                | Lights    | Heavies | Buses | Total | Lights  | Heavies | Buses | Total | Lights    | Heavies | Buses | Total |             |
| AM          | 8:15 to 9:15   | 465       | 15      | 11    | 491   | 401     | 9       | 13    | 423   | 227       | 8       | 2     | 237   | 1,151       |
| PM          | 15:00 to 16:00 | 665       | 13      | 13    | 691   | 477     | 4       | 12    | 493   | 260       | 5       | 2     | 267   | 1,451       |

| Approach       |  | Church St |         |       |       | John St |         |       |       | Church St |         |       |       | Grand Total |
|----------------|--|-----------|---------|-------|-------|---------|---------|-------|-------|-----------|---------|-------|-------|-------------|
| Time Period    |  | Lights    | Heavies | Buses | Total | Lights  | Heavies | Buses | Total | Lights    | Heavies | Buses | Total |             |
| 6:00 to 7:00   |  | 270       | 15      | 12    | 297   | 244     | 12      | 9     | 265   | 180       | 11      | 1     | 192   | 754         |
| 6:15 to 7:15   |  | 284       | 16      | 13    | 313   | 233     | 12      | 11    | 256   | 199       | 11      | 0     | 210   | 779         |
| 6:30 to 7:30   |  | 303       | 12      | 14    | 329   | 239     | 9       | 11    | 259   | 203       | 10      | 0     | 213   | 801         |
| 6:45 to 7:45   |  | 344       | 16      | 13    | 373   | 243     | 12      | 13    | 268   | 215       | 9       | 0     | 224   | 865         |
| 7:00 to 8:00   |  | 393       | 12      | 13    | 418   | 282     | 14      | 16    | 312   | 206       | 9       | 0     | 215   | 945         |
| 7:15 to 8:15   |  | 433       | 10      | 12    | 455   | 321     | 15      | 16    | 352   | 197       | 10      | 1     | 208   | 1,015       |
| 7:30 to 8:30   |  | 460       | 17      | 10    | 487   | 348     | 12      | 15    | 375   | 207       | 9       | 1     | 217   | 1,079       |
| 7:45 to 8:45   |  | 474       | 13      | 10    | 497   | 349     | 9       | 13    | 371   | 206       | 11      | 2     | 219   | 1,087       |
| 8:00 to 9:00   |  | 466       | 14      | 11    | 491   | 384     | 10      | 14    | 408   | 219       | 9       | 3     | 231   | 1,130       |
| 8:15 to 9:15   |  | 465       | 15      | 11    | 491   | 401     | 9       | 13    | 423   | 227       | 8       | 2     | 237   | 1,151       |
| 8:30 to 9:30   |  | 442       | 14      | 10    | 466   | 400     | 10      | 14    | 424   | 220       | 9       | 2     | 231   | 1,121       |
| 8:45 to 9:45   |  | 428       | 17      | 9     | 454   | 389     | 14      | 14    | 417   | 228       | 6       | 1     | 235   | 1,106       |
| 9:00 to 10:00  |  | 385       | 14      | 9     | 408   | 350     | 10      | 12    | 372   | 209       | 7       | 0     | 216   | 996         |
| AM Totals      |  | 1,514     | 55      | 45    | 1,614 | 1,260   | 46      | 51    | 1,357 | 814       | 36      | 4     | 854   | 3,825       |
| 15:00 to 16:00 |  | 665       | 13      | 13    | 691   | 477     | 4       | 12    | 493   | 260       | 5       | 2     | 267   | 1,451       |
| 15:15 to 16:15 |  | 671       | 12      | 14    | 697   | 467     | 5       | 10    | 482   | 253       | 3       | 2     | 258   | 1,437       |
| 15:30 to 16:30 |  | 690       | 8       | 15    | 713   | 424     | 5       | 9     | 438   | 257       | 3       | 2     | 262   | 1,413       |
| 15:45 to 16:45 |  | 686       | 11      | 16    | 713   | 423     | 4       | 10    | 437   | 251       | 3       | 0     | 254   | 1,404       |
| 16:00 to 17:00 |  | 694       | 13      | 13    | 720   | 435     | 8       | 11    | 454   | 245       | 4       | 0     | 249   | 1,423       |
| 16:15 to 17:15 |  | 692       | 12      | 13    | 717   | 423     | 8       | 11    | 442   | 260       | 3       | 0     | 263   | 1,422       |
| 16:30 to 17:30 |  | 653       | 11      | 10    | 674   | 468     | 7       | 10    | 485   | 257       | 5       | 1     | 263   | 1,422       |
| 16:45 to 17:45 |  | 674       | 11      | 12    | 697   | 463     | 6       | 11    | 480   | 257       | 8       | 1     | 266   | 1,443       |
| 17:00 to 18:00 |  | 657       | 5       | 11    | 673   | 460     | 4       | 8     | 472   | 261       | 7       | 1     | 269   | 1,414       |
| 17:15 to 18:15 |  | 659       | 5       | 11    | 675   | 451     | 4       | 8     | 463   | 251       | 7       | 1     | 259   | 1,397       |
| 17:30 to 18:30 |  | 701       | 7       | 14    | 722   | 436     | 4       | 10    | 450   | 237       | 5       | 0     | 242   | 1,414       |
| 17:45 to 18:45 |  | 700       | 5       | 11    | 716   | 426     | 3       | 8     | 437   | 244       | 1       | 0     | 245   | 1,398       |
| 18:00 to 19:00 |  | 696       | 7       | 12    | 715   | 413     | 1       | 8     | 422   | 234       | 0       | 0     | 234   | 1,371       |
| PM Totals      |  | 2,712     | 38      | 49    | 2,799 | 1,785   | 17      | 39    | 1,841 | 1,000     | 16      | 3     | 1,019 | 5,659       |

## B.SIDRA INTERSECTION RESULTS

B



# MOVEMENT SUMMARY

 Site: 101 [1 - John/ Church AM Existing]

 Network: N101 [AM Existing]

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 80 seconds (Site User-Given Phase Times)

| Movement Performance - Vehicles |      |              |      |               |      |           |               |                  |                     |              |                     |                  |               |
|---------------------------------|------|--------------|------|---------------|------|-----------|---------------|------------------|---------------------|--------------|---------------------|------------------|---------------|
| Mov ID                          | Turn | Demand Flows |      | Arrival Flows |      | Deg. Satn | Average Delay | Level of Service | Aver. Back of Queue | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed |
|                                 |      | Total veh/h  | HV % | Total veh/h   | HV % | v/c       | sec           |                  | Vehicles veh        | Distance m   |                     |                  | km/h          |
| East: Church St                 |      |              |      |               |      |           |               |                  |                     |              |                     |                  |               |
| 5                               | T1   | 277          | 5.3  | 277           | 5.3  | 0.346     | 16.7          | LOS B            | 4.5                 | 32.7         | 0.72                | 0.61             | 32.8          |
| 6                               | R2   | 240          | 4.8  | 240           | 4.8  | 0.639     | 33.0          | LOS C            | 5.1                 | 37.2         | 0.96                | 1.07             | 15.0          |
| Approach                        |      | 517          | 5.1  | 517           | 5.1  | 0.639     | 24.3          | LOS B            | 5.1                 | 37.2         | 0.83                | 0.73             | 24.7          |
| North: John St                  |      |              |      |               |      |           |               |                  |                     |              |                     |                  |               |
| 7                               | L2   | 173          | 9.1  | 173           | 9.1  | 0.240     | 14.3          | LOS A            | 1.9                 | 14.3         | 0.69                | 0.72             | 30.1          |
| 9                               | R2   | 273          | 2.7  | 273           | 2.7  | 0.711     | 31.7          | LOS C            | 5.7                 | 41.0         | 0.87                | 0.84             | 24.2          |
| Approach                        |      | 445          | 5.2  | 445           | 5.2  | 0.711     | 24.9          | LOS B            | 5.7                 | 41.0         | 0.80                | 0.79             | 26.0          |
| West: Church St                 |      |              |      |               |      |           |               |                  |                     |              |                     |                  |               |
| 10                              | L2   | 51           | 0.0  | 51            | 0.0  | 0.350     | 29.2          | LOS C            | 1.7                 | 12.1         | 0.93                | 0.78             | 20.5          |
| 11                              | T1   | 199          | 5.3  | 199           | 5.3  | 0.350     | 28.1          | LOS B            | 2.9                 | 21.3         | 0.89                | 0.75             | 25.1          |
| Approach                        |      | 249          | 4.2  | 249           | 4.2  | 0.350     | 28.3          | LOS B            | 2.9                 | 21.3         | 0.89                | 0.75             | 24.4          |
| All Vehicles                    |      | 1212         | 5.0  | 1212          | 5.0  | 0.711     | 25.3          | LOS B            | 5.7                 | 41.0         | 0.83                | 0.76             | 25.1          |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

| Movement Performance - Pedestrians |                     |                   |                   |                  |                                      |              |                     |      |
|------------------------------------|---------------------|-------------------|-------------------|------------------|--------------------------------------|--------------|---------------------|------|
| Mov ID                             | Description         | Demand Flow ped/h | Average Delay sec | Level of Service | Average Back of Queue Pedestrian ped | Prop. Queued | Effective Stop Rate |      |
| P2                                 | East Full Crossing  | 847               | 35.5              | LOS D            | 1.8                                  | 1.8          | 0.96                | 0.96 |
| P3                                 | North Full Crossing | 28                | 34.3              | LOS D            | 0.1                                  | 0.1          | 0.93                | 0.93 |
| P4                                 | West Full Crossing  | 185               | 34.5              | LOS D            | 0.4                                  | 0.4          | 0.93                | 0.93 |
| All Pedestrians                    |                     | 1061              | 35.3              | LOS D            |                                      |              | 0.95                | 0.95 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Project: \\gta.com.au\projectfiles\ProjectFilesSyd\N12800-12899\N128983 Dooleys Lidcombe Redevelopment - DA\Modelling\DA1\200528sid-N128983 Dooleys Lidcombe DA1.sip8

# MOVEMENT SUMMARY

Site: 1 [2 - John/ Broad AM Existing]

Network: N101 [AM Existing]

Site Category: -  
Giveway / Yield (Two-Way)

| Movement Performance - Vehicles |      |              |               |             |           |               |                  |                     |              |                     |                  |               |      |      |
|---------------------------------|------|--------------|---------------|-------------|-----------|---------------|------------------|---------------------|--------------|---------------------|------------------|---------------|------|------|
| Mov ID                          | Turn | Demand Flows | Arrival Flows |             | Deg. Satn | Average Delay | Level of Service | Aver. Back of Queue | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed |      |      |
|                                 |      | Total veh/h  | HV %          | Total veh/h | HV %      | v/c           | sec              | Vehicles veh        | Distance m   |                     |                  | km/h          |      |      |
| South: John Street              |      |              |               |             |           |               |                  |                     |              |                     |                  |               |      |      |
| 1                               | L2   | 5            | 0.0           | 5           | 0.0       | 0.159         | 4.6              | LOS A               | 0.0          | 0.0                 | 0.00             | 0.23          | 0.00 | 38.7 |
| 2                               | T1   | 303          | 0.7           | 303         | 0.7       | 0.159         | 1.2              | LOS A               | 0.0          | 0.0                 | 0.00             | 0.23          | 0.00 | 45.6 |
| Approach                        |      | 308          | 0.7           | 308         | 0.7       | 0.159         | 1.2              | NA                  | 0.0          | 0.0                 | 0.00             | 0.23          | 0.00 | 45.4 |
| North: John Street              |      |              |               |             |           |               |                  |                     |              |                     |                  |               |      |      |
| 8                               | T1   | 463          | 2.7           | 463         | 2.7       | 0.251         | 0.1              | LOS A               | 0.1          | 0.4                 | 0.03             | 0.01          | 0.03 | 38.9 |
| 9                               | R2   | 12           | 9.1           | 12          | 9.1       | 0.251         | 5.1              | LOS A               | 0.1          | 0.4                 | 0.03             | 0.01          | 0.03 | 26.3 |
| Approach                        |      | 475          | 2.9           | 475         | 2.9       | 0.251         | 0.2              | NA                  | 0.1          | 0.4                 | 0.03             | 0.01          | 0.03 | 38.1 |
| West: Broad Street              |      |              |               |             |           |               |                  |                     |              |                     |                  |               |      |      |
| 10                              | L2   | 22           | 0.0           | 22          | 0.0       | 0.038         | 5.6              | LOS A               | 0.1          | 0.4                 | 0.38             | 0.59          | 0.38 | 23.9 |
| 12                              | R2   | 13           | 0.0           | 13          | 0.0       | 0.038         | 8.4              | LOS A               | 0.1          | 0.4                 | 0.38             | 0.59          | 0.38 | 23.9 |
| Approach                        |      | 35           | 0.0           | 35          | 0.0       | 0.038         | 6.6              | LOS A               | 0.1          | 0.4                 | 0.38             | 0.59          | 0.38 | 23.9 |
| All Vehicles                    |      | 818          | 1.9           | 818         | 1.9       | 0.251         | 0.9              | NA                  | 0.1          | 0.4                 | 0.03             | 0.12          | 0.03 | 41.1 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).  
 Vehicle movement LOS values are based on average delay per movement.  
 Minor Road Approach LOS values are based on average delay for all vehicle movements.  
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.  
 SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.  
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

Site: 101 [□ - John/ Ann AM Existing]

Network: N101 [AM Existing]

