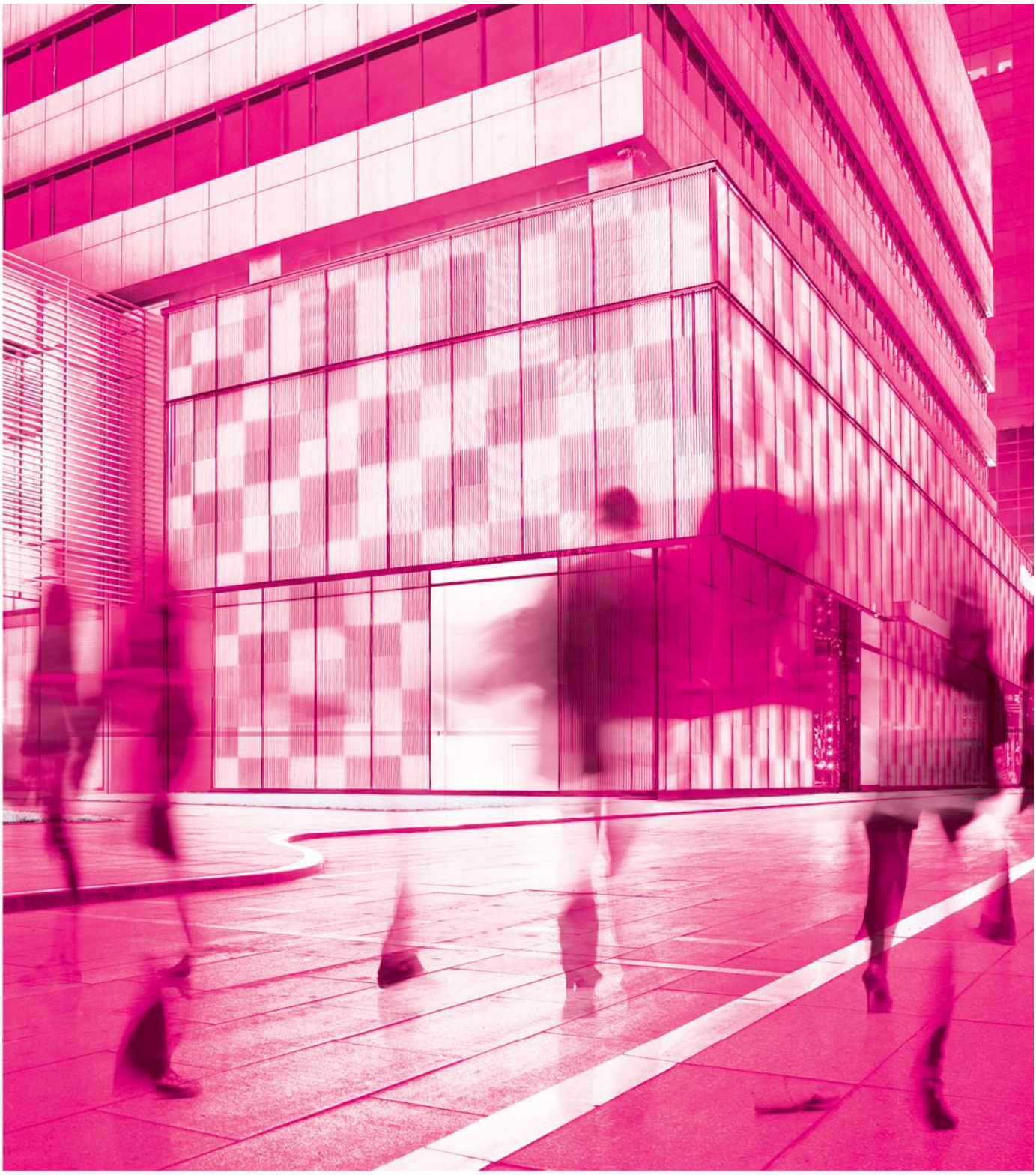


Traffic Impact Assessment;

26 Elizabeth Street, Liverpool

For Binah Group

13 January 2020

parking;
traffic;
civil design;
communication;

ptc.