Site Category: (None)  
 Giveway / Yield (Two-Way)

| Movement Performance - Vehicles |      |             |       |             |       |           |               |                  |                     |              |                     |                  |               |      |
|---------------------------------|------|-------------|-------|-------------|-------|-----------|---------------|------------------|---------------------|--------------|---------------------|------------------|---------------|------|
| Mov ID                          | Turn | Demand      | Flows | Arrival     | Flows | Deg. Satn | Average Delay | Level of Service | Aver. Back of Queue | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed |      |
|                                 |      | Total veh/h | HV %  | Total veh/h | HV %  | v/c       | sec           |                  | Vehicles veh        | Distance m   |                     |                  | km/h          |      |
| South: John St                  |      |             |       |             |       |           |               |                  |                     |              |                     |                  |               |      |
| 1                               | L2   | 25          | 0.0   | 25          | 0.0   | 0.180     | 4.7           | LOS A            | 0.1                 | 0.7          | 0.10                | 0.07             | 0.10          | 39.1 |
| 2                               | T1   | 281         | 3.0   | 281         | 3.0   | 0.180     | 0.3           | LOS A            | 0.1                 | 0.7          | 0.10                | 0.07             | 0.10          | 39.3 |
| 3                               | R2   | 20          | 0.0   | 20          | 0.0   | 0.180     | 5.9           | LOS A            | 0.1                 | 0.7          | 0.10                | 0.07             | 0.10          | 43.8 |
| Approach                        |      | 326         | 2.6   | 326         | 2.6   | 0.180     | 0.9           | NA               | 0.1                 | 0.7          | 0.10                | 0.07             | 0.10          | 39.4 |
| East: Doodson Ave               |      |             |       |             |       |           |               |                  |                     |              |                     |                  |               |      |
| 4                               | L2   | 33          | 0.0   | 33          | 0.0   | 0.077     | 6.2           | LOS A            | 0.1                 | 0.8          | 0.52                | 0.70             | 0.52          | 36.9 |
| 5                               | T1   | 2           | 0.0   | 2           | 0.0   | 0.077     | 8.0           | LOS A            | 0.1                 | 0.8          | 0.52                | 0.70             | 0.52          | 38.3 |
| 6                               | R2   | 18          | 5.9   | 18          | 5.9   | 0.077     | 11.3          | LOS A            | 0.1                 | 0.8          | 0.52                | 0.70             | 0.52          | 38.5 |
| Approach                        |      | 53          | 2.0   | 53          | 2.0   | 0.077     | 8.0           | LOS A            | 0.1                 | 0.8          | 0.52                | 0.70             | 0.52          | 37.8 |
| North: John St                  |      |             |       |             |       |           |               |                  |                     |              |                     |                  |               |      |
| 7                               | L2   | 55          | 1.9   | 55          | 1.9   | 0.271     | 3.8           | LOS A            | 0.1                 | 0.8          | 0.06                | 0.07             | 0.06          | 42.3 |
| 8                               | T1   | 428         | 4.9   | 428         | 4.9   | 0.271     | 0.1           | LOS A            | 0.1                 | 0.8          | 0.06                | 0.07             | 0.06          | 39.4 |
| 9                               | R2   | 18          | 0.0   | 18          | 0.0   | 0.271     | 5.0           | LOS A            | 0.1                 | 0.8          | 0.06                | 0.07             | 0.06          | 39.3 |
| Approach                        |      | 501         | 4.4   | 501         | 4.4   | 0.271     | 0.7           | NA               | 0.1                 | 0.8          | 0.06                | 0.07             | 0.06          | 39.8 |
| West: Ann St                    |      |             |       |             |       |           |               |                  |                     |              |                     |                  |               |      |
| 10                              | L2   | 33          | 0.0   | 33          | 0.0   | 0.086     | 4.4           | LOS A            | 0.1                 | 0.9          | 0.44                | 0.60             | 0.44          | 36.4 |
| 11                              | T1   | 5           | 0.0   | 5           | 0.0   | 0.086     | 7.2           | LOS A            | 0.1                 | 0.9          | 0.44                | 0.60             | 0.44          | 38.5 |
| 12                              | R2   | 22          | 4.8   | 22          | 4.8   | 0.086     | 9.9           | LOS A            | 0.1                 | 0.9          | 0.44                | 0.60             | 0.44          | 29.9 |
| Approach                        |      | 60          | 1.8   | 60          | 1.8   | 0.086     | 6.7           | LOS A            | 0.1                 | 0.9          | 0.44                | 0.60             | 0.44          | 35.4 |
| All Vehicles                    |      | 940         | 3.5   | 940         | 3.5   | 0.271     | 1.6           | NA               | 0.1                 | 0.9          | 0.12                | 0.14             | 0.12          | 39.3 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).  
 Vehicle movement LOS values are based on average delay per movement.  
 Minor Road Approach LOS values are based on average delay for all vehicle movements.  
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.  
 SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.  
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.



# MOVEMENT SUMMARY

 Site: 101 [1 - John/ Church PM Existing]

 Network: N101 [PM Existing]

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 90 seconds (Site User-Given Phase Times)

| Movement Performance - Vehicles |      |              |      |               |      |           |               |                  |                     |            |              |                     |                  |               |
|---------------------------------|------|--------------|------|---------------|------|-----------|---------------|------------------|---------------------|------------|--------------|---------------------|------------------|---------------|
| Mov ID                          | Turn | Demand Flows |      | Arrival Flows |      | Deg. Satn | Average Delay | Level of Service | Aver. Back of Queue |            | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed |
|                                 |      | Total veh/h  | HV % | Total veh/h   | HV % |           |               |                  | Vehicles veh        | Distance m |              |                     |                  |               |
| East: Church St                 |      |              |      |               |      |           |               |                  |                     |            |              |                     |                  |               |
| 5                               | T1   | 496          | 2.3  | 496           | 2.3  | 0.529     | 17.8          | LOS B            | 9.1                 | 64.9       | 0.75         | 0.66                | 0.75             | 32.0          |
| 6                               | R2   | 238          | 5.3  | 238           | 5.3  | 0.529     | 30.7          | LOS C            | 5.6                 | 40.8       | 0.90         | 0.81                | 0.91             | 15.8          |
| Approach                        |      | 734          | 3.3  | 734           | 3.3  | 0.529     | 22.0          | LOS B            | 9.1                 | 64.9       | 0.80         | 0.71                | 0.81             | 27.2          |
| North: John St                  |      |              |      |               |      |           |               |                  |                     |            |              |                     |                  |               |
| 7                               | L2   | 172          | 6.7  | 172           | 6.7  | 0.223     | 14.8          | LOS B            | 2.1                 | 15.3       | 0.66         | 0.72                | 0.66             | 29.8          |
| 9                               | R2   | 334          | 1.9  | 334           | 1.9  | 0.908     | 54.2          | LOS D            | 10.5                | 74.8       | 0.94         | 1.03                | 1.38             | 17.9          |
| Approach                        |      | 505          | 3.5  | 505           | 3.5  | 0.908     | 40.8          | LOS C            | 10.5                | 74.8       | 0.85         | 0.92                | 1.14             | 20.3          |
| West: Church St                 |      |              |      |               |      |           |               |                  |                     |            |              |                     |                  |               |
| 10                              | L2   | 73           | 0.0  | 73            | 0.0  | 0.370     | 31.1          | LOS C            | 2.3                 | 16.5       | 0.91         | 0.81                | 1.08             | 19.6          |
| 11                              | T1   | 207          | 4.6  | 207           | 4.6  | 0.370     | 29.9          | LOS C            | 3.3                 | 24.0       | 0.87         | 0.75                | 0.92             | 24.3          |
| Approach                        |      | 280          | 3.4  | 280           | 3.4  | 0.370     | 30.2          | LOS C            | 3.3                 | 24.0       | 0.88         | 0.76                | 0.96             | 23.4          |
| All Vehicles                    |      | 1519         | 3.4  | 1519          | 3.4  | 0.908     | 29.8          | LOS C            | 10.5                | 74.8       | 0.83         | 0.79                | 0.94             | 23.6          |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

| Movement Performance - Pedestrians |                     |             |               |                  |                       |              |                     |      |
|------------------------------------|---------------------|-------------|---------------|------------------|-----------------------|--------------|---------------------|------|
| Mov ID                             | Description         | Demand Flow | Average Delay | Level of Service | Average Back of Queue | Prop. Queued | Effective Stop Rate |      |
|                                    |                     | ped/h       | sec           |                  | Pedestrian ped        | Distance m   |                     |      |
| P2                                 | East Full Crossing  | 656         | 40.3          | LOS E            | 1.6                   | 1.6          | 0.96                | 0.96 |
| P3                                 | North Full Crossing | 78          | 39.3          | LOS D            | 0.2                   | 0.2          | 0.94                | 0.94 |
| P4                                 | West Full Crossing  | 384         | 39.8          | LOS D            | 0.9                   | 0.9          | 0.95                | 0.95 |
| All Pedestrians                    |                     | 1118        | 40.1          | LOS E            |                       |              | 0.95                | 0.95 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Organisation: GTA CONSULTANTS | Processed: Friday, 29 May 2020 12:28:04 AM

Project: \\gta.com.au\projectfiles\ProjectFilesSyd\N12800-12899\N128983 Dooleys Lidcombe Redevelopment - DA\Modelling\DA1\200528sid-N128983 Dooleys Lidcombe DA1.sip8

# MOVEMENT SUMMARY

Site: 1 [2 - John/ Broad PM Existing]

Network: N101 [PM Existing]

Site Category: -  
Giveway / Yield (Two-Way)

| Movement Performance - Vehicles |      |              |      |               |      |           |               |                  |                              |            |              |                     |                  |                    |
|---------------------------------|------|--------------|------|---------------|------|-----------|---------------|------------------|------------------------------|------------|--------------|---------------------|------------------|--------------------|
| Mov ID                          | Turn | Demand Flows |      | Arrival Flows |      | Deg. Satn | Average Delay | Level of Service | Aver. Back of Queue Vehicles | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
|                                 |      | Total veh/h  | HV % | Total veh/h   | HV % | v/c       | sec           |                  |                              |            |              |                     |                  |                    |
| South: John Street              |      |              |      |               |      |           |               |                  |                              |            |              |                     |                  |                    |
| 1                               | L2   | 7            | 0.0  | 7             | 0.0  | 0.157     | 4.6           | LOS A            | 0.0                          | 0.0        | 0.00         | 0.01                | 0.00             | 35.8               |
| 2                               | T1   | 298          | 0.4  | 298           | 0.4  | 0.157     | 0.0           | LOS A            | 0.0                          | 0.0        | 0.00         | 0.01                | 0.00             | 49.5               |
| Approach                        |      | 305          | 0.3  | 305           | 0.3  | 0.157     | 0.1           | NA               | 0.0                          | 0.0        | 0.00         | 0.01                | 0.00             | 48.9               |
| North: John Street              |      |              |      |               |      |           |               |                  |                              |            |              |                     |                  |                    |
| 8                               | T1   | 528          | 1.6  | 528           | 1.6  | 0.293     | 0.1           | LOS A            | 0.1                          | 1.0        | 0.06         | 0.03                | 0.06             | 46.2               |
| 9                               | R2   | 26           | 0.0  | 26            | 0.0  | 0.293     | 6.1           | LOS A            | 0.1                          | 1.0        | 0.06         | 0.03                | 0.06             | 21.3               |
| Approach                        |      | 555          | 1.5  | 555           | 1.5  | 0.293     | 0.4           | NA               | 0.1                          | 1.0        | 0.06         | 0.03                | 0.06             | 42.0               |
| West: Broad Street              |      |              |      |               |      |           |               |                  |                              |            |              |                     |                  |                    |
| 10                              | L2   | 41           | 2.6  | 41            | 2.6  | 0.048     | 5.6           | LOS A            | 0.1                          | 0.6        | 0.36         | 0.57                | 0.36             | 24.8               |
| 12                              | R2   | 8            | 0.0  | 8             | 0.0  | 0.048     | 9.2           | LOS A            | 0.1                          | 0.6        | 0.36         | 0.57                | 0.36             | 24.8               |
| Approach                        |      | 49           | 2.1  | 49            | 2.1  | 0.048     | 6.2           | LOS A            | 0.1                          | 0.6        | 0.36         | 0.57                | 0.36             | 24.8               |
| All Vehicles                    |      | 909          | 1.2  | 909           | 1.2  | 0.293     | 0.6           | NA               | 0.1                          | 1.0        | 0.06         | 0.05                | 0.06             | 44.0               |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).  
 Vehicle movement LOS values are based on average delay per movement.  
 Minor Road Approach LOS values are based on average delay for all vehicle movements.  
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.  
 SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.  
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

Site: 101 [3 - John/ Ann PM Existing]

Network: N101 [PM Existing]

Site Category: (None)  
 Giveway / Yield (Two-Way)

| Movement Performance - Vehicles |      |              |      |               |      |           |               |                  |                     |              |                     |                  |               |      |
|---------------------------------|------|--------------|------|---------------|------|-----------|---------------|------------------|---------------------|--------------|---------------------|------------------|---------------|------|
| Mov ID                          | Turn | Demand Flows |      | Arrival Flows |      | Deg. Satn | Average Delay | Level of Service | Aver. Back of Queue | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed |      |
|                                 |      | Total veh/h  | HV % | Total veh/h   | HV % | v/c       | sec           |                  | Vehicles veh        | Distance m   |                     |                  | km/h          |      |
| South: John St                  |      |              |      |               |      |           |               |                  |                     |              |                     |                  |               |      |
| 1                               | L2   | 31           | 0.0  | 31            | 0.0  | 0.182     | 4.1           | LOS A            | 0.0                 | 0.3          | 0.04                | 0.05             | 0.04          | 39.6 |
| 2                               | T1   | 303          | 2.8  | 303           | 2.8  | 0.182     | 0.1           | LOS A            | 0.0                 | 0.3          | 0.04                | 0.05             | 0.04          | 39.6 |
| 3                               | R2   | 6            | 0.0  | 6             | 0.0  | 0.182     | 6.5           | LOS A            | 0.0                 | 0.3          | 0.04                | 0.05             | 0.04          | 44.3 |
| Approach                        |      | 340          | 2.5  | 340           | 2.5  | 0.182     | 0.6           | NA               | 0.0                 | 0.3          | 0.04                | 0.05             | 0.04          | 39.6 |
| East: Doodson Ave               |      |              |      |               |      |           |               |                  |                     |              |                     |                  |               |      |
| 4                               | L2   | 6            | 0.0  | 6             | 0.0  | 0.073     | 6.7           | LOS A            | 0.1                 | 0.7          | 0.66                | 0.82             | 0.66          | 33.0 |
| 5                               | T1   | 3            | 33.3 | 3             | 33.3 | 0.073     | 13.0          | LOS A            | 0.1                 | 0.7          | 0.66                | 0.82             | 0.66          | 35.5 |
| 6                               | R2   | 20           | 0.0  | 20            | 0.0  | 0.073     | 12.8          | LOS A            | 0.1                 | 0.7          | 0.66                | 0.82             | 0.66          | 36.8 |
| Approach                        |      | 29           | 3.6  | 29            | 3.6  | 0.073     | 11.5          | LOS A            | 0.1                 | 0.7          | 0.66                | 0.82             | 0.66          | 36.3 |
| North: John St                  |      |              |      |               |      |           |               |                  |                     |              |                     |                  |               |      |
| 7                               | L2   | 33           | 0.0  | 33            | 0.0  | 0.330     | 4.6           | LOS A            | 0.3                 | 1.9          | 0.12                | 0.06             | 0.12          | 42.2 |
| 8                               | T1   | 528          | 2.4  | 528           | 2.4  | 0.330     | 0.2           | LOS A            | 0.3                 | 1.9          | 0.12                | 0.06             | 0.12          | 39.2 |
| 9                               | R2   | 46           | 0.0  | 46            | 0.0  | 0.330     | 5.3           | LOS A            | 0.3                 | 1.9          | 0.12                | 0.06             | 0.12          | 39.1 |
| Approach                        |      | 607          | 2.1  | 607           | 2.1  | 0.330     | 0.8           | NA               | 0.3                 | 1.9          | 0.12                | 0.06             | 0.12          | 39.4 |
| West: Ann St                    |      |              |      |               |      |           |               |                  |                     |              |                     |                  |               |      |
| 10                              | L2   | 49           | 0.0  | 49            | 0.0  | 0.089     | 4.4           | LOS A            | 0.1                 | 0.9          | 0.43                | 0.58             | 0.43          | 36.6 |
| 11                              | T1   | 1            | 0.0  | 1             | 0.0  | 0.089     | 8.7           | LOS A            | 0.1                 | 0.9          | 0.43                | 0.58             | 0.43          | 38.7 |
| 12                              | R2   | 18           | 0.0  | 18            | 0.0  | 0.089     | 11.5          | LOS A            | 0.1                 | 0.9          | 0.43                | 0.58             | 0.43          | 30.3 |
| Approach                        |      | 68           | 0.0  | 68            | 0.0  | 0.089     | 6.3           | LOS A            | 0.1                 | 0.9          | 0.43                | 0.58             | 0.43          | 35.9 |
| All Vehicles                    |      | 1045         | 2.1  | 1045          | 2.1  | 0.330     | 1.4           | NA               | 0.3                 | 1.9          | 0.13                | 0.11             | 0.13          | 39.1 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).  
 Vehicle movement LOS values are based on average delay per movement.  
 Minor Road Approach LOS values are based on average delay for all vehicle movements.  
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.  
 SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.  
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

# MOVEMENT SUMMARY

 Site: 101 [1 - John/ Church SAT Existing]

 Network: N101 [Sat Existing]

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 80 seconds (Site User-Given Phase Times)

| Movement Performance - Vehicles |      |              |      |               |      |           |               |                  |                     |              |                     |                  |               |
|---------------------------------|------|--------------|------|---------------|------|-----------|---------------|------------------|---------------------|--------------|---------------------|------------------|---------------|
| Mov ID                          | Turn | Demand Flows |      | Arrival Flows |      | Deg. Satn | Average Delay | Level of Service | Aver. Back of Queue | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed |
|                                 |      | Total veh/h  | HV % | Total veh/h   | HV % | v/c       | sec           |                  | Vehicles veh        | Distance m   |                     |                  | km/h          |
| East: Church St                 |      |              |      |               |      |           |               |                  |                     |              |                     |                  |               |
| 5                               | T1   | 494          | 0.4  | 494           | 0.4  | 0.549     | 16.7          | LOS B            | 8.5                 | 59.9         | 0.77                | 0.68             | 32.8          |
| 6                               | R2   | 244          | 3.9  | 244           | 3.9  | 0.578     | 31.8          | LOS C            | 5.0                 | 36.0         | 0.94                | 1.09             | 15.4          |
| Approach                        |      | 738          | 1.6  | 738           | 1.6  | 0.578     | 21.7          | LOS B            | 8.5                 | 59.9         | 0.83                | 0.75             | 27.3          |
| North: John St                  |      |              |      |               |      |           |               |                  |                     |              |                     |                  |               |
| 7                               | L2   | 219          | 2.9  | 219           | 2.9  | 0.292     | 14.3          | LOS A            | 2.4                 | 17.4         | 0.71                | 0.74             | 30.1          |
| 9                               | R2   | 313          | 1.3  | 313           | 1.3  | 0.947     | 61.3          | LOS E            | 10.0                | 70.6         | 0.94                | 1.13             | 16.5          |
| Approach                        |      | 532          | 2.0  | 532           | 2.0  | 0.947     | 41.9          | LOS C            | 10.0                | 70.6         | 0.85                | 0.97             | 19.9          |
| West: Church St                 |      |              |      |               |      |           |               |                  |                     |              |                     |                  |               |
| 10                              | L2   | 77           | 1.4  | 77            | 1.4  | 0.485     | 33.3          | LOS C            | 2.5                 | 17.9         | 0.95                | 0.85             | 18.8          |
| 11                              | T1   | 248          | 0.4  | 248           | 0.4  | 0.485     | 29.5          | LOS C            | 3.7                 | 25.9         | 0.90                | 0.78             | 24.5          |
| Approach                        |      | 325          | 0.6  | 325           | 0.6  | 0.485     | 30.4          | LOS C            | 3.7                 | 25.9         | 0.92                | 0.79             | 23.4          |
| All Vehicles                    |      | 1595         | 1.5  | 1595          | 1.5  | 0.947     | 30.2          | LOS C            | 10.0                | 70.6         | 0.85                | 0.83             | 23.4          |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

| Movement Performance - Pedestrians |                     |                   |                   |                  |                                      |              |                     |      |
|------------------------------------|---------------------|-------------------|-------------------|------------------|--------------------------------------|--------------|---------------------|------|
| Mov ID                             | Description         | Demand Flow ped/h | Average Delay sec | Level of Service | Average Back of Queue Pedestrian ped | Prop. Queued | Effective Stop Rate |      |
| P2                                 | East Full Crossing  | 398               | 34.8              | LOS D            | 0.9                                  | 0.9          | 0.94                | 0.94 |
| P3                                 | North Full Crossing | 111               | 34.4              | LOS D            | 0.2                                  | 0.2          | 0.93                | 0.93 |
| P4                                 | West Full Crossing  | 222               | 34.5              | LOS D            | 0.5                                  | 0.5          | 0.93                | 0.93 |
| All Pedestrians                    |                     | 731               | 34.7              | LOS D            |                                      |              | 0.94                | 0.94 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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# MOVEMENT SUMMARY

Site: 1 [2 - John/ Broad SAT Existing]

Network: N101 [Sat Existing]

Site Category: -  
Giveway / Yield (Two-Way)

| Movement Performance - Vehicles |      |              |      |               |      |           |               |                  |                              |            |              |                     |                  |                    |
|---------------------------------|------|--------------|------|---------------|------|-----------|---------------|------------------|------------------------------|------------|--------------|---------------------|------------------|--------------------|
| Mov ID                          | Turn | Demand Flows |      | Arrival Flows |      | Deg. Satn | Average Delay | Level of Service | Aver. Back of Queue Vehicles | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
|                                 |      | Total veh/h  | HV % | Total veh/h   | HV % | v/c       | sec           |                  |                              |            |              |                     |                  |                    |
| South: John Street              |      |              |      |               |      |           |               |                  |                              |            |              |                     |                  |                    |
| 1                               | L2   | 20           | 0.0  | 20            | 0.0  | 0.185     | 4.6           | LOS A            | 0.0                          | 0.0        | 0.00         | 0.03                | 0.00             | 35.6               |
| 2                               | T1   | 338          | 1.2  | 338           | 1.2  | 0.185     | 0.0           | LOS A            | 0.0                          | 0.0        | 0.00         | 0.03                | 0.00             | 49.0               |
| Approach                        |      | 358          | 1.2  | 358           | 1.2  | 0.185     | 0.3           | NA               | 0.0                          | 0.0        | 0.00         | 0.03                | 0.00             | 47.6               |
| North: John Street              |      |              |      |               |      |           |               |                  |                              |            |              |                     |                  |                    |
| 8                               | T1   | 560          | 0.6  | 560           | 0.6  | 0.308     | 0.1           | LOS A            | 0.1                          | 1.0        | 0.06         | 0.03                | 0.06             | 46.3               |
| 9                               | R2   | 25           | 0.0  | 25            | 0.0  | 0.308     | 6.4           | LOS A            | 0.1                          | 1.0        | 0.06         | 0.03                | 0.06             | 21.3               |
| Approach                        |      | 585          | 0.5  | 585           | 0.5  | 0.308     | 0.4           | NA               | 0.1                          | 1.0        | 0.06         | 0.03                | 0.06             | 42.4               |
| West: Broad Street              |      |              |      |               |      |           |               |                  |                              |            |              |                     |                  |                    |
| 10                              | L2   | 39           | 2.7  | 39            | 2.7  | 0.049     | 5.8           | LOS A            | 0.1                          | 0.6        | 0.40         | 0.58                | 0.40             | 24.2               |
| 12                              | R2   | 8            | 0.0  | 8             | 0.0  | 0.049     | 9.9           | LOS A            | 0.1                          | 0.6        | 0.40         | 0.58                | 0.40             | 24.2               |
| Approach                        |      | 47           | 2.2  | 47            | 2.2  | 0.049     | 6.5           | LOS A            | 0.1                          | 0.6        | 0.40         | 0.58                | 0.40             | 24.2               |
| All Vehicles                    |      | 991          | 0.9  | 991           | 0.9  | 0.308     | 0.6           | NA               | 0.1                          | 1.0        | 0.06         | 0.05                | 0.06             | 43.9               |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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# MOVEMENT SUMMARY

Site: 101 [□ - John/ Ann SAT Existing]

Network: N101 [Sat Existing]

Site Category: (None)  
 Giveway / Yield (Two-Way)

| Movement Performance - Vehicles |      |              |       |               |       |           |               |                  |              |               |              |                     |                  |               |
|---------------------------------|------|--------------|-------|---------------|-------|-----------|---------------|------------------|--------------|---------------|--------------|---------------------|------------------|---------------|
| Mov ID                          | Turn | Demand Flows |       | Arrival Flows |       | Deg. Satn | Average Delay | Level of Service | Aver. Queue  | Back of Queue | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed |
|                                 |      | Total veh/h  | HV %  | Total veh/h   | HV %  | v/c       | sec           |                  | Vehicles veh | Distance m    |              |                     |                  | km/h          |
| South: John St                  |      |              |       |               |       |           |               |                  |              |               |              |                     |                  |               |
| 1                               | L2   | 23           | 4.5   | 23            | 4.5   | 0.214     | 4.9           | LOS A            | 0.1          | 0.5           | 0.06         | 0.04                | 0.06             | 39.5          |
| 2                               | T1   | 363          | 1.7   | 363           | 1.7   | 0.214     | 0.2           | LOS A            | 0.1          | 0.5           | 0.06         | 0.04                | 0.06             | 39.5          |
| 3                               | R2   | 9            | 11.1  | 9             | 11.1  | 0.214     | 7.3           | LOS A            | 0.1          | 0.5           | 0.06         | 0.04                | 0.06             | 43.8          |
| Approach                        |      | 396          | 2.1   | 396           | 2.1   | 0.214     | 0.6           | NA               | 0.1          | 0.5           | 0.06         | 0.04                | 0.06             | 39.6          |
| East: Doodson Ave               |      |              |       |               |       |           |               |                  |              |               |              |                     |                  |               |
| 4                               | L2   | 21           | 0.0   | 21            | 0.0   | 0.083     | 6.9           | LOS A            | 0.1          | 0.8           | 0.63         | 0.78                | 0.63             | 33.8          |
| 5                               | T1   | 1            | 0.0   | 1             | 0.0   | 0.083     | 10.5          | LOS A            | 0.1          | 0.8           | 0.63         | 0.78                | 0.63             | 36.2          |
| 6                               | R2   | 16           | 13.3  | 16            | 13.3  | 0.083     | 16.2          | LOS B            | 0.1          | 0.8           | 0.63         | 0.78                | 0.63             | 37.1          |
| Approach                        |      | 38           | 5.6   | 38            | 5.6   | 0.083     | 10.9          | LOS A            | 0.1          | 0.8           | 0.63         | 0.78                | 0.63             | 35.9          |
| North: John St                  |      |              |       |               |       |           |               |                  |              |               |              |                     |                  |               |
| 7                               | L2   | 15           | 100.0 | 15            | 100.0 | 0.341     | 5.3           | LOS A            | 0.2          | 1.7           | 0.11         | 0.05                | 0.11             | 41.5          |
| 8                               | T1   | 551          | 6.7   | 551           | 6.7   | 0.341     | 0.2           | LOS A            | 0.2          | 1.7           | 0.11         | 0.05                | 0.11             | 39.3          |
| 9                               | R2   | 40           | 0.0   | 40            | 0.0   | 0.341     | 5.7           | LOS A            | 0.2          | 1.7           | 0.11         | 0.05                | 0.11             | 39.2          |
| Approach                        |      | 605          | 8.5   | 605           | 8.5   | 0.341     | 0.8           | NA               | 0.2          | 1.7           | 0.11         | 0.05                | 0.11             | 39.4          |
| West: Ann St                    |      |              |       |               |       |           |               |                  |              |               |              |                     |                  |               |
| 10                              | L2   | 42           | 0.0   | 42            | 0.0   | 0.112     | 4.7           | LOS A            | 0.2          | 1.1           | 0.51         | 0.64                | 0.51             | 35.8          |
| 11                              | T1   | 1            | 0.0   | 1             | 0.0   | 0.112     | 9.7           | LOS A            | 0.2          | 1.1           | 0.51         | 0.64                | 0.51             | 37.5          |
| 12                              | R2   | 23           | 4.5   | 23            | 4.5   | 0.112     | 13.7          | LOS A            | 0.2          | 1.1           | 0.51         | 0.64                | 0.51             | 28.5          |
| Approach                        |      | 66           | 1.6   | 66            | 1.6   | 0.112     | 7.9           | LOS A            | 0.2          | 1.1           | 0.51         | 0.64                | 0.51             | 34.6          |
| All Vehicles                    |      | 1105         | 5.7   | 1105          | 5.7   | 0.341     | 1.5           | NA               | 0.2          | 1.7           | 0.13         | 0.11                | 0.13             | 39.0          |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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# MOVEMENT SUMMARY