Document Control

26 Elizabeth Street, Liverpool, Traffic Impact Assessment

Issue	Date	Issue Details	Author	Reviewed	For the attention of
1	07/09/18	WIP Issue	SH/HL	AU	Mitchell Gardoll (Rothelowman)
2	09/11/18	Final Issue	SH/HL	AU	Nicola Eason (Rothelowman)
3	08/01/20	Final Issue (Response to Council & RMS Comments)	SH/HL/AP	AM	Nicola Eason (Rothelowman)
4	10/01/20	Final Issue (Updated to incorporate Urbis comments)	HL/AP	AM	Aris Dimos (Binah Group)
5	13/01/20	Final Issue (Updated Drawing Attachments)	HL/AP	AM	Aris Dimos (Binah Group)

Contact

Steve Wellman
+61 2 8920 0800
steve.wellman@ptcconsultants.co

Sunny Hong
+61 2 8920 0800
sunny.hong@ptcconsultants.co

Aaron Pau
+61 2 8920 0800
aaron.pau@ptcconsultants.co

Henry Li
+61 2 8920 0800
henry.li@ptcconsultants.co

ptc.
Suite 502, 1 James Place
North Sydney NSW 2060
info@ptcconsultants.co
t + 61 2 8920 0800
ptcconsultants.co

Contents

1. Executive Summary

- **ptc.** has been engaged by Binah Group to prepare a Traffic Impact Assessment to accompany a Development Application (DA) to Liverpool City Council for the construction of a mixed-use development located at 26 Elizabeth Street, Liverpool. The proposal comprises the following:
    - 179 residential apartments;
    - 113 hotel rooms; and
    - 5,764m^2 GFA allocated to commercial premises.
- This report serves as an update to the original TIA prepared on 9th November 2018 which was submitted as part of the DA submission to Council. Section 2 details **ptc.**'s response to comments received from Liverpool City Council (LCC) and Roads and Maritime Services (RMS) in relation to traffic and parking matters associated with the subject DA (DA86/2018).
- Parking will be provided within the basement and Level 1 car parks. Parking for the residential and commercial uses are provided within the four-level basement car park, whilst hotel parking is provided within the Basement 1 and Level 1 car parks. As part of the development, a new laneway along the southern boundary of the subject site will be constructed to facilitate vehicular access to and from the site. The laneway will be constructed to provide two-way vehicular movement between Bigge and George Streets. It is noted that the construction of the new laneway will be staged, with access being provided between the subject site and Bigge Street to the east as part of this development. Upon redevelopment of the adjoining sites (subject to a separate DAs and land owners), the laneway will then be extended to the west towards George Street to provide a two-way connection between Bigge and George Streets. In terms of pedestrian connectivity, a new 1.2m wide footpath will be constructed along the northern side of the laneway to provide an east-west pedestrian link along the southern frontage of the site.
- Two driveways are proposed within the new laneway to provide access to the basement and Level 1 car parks. Furthermore, a hotel pick-up/drop off area is proposed along the eastern boundary of the site. The hotel pick-up/drop-off facility can be accessed via the new laneway and will operate in a one-way northbound direction. Hotel traffic exiting onto Elizabeth Street will be restricted to left-out only due to the close proximity to the signalised intersection located upstream on Elizabeth Street. Rat running from Bigge Street to Elizabeth Street will be prevented by the provision of a boom gate to restrict access to the pick-up/drop-off area to hotel patrons only and would be supported by appropriate signage.
- A trip generation of 126 trips in the PM peak is anticipated to have a minor impact on the surrounding road networks. Although this equates to approximately two additional vehicular trips per minute, these trips will be distributed throughout the road network and can be accommodated within the existing conditions. The SIDRA results also indicate that the development will have minimal impact on the existing road network with a marginal increase in the performance indicators at each intersection.
- In regards to parking, the development provides a total of 321 car parking spaces including 3 car share spaces. In addition to car parking, seven service bays have been provided which are proposed to be shared amongst the various users. A separate Loading Dock Management Plan (LDMP) will need to be prepared in due course to manage the shared use of the proposed service bays.
- A total of 153 bicycle parking spaces and 19 motorcycle bays have also been provided within the basement and level 1 car parks for prospective residents, visitors and staff associated with the development.

- A review of the car parking and service facility have been undertaken with reference to AS2890.1:2004, AS2890.2:2018, AS2890.3:2015 and AS2890.6:2009 and found the proposal to be generally in compliance with or meeting the intent of the relevant standards. Any non-standard elements within the design are able to be revisited and adjusted during the detailed design stage to ensure full compliance prior to issue of Construction Certification.