 Site: 101 [1 - John/ Church AM Phase 1]

 Network: N101 [AM Phase 1]

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 80 seconds (Site User-Given Phase Times)

| Movement Performance - Vehicles |      |              |      |               |      |           |               |                  |                     |              |                     |                  |               |
|---------------------------------|------|--------------|------|---------------|------|-----------|---------------|------------------|---------------------|--------------|---------------------|------------------|---------------|
| Mov ID                          | Turn | Demand Flows |      | Arrival Flows |      | Deg. Satn | Average Delay | Level of Service | Aver. Back of Queue | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed |
|                                 |      | Total veh/h  | HV % | Total veh/h   | HV % | v/c       | sec           |                  | Vehicles veh        | Distance m   |                     |                  | km/h          |
| East: Church St                 |      |              |      |               |      |           |               |                  |                     |              |                     |                  |               |
| 5                               | T1   | 277          | 5.3  | 277           | 5.3  | 0.346     | 16.7          | LOS B            | 4.5                 | 32.7         | 0.72                | 0.61             | 32.8          |
| 6                               | R2   | 241          | 4.8  | 241           | 4.8  | 0.641     | 33.1          | LOS C            | 5.1                 | 37.4         | 0.96                | 1.08             | 14.9          |
| Approach                        |      | 518          | 5.1  | 518           | 5.1  | 0.641     | 24.3          | LOS B            | 5.1                 | 37.4         | 0.83                | 0.73             | 24.6          |
| North: John St                  |      |              |      |               |      |           |               |                  |                     |              |                     |                  |               |
| 7                               | L2   | 173          | 9.1  | 173           | 9.1  | 0.240     | 14.3          | LOS A            | 1.9                 | 14.3         | 0.69                | 0.72             | 30.1          |
| 9                               | R2   | 275          | 3.1  | 275           | 3.1  | 0.719     | 31.9          | LOS C            | 5.8                 | 41.8         | 0.88                | 0.84             | 24.1          |
| Approach                        |      | 447          | 5.4  | 447           | 5.4  | 0.719     | 25.1          | LOS B            | 5.8                 | 41.8         | 0.80                | 0.80             | 25.9          |
| West: Church St                 |      |              |      |               |      |           |               |                  |                     |              |                     |                  |               |
| 10                              | L2   | 52           | 2.0  | 52            | 2.0  | 0.353     | 28.8          | LOS C            | 1.7                 | 12.2         | 0.93                | 0.78             | 20.6          |
| 11                              | T1   | 199          | 5.3  | 199           | 5.3  | 0.353     | 28.0          | LOS B            | 2.9                 | 21.5         | 0.89                | 0.74             | 25.1          |
| Approach                        |      | 251          | 4.6  | 251           | 4.6  | 0.353     | 28.2          | LOS B            | 2.9                 | 21.5         | 0.89                | 0.75             | 24.4          |
| All Vehicles                    |      | 1216         | 5.1  | 1216          | 5.1  | 0.719     | 25.4          | LOS B            | 5.8                 | 41.8         | 0.83                | 0.76             | 25.1          |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

| Movement Performance - Pedestrians |                     |                   |                   |                  |                                      |              |                     |      |
|------------------------------------|---------------------|-------------------|-------------------|------------------|--------------------------------------|--------------|---------------------|------|
| Mov ID                             | Description         | Demand Flow ped/h | Average Delay sec | Level of Service | Average Back of Queue Pedestrian ped | Prop. Queued | Effective Stop Rate |      |
| P2                                 | East Full Crossing  | 847               | 35.5              | LOS D            | 1.8                                  | 1.8          | 0.96                | 0.96 |
| P3                                 | North Full Crossing | 28                | 34.3              | LOS D            | 0.1                                  | 0.1          | 0.93                | 0.93 |
| P4                                 | West Full Crossing  | 185               | 34.5              | LOS D            | 0.4                                  | 0.4          | 0.93                | 0.93 |
| All Pedestrians                    |                     | 1061              | 35.3              | LOS D            |                                      |              | 0.95                | 0.95 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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# MOVEMENT SUMMARY

Site: 1 [2 - John/ Broad AM Phase 1]

Network: N101 [AM Phase 1]

Site Category: -  
Giveway / Yield (Two-Way)

| Movement Performance - Vehicles |      |              |      |               |      |           |               |                  |                      |                        |              |                     |                  |               |
|---------------------------------|------|--------------|------|---------------|------|-----------|---------------|------------------|----------------------|------------------------|--------------|---------------------|------------------|---------------|
| Mov ID                          | Turn | Demand Flows |      | Arrival Flows |      | Deg. Satn | Average Delay | Level of Service | Aver. Queue Vehicles | Back of Queue Distance | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed |
|                                 |      | Total veh/h  | HV % | Total veh/h   | HV % | v/c       | sec           |                  | veh                  | m                      |              |                     |                  | km/h          |
| South: John Street              |      |              |      |               |      |           |               |                  |                      |                        |              |                     |                  |               |
| 1                               | L2   | 7            | 14.3 | 7             | 14.3 | 0.161     | 4.7           | LOS A            | 0.0                  | 0.0                    | 0.00         | 0.23                | 0.00             | 38.3          |
| 2                               | T1   | 303          | 0.7  | 303           | 0.7  | 0.161     | 1.2           | LOS A            | 0.0                  | 0.0                    | 0.00         | 0.23                | 0.00             | 45.6          |
| Approach                        |      | 311          | 1.0  | 311           | 1.0  | 0.161     | 1.3           | NA               | 0.0                  | 0.0                    | 0.00         | 0.23                | 0.00             | 45.3          |
| North: John Street              |      |              |      |               |      |           |               |                  |                      |                        |              |                     |                  |               |
| 8                               | T1   | 463          | 2.7  | 463           | 2.7  | 0.258     | 0.1           | LOS A            | 0.1                  | 0.7                    | 0.05         | 0.02                | 0.05             | 38.5          |
| 9                               | R2   | 17           | 25.0 | 17            | 25.0 | 0.258     | 6.1           | LOS A            | 0.1                  | 0.7                    | 0.05         | 0.02                | 0.05             | 25.6          |
| Approach                        |      | 480          | 3.5  | 480           | 3.5  | 0.258     | 0.3           | NA               | 0.1                  | 0.7                    | 0.05         | 0.02                | 0.05             | 37.3          |
| West: Broad Street              |      |              |      |               |      |           |               |                  |                      |                        |              |                     |                  |               |
| 10                              | L2   | 27           | 11.5 | 27            | 11.5 | 0.049     | 5.9           | LOS A            | 0.1                  | 0.6                    | 0.39         | 0.61                | 0.39             | 23.6          |
| 12                              | R2   | 15           | 7.1  | 15            | 7.1  | 0.049     | 9.0           | LOS A            | 0.1                  | 0.6                    | 0.39         | 0.61                | 0.39             | 23.6          |
| Approach                        |      | 42           | 10.0 | 42            | 10.0 | 0.049     | 7.0           | LOS A            | 0.1                  | 0.6                    | 0.39         | 0.61                | 0.39             | 23.6          |
| All Vehicles                    |      | 833          | 2.9  | 833           | 2.9  | 0.258     | 1.0           | NA               | 0.1                  | 0.7                    | 0.05         | 0.13                | 0.05             | 40.5          |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).  
 Vehicle movement LOS values are based on average delay per movement.  
 Minor Road Approach LOS values are based on average delay for all vehicle movements.  
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.  
 SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.  
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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# MOVEMENT SUMMARY

Site: 101 [□ - John/ Ann AM Phase 1]

Network: N101 [AM Phase 1]

Site Category: (None)  
Giveway / Yield (Two-Way)

| Movement Performance - Vehicles |      |             |       |             |       |           |               |                  |              |            |              |                     |                  |               |
|---------------------------------|------|-------------|-------|-------------|-------|-----------|---------------|------------------|--------------|------------|--------------|---------------------|------------------|---------------|
| Mov ID                          | Turn | Demand      | Flows | Arrival     | Flows | Deg. Satn | Average Delay | Level of Service | Aver. Queue  | Back of    | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed |
|                                 |      | Total veh/h | HV %  | Total veh/h | HV %  | v/c       | sec           |                  | Vehicles veh | Distance m |              |                     |                  | km/h          |
| South: John St                  |      |             |       |             |       |           |               |                  |              |            |              |                     |                  |               |
| 1                               | L2   | 25          | 0.0   | 25          | 0.0   | 0.184     | 4.8           | LOS A            | 0.1          | 0.7        | 0.10         | 0.08                | 0.10             | 39.1          |
| 2                               | T1   | 286         | 4.0   | 286         | 4.0   | 0.184     | 0.4           | LOS A            | 0.1          | 0.7        | 0.10         | 0.08                | 0.10             | 39.6          |
| 3                               | R2   | 20          | 0.0   | 20          | 0.0   | 0.184     | 5.9           | LOS A            | 0.1          | 0.7        | 0.10         | 0.08                | 0.10             | 43.8          |
| Approach                        |      | 332         | 3.5   | 332         | 3.5   | 0.184     | 1.0           | NA               | 0.1          | 0.7        | 0.10         | 0.08                | 0.10             | 39.7          |
| East: Doodson Ave               |      |             |       |             |       |           |               |                  |              |            |              |                     |                  |               |
| 4                               | L2   | 33          | 0.0   | 33          | 0.0   | 0.079     | 6.2           | LOS A            | 0.1          | 0.8        | 0.52         | 0.70                | 0.52             | 36.8          |
| 5                               | T1   | 2           | 0.0   | 2           | 0.0   | 0.079     | 8.2           | LOS A            | 0.1          | 0.8        | 0.52         | 0.70                | 0.52             | 38.2          |
| 6                               | R2   | 18          | 5.9   | 18          | 5.9   | 0.079     | 11.5          | LOS A            | 0.1          | 0.8        | 0.52         | 0.70                | 0.52             | 38.4          |
| Approach                        |      | 53          | 2.0   | 53          | 2.0   | 0.079     | 8.1           | LOS A            | 0.1          | 0.8        | 0.52         | 0.70                | 0.52             | 37.8          |
| North: John St                  |      |             |       |             |       |           |               |                  |              |            |              |                     |                  |               |
| 7                               | L2   | 55          | 1.9   | 55          | 1.9   | 0.275     | 3.9           | LOS A            | 0.1          | 0.8        | 0.06         | 0.07                | 0.06             | 42.4          |
| 8                               | T1   | 434         | 5.6   | 434         | 5.6   | 0.275     | 0.1           | LOS A            | 0.1          | 0.8        | 0.06         | 0.07                | 0.06             | 39.6          |
| 9                               | R2   | 18          | 0.0   | 18          | 0.0   | 0.275     | 5.0           | LOS A            | 0.1          | 0.8        | 0.06         | 0.07                | 0.06             | 39.4          |
| Approach                        |      | 506         | 5.0   | 506         | 5.0   | 0.275     | 0.7           | NA               | 0.1          | 0.8        | 0.06         | 0.07                | 0.06             | 40.0          |
| West: Ann St                    |      |             |       |             |       |           |               |                  |              |            |              |                     |                  |               |
| 10                              | L2   | 33          | 0.0   | 33          | 0.0   | 0.087     | 4.4           | LOS A            | 0.1          | 0.9        | 0.45         | 0.61                | 0.45             | 36.4          |
| 11                              | T1   | 5           | 0.0   | 5           | 0.0   | 0.087     | 7.3           | LOS A            | 0.1          | 0.9        | 0.45         | 0.61                | 0.45             | 38.4          |
| 12                              | R2   | 22          | 4.8   | 22          | 4.8   | 0.087     | 10.1          | LOS A            | 0.1          | 0.9        | 0.45         | 0.61                | 0.45             | 29.8          |
| Approach                        |      | 60          | 1.8   | 60          | 1.8   | 0.087     | 6.8           | LOS A            | 0.1          | 0.9        | 0.45         | 0.61                | 0.45             | 35.3          |
| All Vehicles                    |      | 951         | 4.1   | 951         | 4.1   | 0.275     | 1.6           | NA               | 0.1          | 0.9        | 0.12         | 0.14                | 0.12             | 39.5          |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).  
 Vehicle movement LOS values are based on average delay per movement.  
 Minor Road Approach LOS values are based on average delay for all vehicle movements.  
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.  
 SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.  
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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# MOVEMENT SUMMARY

 Site: 101 [1 - John/ Church PM Phase 1]

 Network: N101 [PM Phase 1]

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 90 seconds (Site User-Given Phase Times)

| Movement Performance - Vehicles |      |              |               |             |               |                  |                     |              |                     |                  |               |      |      |      |
|---------------------------------|------|--------------|---------------|-------------|---------------|------------------|---------------------|--------------|---------------------|------------------|---------------|------|------|------|
| Mov ID                          | Turn | Demand Flows | Arrival Flows | Deg. Satn   | Average Delay | Level of Service | Aver. Back of Queue | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed |      |      |      |
|                                 |      | Total veh/h  | HV %          | Total veh/h | HV %          | v/c              | sec                 | Vehicles veh | Distance m          |                  |               |      | km/h |      |
| East: Church St                 |      |              |               |             |               |                  |                     |              |                     |                  |               |      |      |      |
| 5                               | T1   | 496          | 2.3           | 496         | 2.3           | 0.531            | 17.8                | LOS B        | 9.1                 | 65.2             | 0.75          | 0.66 | 0.75 | 32.1 |
| 6                               | R2   | 240          | 5.3           | 240         | 5.3           | 0.531            | 30.7                | LOS C        | 5.6                 | 40.9             | 0.90          | 0.82 | 0.92 | 15.8 |
| Approach                        |      | 736          | 3.3           | 736         | 3.3           | 0.531            | 22.0                | LOS B        | 9.1                 | 65.2             | 0.80          | 0.71 | 0.81 | 27.1 |
| North: John St                  |      |              |               |             |               |                  |                     |              |                     |                  |               |      |      |      |
| 7                               | L2   | 173          | 6.7           | 173         | 6.7           | 0.225            | 14.8                | LOS B        | 2.1                 | 15.4             | 0.66          | 0.72 | 0.66 | 29.8 |
| 9                               | R2   | 335          | 1.9           | 335         | 1.9           | 0.912            | 55.0                | LOS D        | 10.6                | 75.7             | 0.94          | 1.03 | 1.40 | 17.7 |
| Approach                        |      | 507          | 3.5           | 507         | 3.5           | 0.912            | 41.3                | LOS C        | 10.6                | 75.7             | 0.85          | 0.93 | 1.15 | 20.2 |
| West: Church St                 |      |              |               |             |               |                  |                     |              |                     |                  |               |      |      |      |
| 10                              | L2   | 74           | 0.0           | 74          | 0.0           | 0.372            | 30.9                | LOS C        | 2.3                 | 16.5             | 0.91          | 0.81 | 1.08 | 19.7 |
| 11                              | T1   | 207          | 4.6           | 207         | 4.6           | 0.372            | 29.8                | LOS C        | 3.3                 | 24.0             | 0.87          | 0.75 | 0.91 | 24.4 |
| Approach                        |      | 281          | 3.4           | 281         | 3.4           | 0.372            | 30.1                | LOS C        | 3.3                 | 24.0             | 0.88          | 0.76 | 0.96 | 23.4 |
| All Vehicles                    |      | 1524         | 3.4           | 1524        | 3.4           | 0.912            | 29.9                | LOS C        | 10.6                | 75.7             | 0.83          | 0.79 | 0.95 | 23.6 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

| Movement Performance - Pedestrians |                     |             |               |                  |                       |              |                     |      |
|------------------------------------|---------------------|-------------|---------------|------------------|-----------------------|--------------|---------------------|------|
| Mov ID                             | Description         | Demand Flow | Average Delay | Level of Service | Average Back of Queue | Prop. Queued | Effective Stop Rate |      |
|                                    |                     | ped/h       | sec           |                  | Pedestrian ped        | Distance m   |                     |      |
| P2                                 | East Full Crossing  | 656         | 40.3          | LOS E            | 1.6                   | 1.6          | 0.96                | 0.96 |
| P3                                 | North Full Crossing | 78          | 39.3          | LOS D            | 0.2                   | 0.2          | 0.94                | 0.94 |
| P4                                 | West Full Crossing  | 384         | 39.8          | LOS D            | 0.9                   | 0.9          | 0.95                | 0.95 |
| All Pedestrians                    |                     | 1118        | 40.1          | LOS E            |                       |              | 0.95                | 0.95 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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# MOVEMENT SUMMARY

Site: 1 [2 - John/ Broad PM Phase 1]

Network: N101 [PM Phase 1]

Site Category: -  
Giveway / Yield (Two-Way)

| Movement Performance - Vehicles |      |              |      |               |      |           |               |                  |                              |          |              |                     |                  |               |
|---------------------------------|------|--------------|------|---------------|------|-----------|---------------|------------------|------------------------------|----------|--------------|---------------------|------------------|---------------|
| Mov ID                          | Turn | Demand Flows |      | Arrival Flows |      | Deg. Satn | Average Delay | Level of Service | Aver. Back of Queue Vehicles | Distance | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed |
|                                 |      | Total veh/h  | HV % | Total veh/h   | HV % | v/c       | sec           |                  | veh                          | m        |              |                     |                  | km/h          |
| South: John Street              |      |              |      |               |      |           |               |                  |                              |          |              |                     |                  |               |
| 1                               | L2   | 11           | 0.0  | 11            | 0.0  | 0.159     | 4.6           | LOS A            | 0.0                          | 0.0      | 0.00         | 0.02                | 0.00             | 35.8          |
| 2                               | T1   | 298          | 0.4  | 298           | 0.4  | 0.159     | 0.0           | LOS A            | 0.0                          | 0.0      | 0.00         | 0.02                | 0.00             | 49.4          |
| Approach                        |      | 308          | 0.3  | 308           | 0.3  | 0.159     | 0.2           | NA               | 0.0                          | 0.0      | 0.00         | 0.02                | 0.00             | 48.6          |
| North: John Street              |      |              |      |               |      |           |               |                  |                              |          |              |                     |                  |               |
| 8                               | T1   | 528          | 1.6  | 528           | 1.6  | 0.300     | 0.2           | LOS A            | 0.2                          | 1.3      | 0.08         | 0.04                | 0.08             | 45.1          |
| 9                               | R2   | 36           | 0.0  | 36            | 0.0  | 0.300     | 6.3           | LOS A            | 0.2                          | 1.3      | 0.08         | 0.04                | 0.08             | 21.2          |
| Approach                        |      | 564          | 1.5  | 564           | 1.5  | 0.300     | 0.6           | NA               | 0.2                          | 1.3      | 0.08         | 0.04                | 0.08             | 40.0          |
| West: Broad Street              |      |              |      |               |      |           |               |                  |                              |          |              |                     |                  |               |
| 10                              | L2   | 52           | 2.0  | 52            | 2.0  | 0.060     | 5.8           | LOS A            | 0.1                          | 0.7      | 0.37         | 0.58                | 0.37             | 24.8          |
| 12                              | R2   | 11           | 0.0  | 11            | 0.0  | 0.060     | 9.6           | LOS A            | 0.1                          | 0.7      | 0.37         | 0.58                | 0.37             | 24.8          |
| Approach                        |      | 62           | 1.7  | 62            | 1.7  | 0.060     | 6.4           | LOS A            | 0.1                          | 0.7      | 0.37         | 0.58                | 0.37             | 24.8          |
| All Vehicles                    |      | 935          | 1.1  | 935           | 1.1  | 0.300     | 0.8           | NA               | 0.2                          | 1.3      | 0.07         | 0.07                | 0.07             | 42.5          |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).  
 Vehicle movement LOS values are based on average delay per movement.  
 Minor Road Approach LOS values are based on average delay for all vehicle movements.  
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.  
 SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.  
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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# MOVEMENT SUMMARY

Site: 101 [3 - John/ Ann PM Phase 1]

Network: N101 [PM Phase 1]

Site Category: (None)  
 Giveway / Yield (Two-Way)

| Movement Performance - Vehicles |      |             |       |             |       |           |               |                  |              |            |              |                     |                  |               |
|---------------------------------|------|-------------|-------|-------------|-------|-----------|---------------|------------------|--------------|------------|--------------|---------------------|------------------|---------------|
| Mov ID                          | Turn | Demand      | Flows | Arrival     | Flows | Deg. Satn | Average Delay | Level of Service | Aver. Queue  | Back of    | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed |
|                                 |      | Total veh/h | HV %  | Total veh/h | HV %  | v/c       | sec           |                  | Vehicles veh | Distance m |              |                     |                  | km/h          |
| South: John St                  |      |             |       |             |       |           |               |                  |              |            |              |                     |                  |               |
| 1                               | L2   | 31          | 0.0   | 31          | 0.0   | 0.188     | 4.1           | LOS A            | 0.0          | 0.3        | 0.04         | 0.05                | 0.04             | 39.8          |
| 2                               | T1   | 314         | 2.7   | 314         | 2.7   | 0.188     | 0.1           | LOS A            | 0.0          | 0.3        | 0.04         | 0.05                | 0.04             | 40.2          |
| 3                               | R2   | 6           | 0.0   | 6           | 0.0   | 0.188     | 6.6           | LOS A            | 0.0          | 0.3        | 0.04         | 0.05                | 0.04             | 44.5          |
| Approach                        |      | 351         | 2.4   | 351         | 2.4   | 0.188     | 0.6           | NA               | 0.0          | 0.3        | 0.04         | 0.05                | 0.04             | 40.2          |
| East: Doodson Ave               |      |             |       |             |       |           |               |                  |              |            |              |                     |                  |               |
| 4                               | L2   | 6           | 0.0   | 6           | 0.0   | 0.075     | 6.7           | LOS A            | 0.1          | 0.7        | 0.67         | 0.83                | 0.67             | 32.7          |
| 5                               | T1   | 3           | 33.3  | 3           | 33.3  | 0.075     | 13.4          | LOS A            | 0.1          | 0.7        | 0.67         | 0.83                | 0.67             | 35.4          |
| 6                               | R2   | 20          | 0.0   | 20          | 0.0   | 0.075     | 13.1          | LOS A            | 0.1          | 0.7        | 0.67         | 0.83                | 0.67             | 36.6          |
| Approach                        |      | 29          | 3.6   | 29          | 3.6   | 0.075     | 11.8          | LOS A            | 0.1          | 0.7        | 0.67         | 0.83                | 0.67             | 36.1          |
| North: John St                  |      |             |       |             |       |           |               |                  |              |            |              |                     |                  |               |
| 7                               | L2   | 33          | 0.0   | 33          | 0.0   | 0.335     | 4.7           | LOS A            | 0.3          | 1.9        | 0.12         | 0.06                | 0.12             | 42.4          |
| 8                               | T1   | 538         | 2.3   | 538         | 2.3   | 0.335     | 0.2           | LOS A            | 0.3          | 1.9        | 0.12         | 0.06                | 0.12             | 39.5          |
| 9                               | R2   | 46          | 0.0   | 46          | 0.0   | 0.335     | 5.4           | LOS A            | 0.3          | 1.9        | 0.12         | 0.06                | 0.12             | 39.3          |
| Approach                        |      | 617         | 2.0   | 617         | 2.0   | 0.335     | 0.9           | NA               | 0.3          | 1.9        | 0.12         | 0.06                | 0.12             | 39.7          |
| West: Ann St                    |      |             |       |             |       |           |               |                  |              |            |              |                     |                  |               |
| 10                              | L2   | 49          | 0.0   | 49          | 0.0   | 0.091     | 4.5           | LOS A            | 0.1          | 0.9        | 0.44         | 0.59                | 0.44             | 36.5          |
| 11                              | T1   | 1           | 0.0   | 1           | 0.0   | 0.091     | 9.0           | LOS A            | 0.1          | 0.9        | 0.44         | 0.59                | 0.44             | 38.6          |
| 12                              | R2   | 18          | 0.0   | 18          | 0.0   | 0.091     | 11.8          | LOS A            | 0.1          | 0.9        | 0.44         | 0.59                | 0.44             | 30.1          |
| Approach                        |      | 68          | 0.0   | 68          | 0.0   | 0.091     | 6.5           | LOS A            | 0.1          | 0.9        | 0.44         | 0.59                | 0.44             | 35.8          |
| All Vehicles                    |      | 1065        | 2.1   | 1065        | 2.1   | 0.335     | 1.4           | NA               | 0.3          | 1.9        | 0.13         | 0.11                | 0.13             | 39.4          |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).  
 Vehicle movement LOS values are based on average delay per movement.  
 Minor Road Approach LOS values are based on average delay for all vehicle movements.  
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.  
 SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.  
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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# MOVEMENT SUMMARY

 Site: 101 [1 - John/ Church SAT Phase 1]

 Network: N101 [Sat Phase 1]