2. Council & RMS Comments

This section outlines **ptc.**'s response to the comments provided by Liverpool City Council and Roads and Maritime Services (RMS) in relation to the traffic and parking aspects of the Development Application (DA86/2018).

2.1 Council Comments

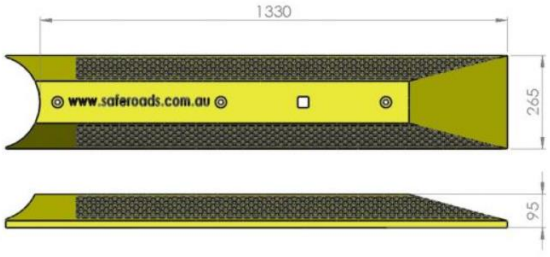
Comments	ptc. Response
Item 4:	
There should be more allocation of car share spaces or at least have feasibility of converting standard carparking spaces in the future. Explore possibility of an electricity charging station.	A total of three car share spaces are proposed within the development. Of this provision, two of the car share spaces are designated for hotel use, with the remaining one designated for residential use. Notwithstanding this, there is feasibility to convert additional visitor car parking spaces to car share bays, if required in the future. In response to Council's request, the developer will include car share spaces with ability to provide recharging points for electric vehicles in the future. The developer will provide conduits to the nominated spaces, to facilitate streamlined inclusion of electric charging points in the future.
Item 8:	
Any upgrade to Warren Serviceway?	Currently there is no proposed upgrade to Warren Serviceway as part of the development. Also refer to Item 28 in relation to the proposed laneway connecting George and Bigge Streets.
Item 24:	
The TIA needs to consider the impact of the traffic generation form the adjoining lands (as additional scenario) to get better understanding of the operation of the surrounding road network following the proposed development and the adjoining parcels of land. At the minimum, the TIA needs to consider the likely access requirements of the adjoining properties and the impact on the surrounding road network and intersection operation. The development potentials considered during the planning proposal for the precinct could serve as a starting point for this exercise.	The SIDRA model has been updated to include the potential traffic generated by the expansion of Westfield Liverpool Shopping Centre and the redevelopment of Liverpool Hospital (refer to section 5.6).

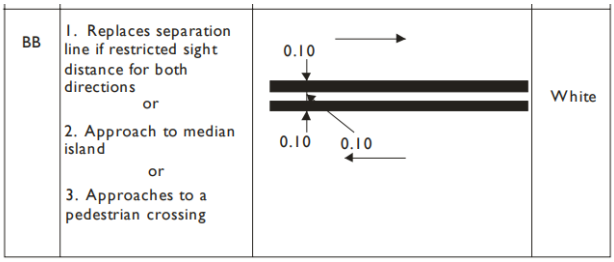
Comments	ptc. Response
Item 25:	
The SIDRA model needs to be updated to factor in the potential traffic to be generated by the adjoining properties including their potential access requirements. The model also needs to apply the RMS set signal cycle time for the intersections, instead of the 60 seconds used by the TIA.	See response to Item 24. The SIDRA model has been updated to include a set cycle time of 120 seconds for intersections on Bigge Street and 100 seconds for intersections within Liverpool CBD.
Item 26:	
Submit a concept plan identifying the on-street parking spaces to be lost on Elizabeth Street, prior to the DA is determined.	A concept plan indicating 'No Stopping' zones are proposed (3m on the eastern side of the driveway and 6m on the western side) from the proposed vehicular crossover on Elizabeth Street. This is to allow for sufficient sight distance and manoeuvrability for exiting vehicles. It is anticipated that this will require a net loss of 1 metered parking space on Elizabeth Street (subject to on-site validation). This net loss includes the displacement of three (3) parking spaces for the new vehicular crossover, and a gain of two (2) parking spaces when the kerb and gutter is reinstated (further to the west). The potential impact associated with the net loss of one on-street parking space will be mitigated by the provision of off-street parking as part of the development, which may help relieve demand for on-street parking adjacent to the site. Furthermore, the provision of car share parking within the site also serves as a benefit to the community by providing a sustainable transport option to the public within the Liverpool CBD. Refer to Drawing No. CP-001 in Attachment 4.
Item 27:	
Provide a written letter from a car share parking company indicating their agreement to provide the vehicles that would utilize the proposed car share parking spaces.	A letter of support from the car share operator is provided in Attachment 5.
Item 28:	

Comments	ptc. Response
The applicant should provide further information as to how the provision of the proposed laneway that will provide vehicular access to the development to be co-ordinated with the development of the adjoining properties to ensure the delivery of the complete laneway.	A new east-west laneway will be constructed along the southern boundary of the subject site to facilitate entry and egress via Bigge Street (and ultimately George Street). The construction of the laneway will be staged such that the Developer will construct the portion of the laneway between Bigge Street and the western boundary of the subject site. Upon development of the neighbouring site to the west, the laneway will be extended to George Street which will ultimately provide a two-way connection between George and Bigge Streets. This laneway will be approximately 8.0m in width, inclusive of a 1.2m wide pedestrian footpath on the northern side of the laneway. This results in an approximate roadway width of 6.5m between kerbs (assuming the provision of a 300mm wide kerb on the southern side of the laneway).
Item 29:	
Amended plans taking into account the issues raised in this letter including a 'No Stopping' area on the laneway, and a central median on Bigge Street to prevent right turn movements in to and out of the proposed laneway.	'No Stopping' restrictions are proposed on both sides of the proposed laneway. In order to enforce a left-in/left-out access arrangement from the laneway onto Bigge Street, ptc. recommends installing a separation kerb on Bigge Street to prevent right turn movements in and out of the proposed laneway. Given the existing constraints of the carriageway width, the installation of a separation kerb provides a suitable method of dividing the southbound and northbound traffic lanes. This can be incorporated into the existing roadway without the need for realignment or widening of the carriageway. Refer to Drawing No. CP-001 in Attachment 4.

2.2 RMS Comments

Comments	ptc. Response
Item 1:	
Traffic generation in the planning proposal was 200-220 vehicle trips per hour (vph) during peak times.	Restaurant has been removed from the development proposal.

Comments	ptc. Response
Submitted Traffic report indicates 116 vph with 20% discount applied to the proposed hotel and commercial areas but none for the restaurant.	
Item 2:	
Need to identify the impact of the development on the adjacent classified road network.	The SIDRA model has been updated to include the potential traffic generated by the expansion of Westfield Liverpool Shopping Centre and the redevelopment of Liverpool Hospital.
Item 3:	
Vehicular access from proposed ROW to Bigge Street should be left-in/left-out being in close proximity to traffic signals. A central median may be required which means traffic assessment and modelling need to be updated.	ptc. recommends the installation of a separation kerb to restrict any right-turn movements in and out of the proposed ROW and Bigge Street. A separation kerb will mitigate the need for any road realignment or widening, whilst achieving the objective of enforcing a left-in, left-out arrangement. A concept drawing has been prepared incorporating the provision of a separation kerb spanning for a length of approximately 20m within the Bigge Street carriageway. Refer to Drawing No. CP-001 in Attachment 4. Based on the technical specifications of a typical separation kerb supplied by Saferoads, a standard separation kerb has a width of 265mm which can be accommodated within the existing double-solid dividing line marking (RMS BB-line) which has a total width of 300mm. See Figure 2.1 and Figure 2.2 for reference.  Figure 2.1 - Typical Separation Kerb by Saferoads

Comments	ptc. Response
	 Figure 2.2 - Standard RMS BB Line Marking Detail
Item 4:	
SIDRA electronic files should be submitted.	To be submitted separately.
Item 5:	
Network capacity at the Bigge St/Elizabeth St and George St/Elizabeth St intersections are already constrained and requires additional uplift will further reduce capacity and level of service. RMS requires further information regarding vehicle and pedestrian cycle phasing arrangements and intersection lane layouts used in the SIDRA traffic modelling.	SIDRA model to be submitted separately.
Item 6:	
RMS advises that set cycle times at Bigge St are 120 seconds and the cycle times within the Liverpool CBD at 100 seconds. Clarification is requested why a 60 second 'network practical' cycle time was used in the traffic modelling.	The SIDRA model has been updated to include a set cycle time of 120 seconds for intersections on Bigge Street and 100 seconds for intersections within Liverpool CBD.

3. Introduction

3.1 Project Summary

ptc. has been engaged by Binah Group to prepare a Traffic Impact Assessment to accompany a Development Application (DA) to Liverpool City Council for the construction of a mixed-use development located at 26 Elizabeth Street, Liverpool.

A map illustrating the location of the subject site is presented in Figure 3.1.