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 80 seconds (Site User-Given Phase Times)

| Movement Performance - Vehicles |      |              |      |               |      |           |               |                  |                     |              |                     |                  |               |
|---------------------------------|------|--------------|------|---------------|------|-----------|---------------|------------------|---------------------|--------------|---------------------|------------------|---------------|
| Mov ID                          | Turn | Demand Flows |      | Arrival Flows |      | Deg. Satn | Average Delay | Level of Service | Aver. Back of Queue | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed |
|                                 |      | Total veh/h  | HV % | Total veh/h   | HV % | v/c       | sec           |                  | Vehicles veh        | Distance m   |                     |                  | km/h          |
| East: Church St                 |      |              |      |               |      |           |               |                  |                     |              |                     |                  |               |
| 5                               | T1   | 494          | 0.4  | 494           | 0.4  | 0.549     | 16.7          | LOS B            | 8.5                 | 59.9         | 0.77                | 0.68             | 32.8          |
| 6                               | R2   | 248          | 3.8  | 248           | 3.8  | 0.582     | 30.9          | LOS C            | 5.0                 | 36.0         | 0.93                | 0.88             | 15.7          |
| Approach                        |      | 742          | 1.6  | 742           | 1.6  | 0.582     | 21.5          | LOS B            | 8.5                 | 59.9         | 0.82                | 0.75             | 27.4          |
| North: John St                  |      |              |      |               |      |           |               |                  |                     |              |                     |                  |               |
| 7                               | L2   | 220          | 2.9  | 220           | 2.9  | 0.293     | 14.3          | LOS A            | 2.4                 | 17.5         | 0.71                | 0.74             | 30.1          |
| 9                               | R2   | 314          | 1.3  | 314           | 1.3  | 0.950     | 62.5          | LOS E            | 10.1                | 71.6         | 0.94                | 1.14             | 16.3          |
| Approach                        |      | 534          | 2.0  | 534           | 2.0  | 0.950     | 42.6          | LOS D            | 10.1                | 71.6         | 0.85                | 0.97             | 19.7          |
| West: Church St                 |      |              |      |               |      |           |               |                  |                     |              |                     |                  |               |
| 10                              | L2   | 78           | 1.4  | 78            | 1.4  | 0.487     | 33.1          | LOS C            | 2.5                 | 18.0         | 0.95                | 0.85             | 18.8          |
| 11                              | T1   | 248          | 0.4  | 248           | 0.4  | 0.487     | 29.5          | LOS C            | 3.7                 | 25.9         | 0.90                | 0.77             | 24.5          |
| Approach                        |      | 326          | 0.6  | 326           | 0.6  | 0.487     | 30.3          | LOS C            | 3.7                 | 25.9         | 0.92                | 0.79             | 23.4          |
| All Vehicles                    |      | 1602         | 1.5  | 1602          | 1.5  | 0.950     | 30.3          | LOS C            | 10.1                | 71.6         | 0.85                | 0.83             | 23.3          |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

| Movement Performance - Pedestrians |                     |                   |                   |                  |                                      |              |                     |      |
|------------------------------------|---------------------|-------------------|-------------------|------------------|--------------------------------------|--------------|---------------------|------|
| Mov ID                             | Description         | Demand Flow ped/h | Average Delay sec | Level of Service | Average Back of Queue Pedestrian ped | Prop. Queued | Effective Stop Rate |      |
| P2                                 | East Full Crossing  | 398               | 34.8              | LOS D            | 0.9                                  | 0.9          | 0.94                | 0.94 |
| P3                                 | North Full Crossing | 111               | 34.4              | LOS D            | 0.2                                  | 0.2          | 0.93                | 0.93 |
| P4                                 | West Full Crossing  | 222               | 34.5              | LOS D            | 0.5                                  | 0.5          | 0.93                | 0.93 |
| All Pedestrians                    |                     | 731               | 34.7              | LOS D            |                                      |              | 0.94                | 0.94 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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# MOVEMENT SUMMARY

Site: 1 [2 - John/ Road SAT Phase 1]

Network: N101 [Sat Phase 1]

Site Category: -  
Giveway / Yield (Two-Way)

| Movement Performance - Vehicles |      |              |      |               |      |           |               |                  |                              |          |              |                     |                  |               |
|---------------------------------|------|--------------|------|---------------|------|-----------|---------------|------------------|------------------------------|----------|--------------|---------------------|------------------|---------------|
| Mov ID                          | Turn | Demand Flows |      | Arrival Flows |      | Deg. Satn | Average Delay | Level of Service | Aver. Back of Queue Vehicles | Distance | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed |
|                                 |      | Total veh/h  | HV % | Total veh/h   | HV % | v/c       | sec           |                  | veh                          | m        |              |                     |                  | km/h          |
| South: John Street              |      |              |      |               |      |           |               |                  |                              |          |              |                     |                  |               |
| 1                               | L2   | 25           | 0.0  | 25            | 0.0  | 0.188     | 4.6           | LOS A            | 0.0                          | 0.0      | 0.00         | 0.04                | 0.00             | 36.8          |
| 2                               | T1   | 338          | 1.2  | 338           | 1.2  | 0.188     | 0.0           | LOS A            | 0.0                          | 0.0      | 0.00         | 0.04                | 0.00             | 48.8          |
| Approach                        |      | 363          | 1.2  | 363           | 1.2  | 0.188     | 0.3           | NA               | 0.0                          | 0.0      | 0.00         | 0.04                | 0.00             | 47.4          |
| North: John Street              |      |              |      |               |      |           |               |                  |                              |          |              |                     |                  |               |
| 8                               | T1   | 560          | 0.6  | 560           | 0.6  | 0.314     | 0.2           | LOS A            | 0.2                          | 1.2      | 0.08         | 0.03                | 0.08             | 45.4          |
| 9                               | R2   | 33           | 0.0  | 33            | 0.0  | 0.314     | 6.7           | LOS A            | 0.2                          | 1.2      | 0.08         | 0.03                | 0.08             | 21.2          |
| Approach                        |      | 593          | 0.5  | 593           | 0.5  | 0.314     | 0.5           | NA               | 0.2                          | 1.2      | 0.08         | 0.03                | 0.08             | 40.8          |
| West: Broad Street              |      |              |      |               |      |           |               |                  |                              |          |              |                     |                  |               |
| 10                              | L2   | 47           | 2.2  | 47            | 2.2  | 0.060     | 5.9           | LOS A            | 0.1                          | 0.7      | 0.40         | 0.60                | 0.40             | 24.2          |
| 12                              | R2   | 11           | 0.0  | 11            | 0.0  | 0.060     | 10.3          | LOS A            | 0.1                          | 0.7      | 0.40         | 0.60                | 0.40             | 24.2          |
| Approach                        |      | 58           | 1.8  | 58            | 1.8  | 0.060     | 6.7           | LOS A            | 0.1                          | 0.7      | 0.40         | 0.60                | 0.40             | 24.2          |
| All Vehicles                    |      | 1014         | 0.8  | 1014          | 0.8  | 0.314     | 0.8           | NA               | 0.2                          | 1.2      | 0.07         | 0.07                | 0.07             | 42.8          |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).  
 Vehicle movement LOS values are based on average delay per movement.  
 Minor Road Approach LOS values are based on average delay for all vehicle movements.  
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.  
 SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.  
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).  
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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# MOVEMENT SUMMARY

Site: 101 [3 - John/ Ann SAT Phase 1]

Network: N101 [Sat Phase 1]

Site Category: (None)  
 Giveway / Yield (Two-Way)

| Movement Performance - Vehicles |      |              |       |               |       |           |               |                  |                              |            |              |                     |                  |                    |
|---------------------------------|------|--------------|-------|---------------|-------|-----------|---------------|------------------|------------------------------|------------|--------------|---------------------|------------------|--------------------|
| Mov ID                          | Turn | Demand Flows |       | Arrival Flows |       | Deg. Satn | Average Delay | Level of Service | Aver. Back of Queue Vehicles | Distance m | Prop. Queued | Effective Stop Rate | Aver. No. Cycles | Average Speed km/h |
|                                 |      | Total veh/h  | HV %  | Total veh/h   | HV %  | v/c       | sec           |                  |                              |            |              |                     |                  |                    |
| South: John St                  |      |              |       |               |       |           |               |                  |                              |            |              |                     |                  |                    |
| 1                               | L2   | 23           | 4.5   | 23            | 4.5   | 0.218     | 5.0           | LOS A            | 0.1                          | 0.5        | 0.06         | 0.04                | 0.06             | 39.6               |
| 2                               | T1   | 372          | 1.7   | 372           | 1.7   | 0.218     | 0.2           | LOS A            | 0.1                          | 0.5        | 0.06         | 0.04                | 0.06             | 40.0               |
| 3                               | R2   | 9            | 11.1  | 9             | 11.1  | 0.218     | 7.4           | LOS A            | 0.1                          | 0.5        | 0.06         | 0.04                | 0.06             | 44.0               |
| Approach                        |      | 404          | 2.1   | 404           | 2.1   | 0.218     | 0.6           | NA               | 0.1                          | 0.5        | 0.06         | 0.04                | 0.06             | 40.0               |
| East: Doodson Ave               |      |              |       |               |       |           |               |                  |                              |            |              |                     |                  |                    |
| 4                               | L2   | 21           | 0.0   | 21            | 0.0   | 0.085     | 6.9           | LOS A            | 0.1                          | 0.8        | 0.64         | 0.78                | 0.64             | 33.6               |
| 5                               | T1   | 1            | 0.0   | 1             | 0.0   | 0.085     | 10.8          | LOS A            | 0.1                          | 0.8        | 0.64         | 0.78                | 0.64             | 36.1               |
| 6                               | R2   | 16           | 13.3  | 16            | 13.3  | 0.085     | 16.5          | LOS B            | 0.1                          | 0.8        | 0.64         | 0.78                | 0.64             | 37.0               |
| Approach                        |      | 38           | 5.6   | 38            | 5.6   | 0.085     | 11.0          | LOS A            | 0.1                          | 0.8        | 0.64         | 0.78                | 0.64             | 35.8               |
| North: John St                  |      |              |       |               |       |           |               |                  |                              |            |              |                     |                  |                    |
| 7                               | L2   | 15           | 100.0 | 15            | 100.0 | 0.345     | 5.3           | LOS A            | 0.2                          | 1.7        | 0.11         | 0.05                | 0.11             | 41.7               |
| 8                               | T1   | 557          | 6.6   | 557           | 6.6   | 0.345     | 0.2           | LOS A            | 0.2                          | 1.7        | 0.11         | 0.05                | 0.11             | 39.5               |
| 9                               | R2   | 40           | 0.0   | 40            | 0.0   | 0.345     | 5.7           | LOS A            | 0.2                          | 1.7        | 0.11         | 0.05                | 0.11             | 39.4               |
| Approach                        |      | 612          | 8.4   | 612           | 8.4   | 0.345     | 0.8           | NA               | 0.2                          | 1.7        | 0.11         | 0.05                | 0.11             | 39.6               |
| West: Ann St                    |      |              |       |               |       |           |               |                  |                              |            |              |                     |                  |                    |
| 10                              | L2   | 42           | 0.0   | 42            | 0.0   | 0.114     | 4.7           | LOS A            | 0.2                          | 1.1        | 0.52         | 0.64                | 0.52             | 35.7               |
| 11                              | T1   | 1            | 0.0   | 1             | 0.0   | 0.114     | 10.0          | LOS A            | 0.2                          | 1.1        | 0.52         | 0.64                | 0.52             | 37.4               |
| 12                              | R2   | 23           | 4.5   | 23            | 4.5   | 0.114     | 14.0          | LOS A            | 0.2                          | 1.1        | 0.52         | 0.64                | 0.52             | 28.4               |
| Approach                        |      | 66           | 1.6   | 66            | 1.6   | 0.114     | 8.1           | LOS A            | 0.2                          | 1.1        | 0.52         | 0.64                | 0.52             | 34.5               |
| All Vehicles                    |      | 1120         | 5.6   | 1120          | 5.6   | 0.345     | 1.5           | NA               | 0.2                          | 1.7        | 0.13         | 0.11                | 0.13             | 39.3               |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

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Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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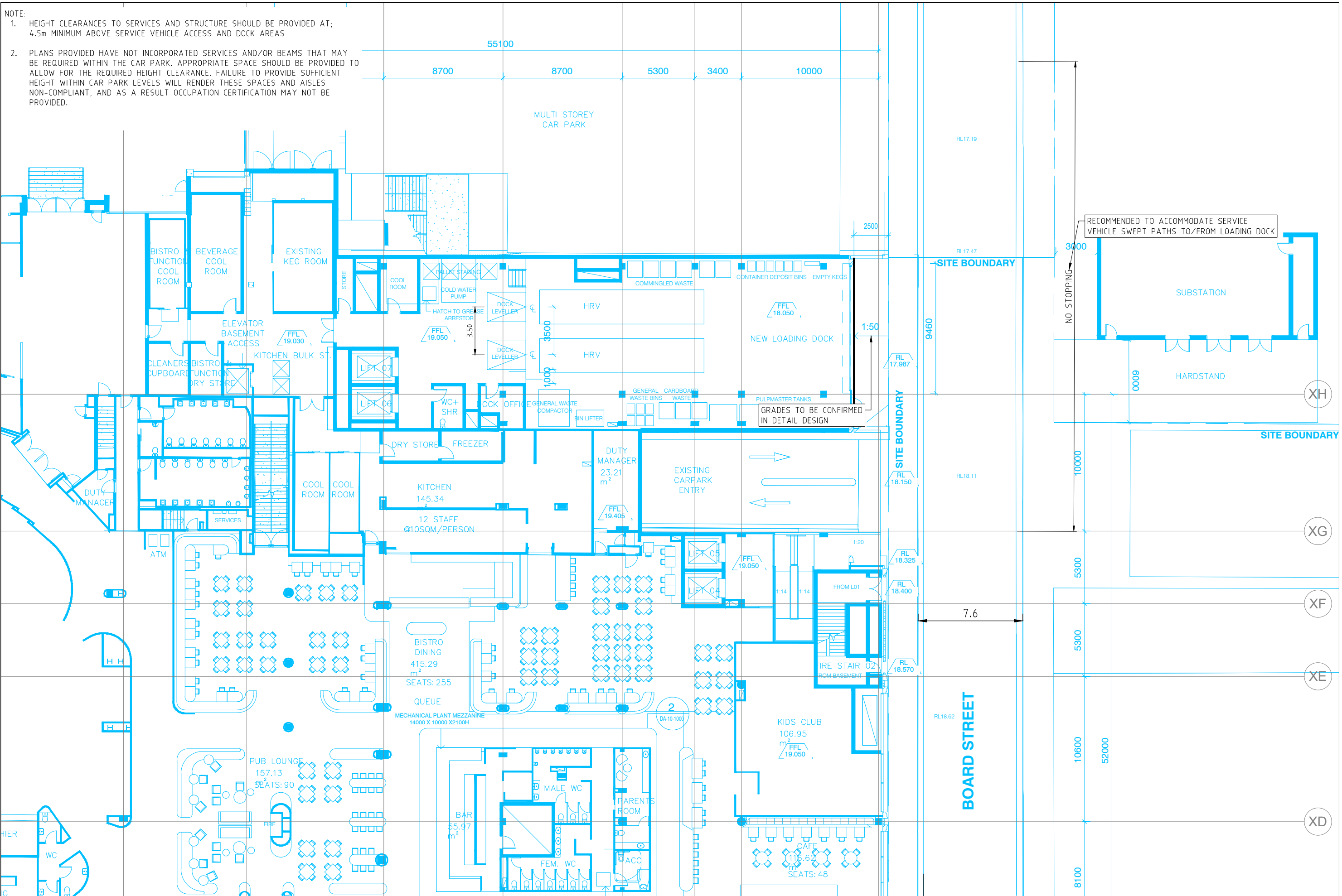
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## C. SWEPT PATH ASSESSMENT