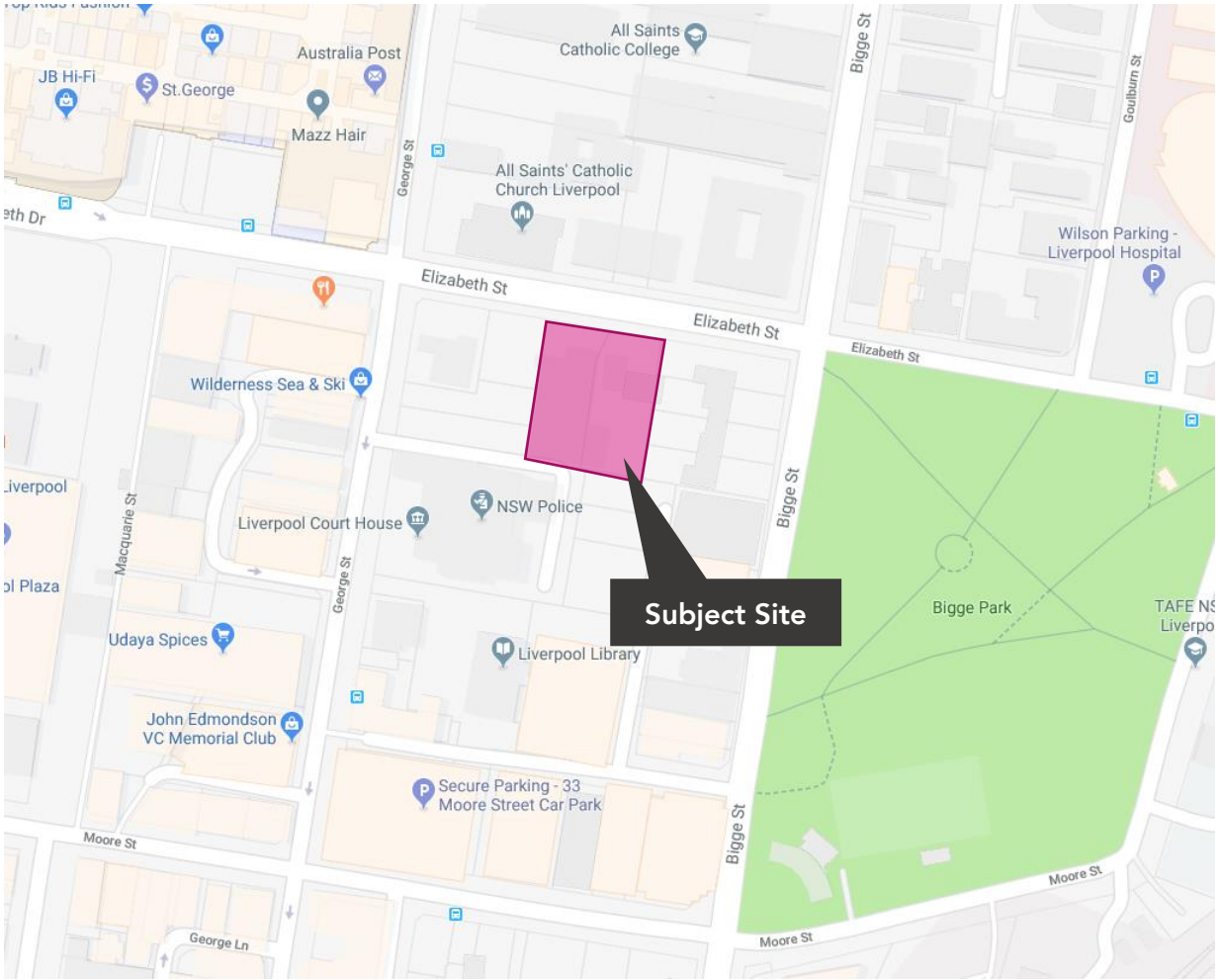


Figure 3.1 - Site Location

3.2 Purpose of this Report

This report presents the following considerations in relation to the Traffic Impact Assessment of the Proposal:

Section 3	A description of the project;
Section 4	A description of the road network serving the subject site, and existing traffic volumes through key local intersections;
Section 5	Determination of the traffic activity associated with the development proposal, and the adequacy of the surrounding road network;
Section 6	Assessment of the proposed parking provision in the context of the relevant planning control requirements;
Section 7	Assessment of the proposed car park, vehicular access and internal circulation arrangements in relation to compliance with the relevant standards, and Council policies; and
Section 8	Conclusion.