NOTE:

1. HEIGHT CLEARANCES TO SERVICES AND STRUCTURE SHOULD BE PROVIDED AT;  
4.5m MINIMUM ABOVE SERVICE VEHICLE ACCESS AND DOCK AREAS
2. PLANS PROVIDED HAVE NOT INCORPORATED SERVICES AND/OR BEAMS THAT MAY  
BE REQUIRED WITHIN THE CAR PARK. APPROPRIATE SPACE SHOULD BE PROVIDED TO  
ALLOW FOR THE REQUIRED HEIGHT CLEARANCE. FAILURE TO PROVIDE SUFFICIENT  
HEIGHT WITHIN CAR PARK LEVELS WILL RENDER THESE SPACES AND AISLES  
NON-COMPLIANT, AND AS A RESULT OCCUPATION CERTIFICATION MAY NOT BE  
PROVIDED.



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Brisbane 07 3113 5000  
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**PRELIMINARY PLAN**  
FOR DISCUSSION PURPOSES ONLY  
SUBJECT TO CHANGE WITHOUT  
NOTIFICATION

**WARNING**  
BEWARE OF UNDERGROUND SERVICES  
THE LOCATIONS OF UNDERGROUND SERVICES ARE  
APPROXIMATE ONLY AND THEIR EXACT POSITION  
SHOULD BE PROVEN ON SITE. NO GUARANTEE IS  
GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

DESIGNED  
G. PANIEL/ E. YE

APPROVED BY  
J. KIRIAKIDIS

DESIGN CHECK  
H. OBERMAIER

DATE ISSUED  
28 MAY 2020

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A3 0 1.25 2.5 5 1:250

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**DOOLEYS CATHOLIC CLUB REDEVELOPMENT**  
**LIDCOMBE, NSW**  
**LEVEL GROUND**  
**CAR PARK COMPLIANCE REVIEW**

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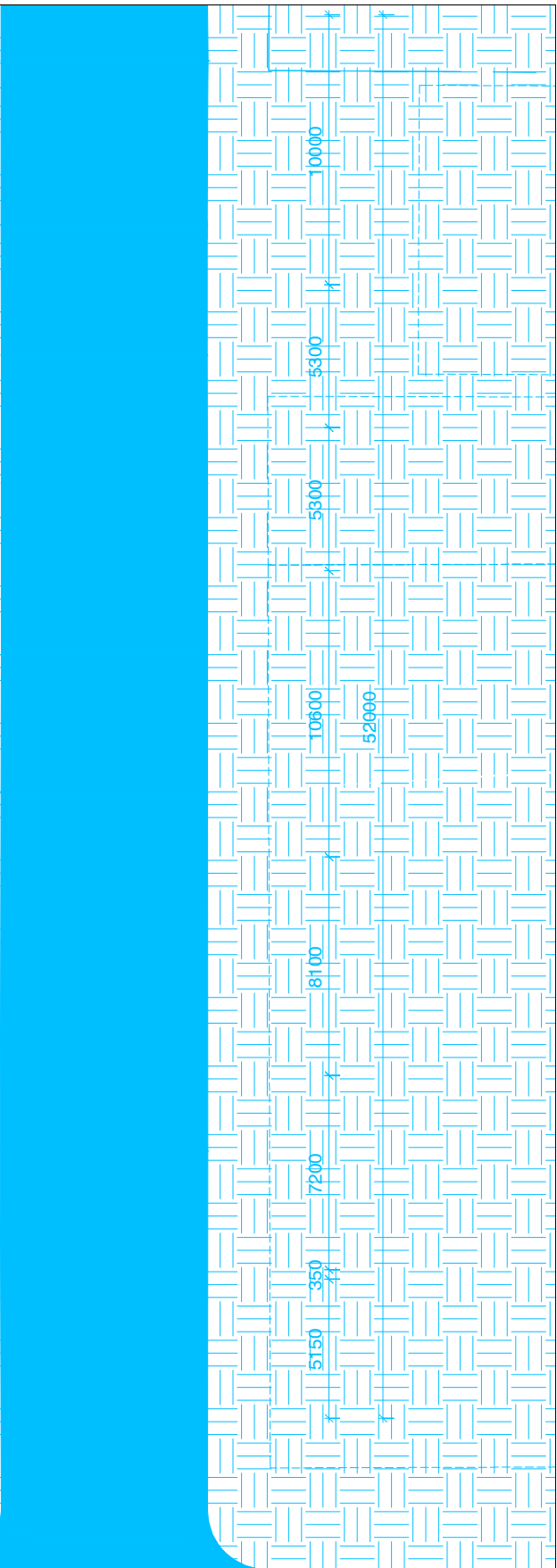
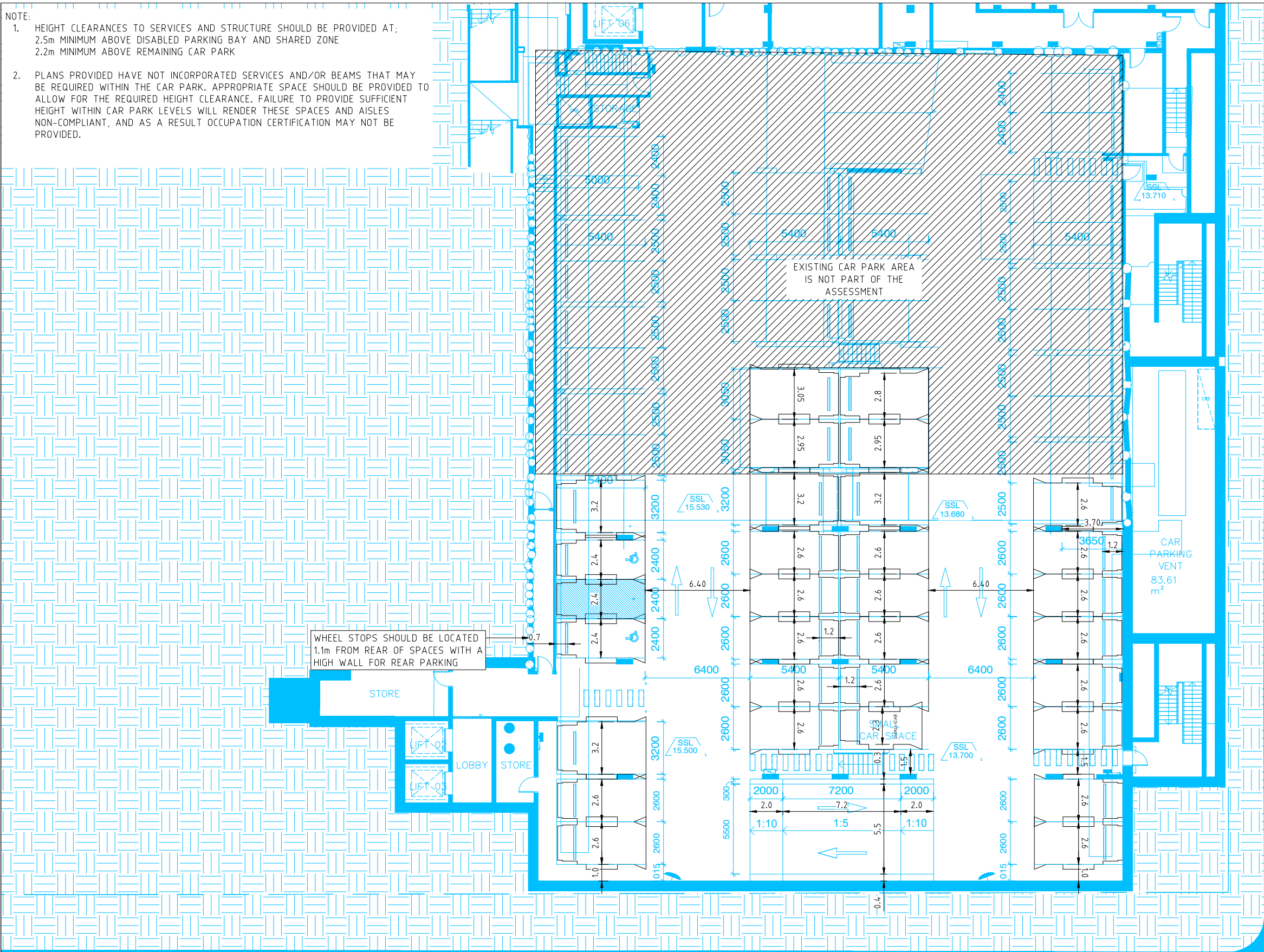
SHEET 01 OF 06

ISSUE P5

NOTE:

1. HEIGHT CLEARANCES TO SERVICES AND STRUCTURE SHOULD BE PROVIDED AT;  
2.5m MINIMUM ABOVE DISABLED PARKING BAY AND SHARED ZONE  
2.2m MINIMUM ABOVE REMAINING CAR PARK
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DOOLEYS CATHOLIC CLUB REDEVELOPMENT  
LIDCOMBE, NSW  
BASEMENT 01  
CAR PARK COMPLIANCE REVIEW

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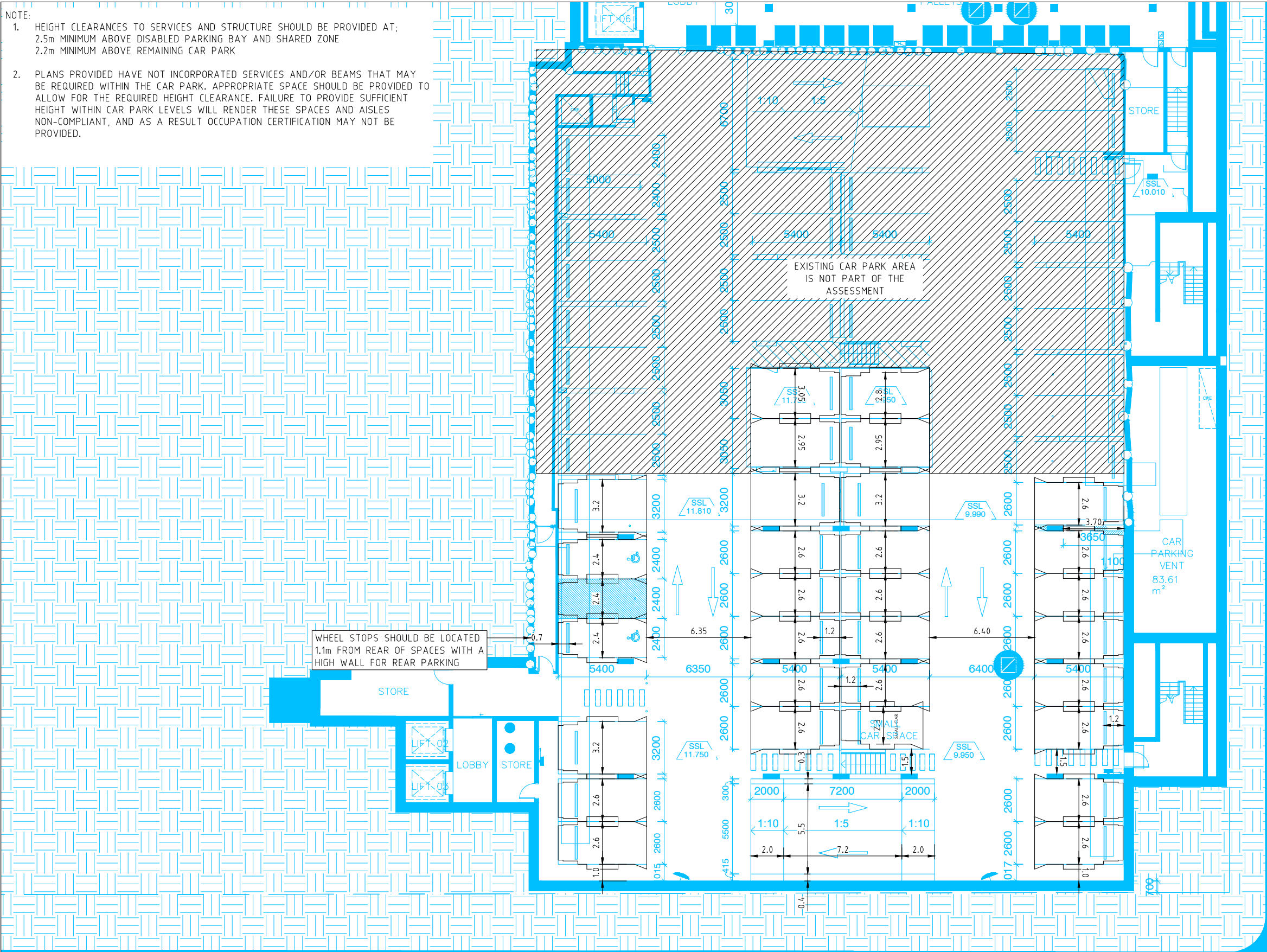
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ISSUE P5

NOTE:

- HEIGHT CLEARANCES TO SERVICES AND STRUCTURE SHOULD BE PROVIDED AT;  
2.5m MINIMUM ABOVE DISABLED PARKING BAY AND SHARED ZONE  
2.2m MINIMUM ABOVE REMAINING CAR PARK
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DOOLEYS CATHOLIC CLUB REDEVELOPMENT  
LIDCOMBE, NSW  
BASEMENT 02  
CAR PARK COMPLIANCE REVIEW

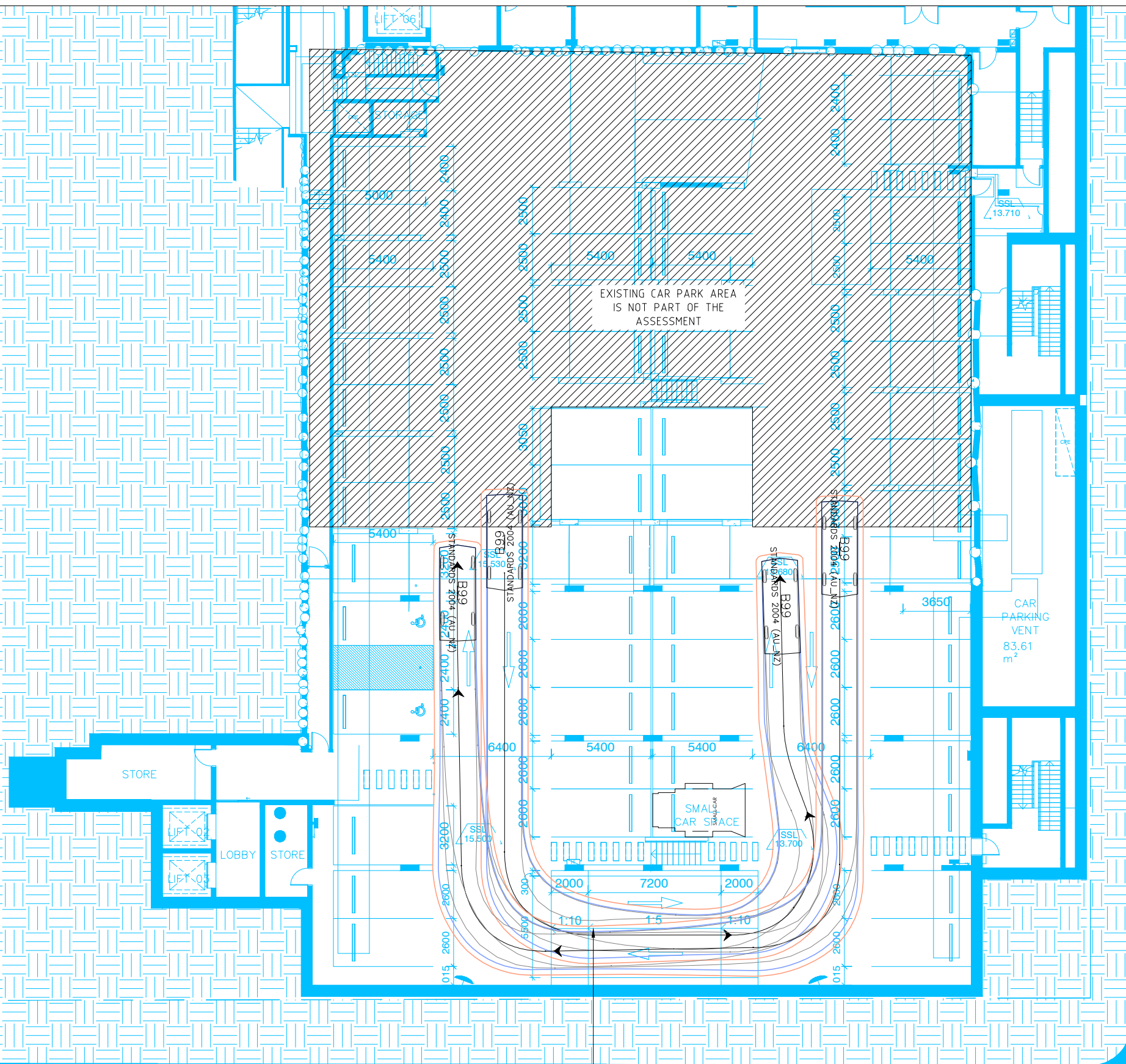
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**SWEPT PATH KEY**

- VEHICLE CENTRE LINE
- VEHICLE TYRE PATH
- VEHICLE BODY PATH
- 300mm CLEARANCE FROM VEHICLE BODY

ASSUMED SPEED 5km/h

**B99**

Width : 1.94  
Track : 1.84  
Lock to Lock Time : 6.0  
Steering Angle : 33.9



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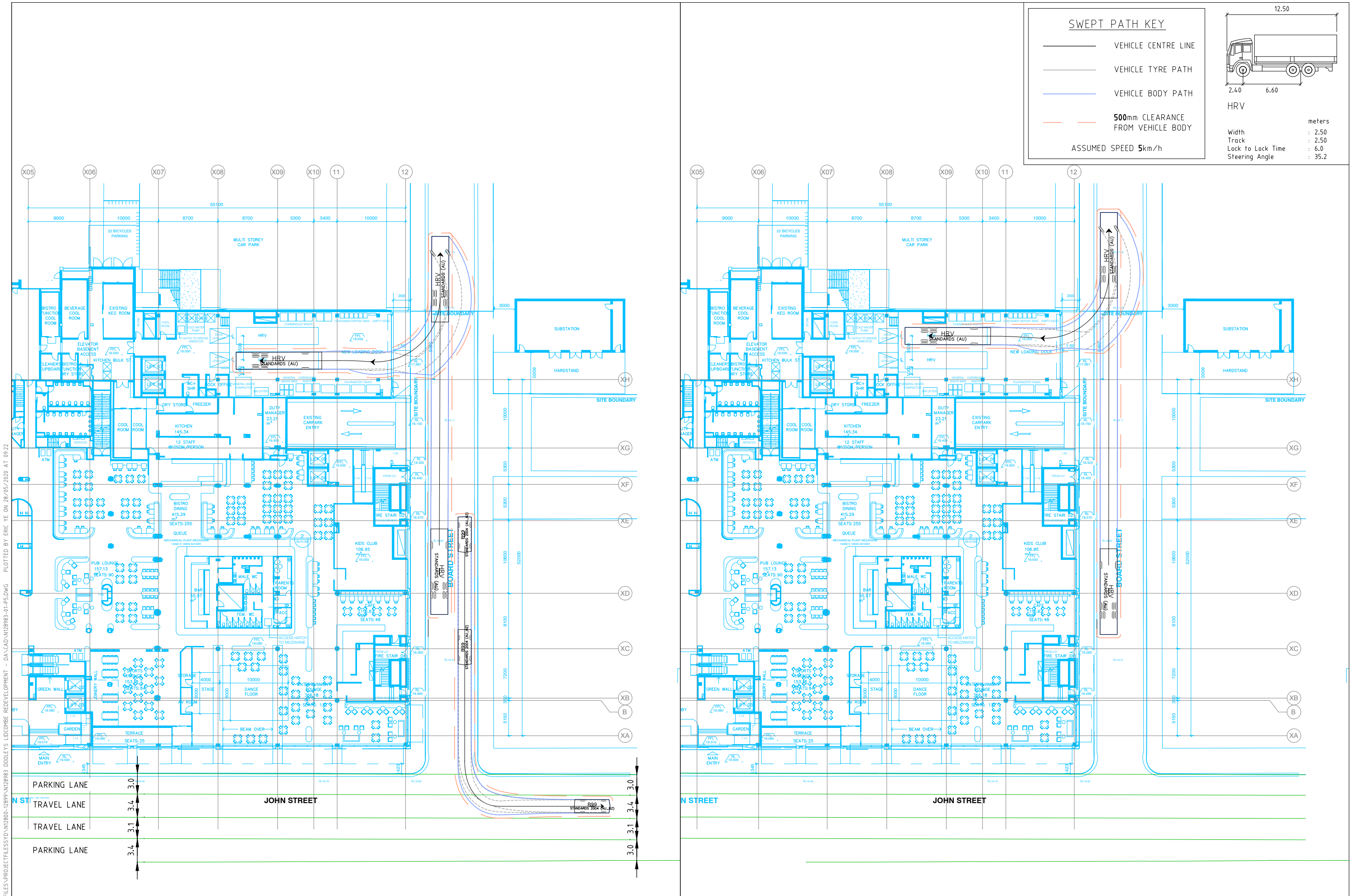
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LIDCOMBE, NSW**

**VEHICLE SWEEP PATH ASSESSMENT**

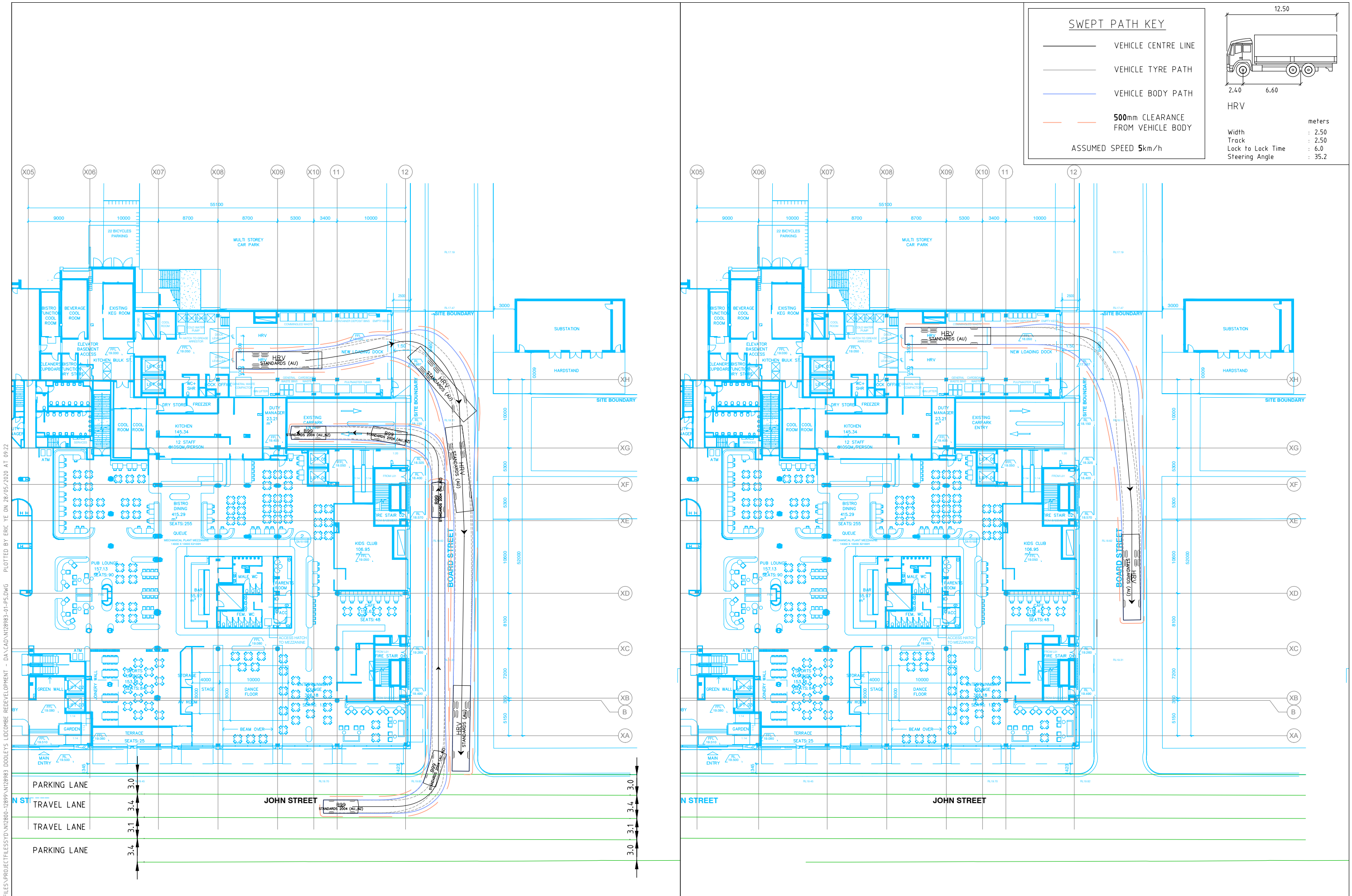
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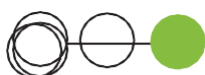
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**DOOLEYS CATHOLIC CLUB REDEVELOPMENT  
LIDCOMBE, NSW  
EXIT MANOEUVRE  
VEHICLE SWEEP PATH ASSESSMENT**

DRAWING NO. N128983-01-06 SHEET 06 OF 06 ISSUE P5



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