3.3 Site Context

The subject site lies within a Mixed-Use zone (B4), situated to the north-east of the Liverpool Town Centre. Key features surrounding the site include:

- The Liverpool Commercial Core (B3), comprising Westfield Liverpool, a variety of retail shops, restaurants and entertainment facilities;
- To the east, lies an Infrastructure precinct (SP2) consisting of Liverpool Hospital, Liverpool Girls High School and TAFE NSW Liverpool;
- To the west lies several Public Recreation (RE1) zones including Collimore Park, Apex Park and Hillier Oval;
- To the south lies Liverpool Train Station, within a 600m walk (8 minutes) from the subject site; and
- The greater residential precinct surrounding the site, comprising typically High Density Residential (R4) zones to the north and west.

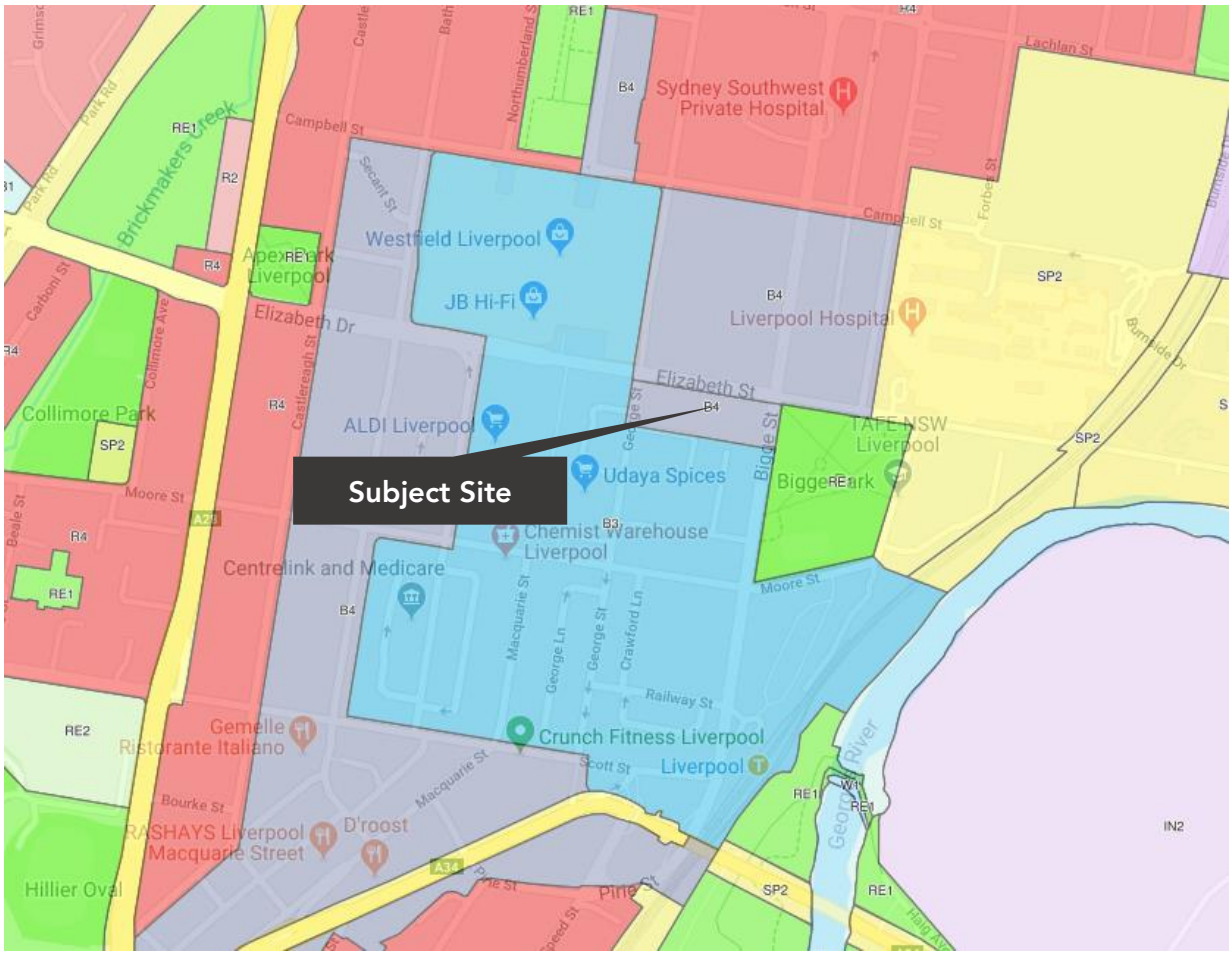


Figure 3.2 - Local Land Use Map (Source: NSW Planning Viewer)

3.4 Development Site

The proposal relates to the following site (see Figure 3.3):

- 26 Elizabeth Street, Liverpool (Lot No. 1, DP217460)

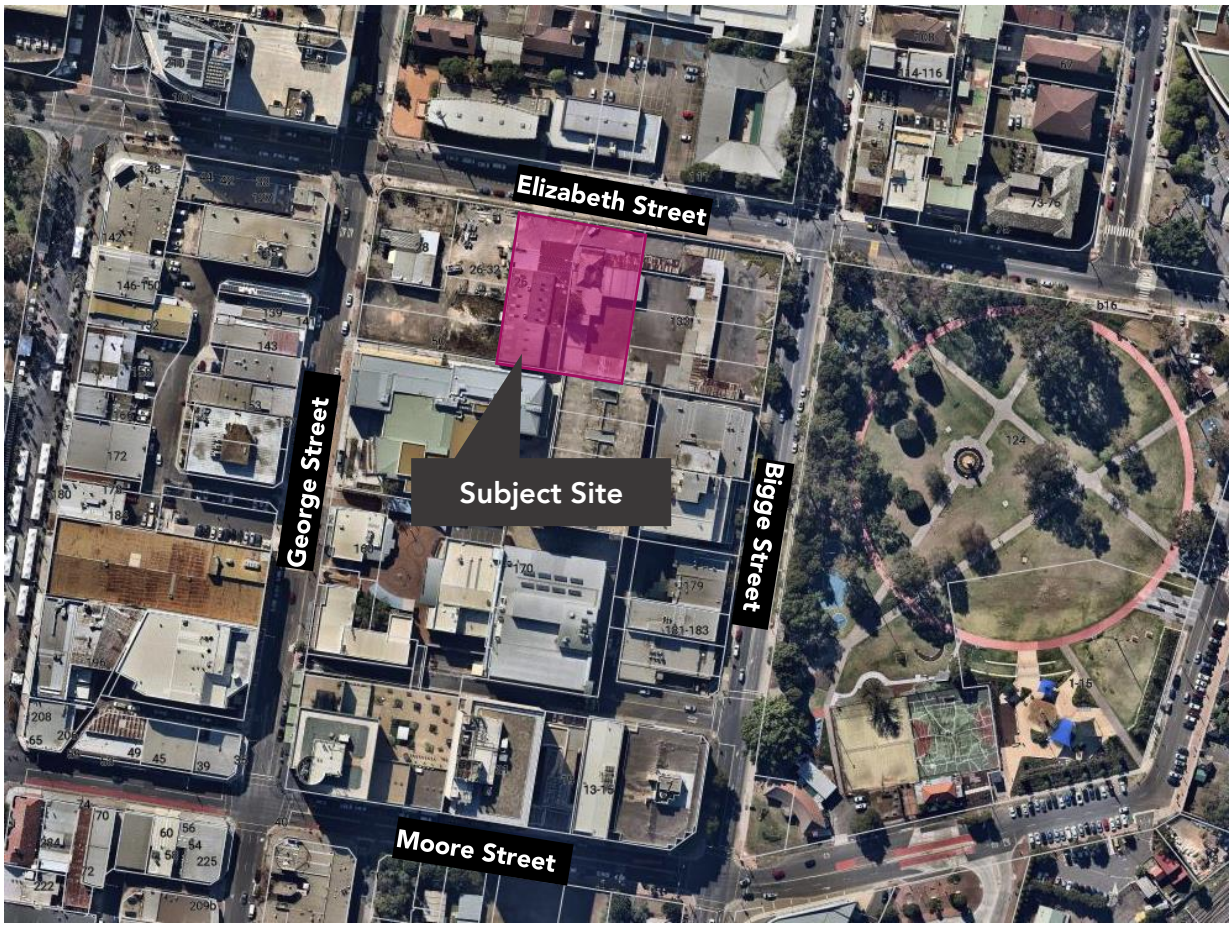


Figure 3.3 – Aerial View of Subject Site & Surrounds (Source: Nearmap)

The subject site has a frontage of approximately 49.9m to Elizabeth Street and is currently vacant.

3.5 Development Proposal

The development proposal involves the construction of a mixed-use building, comprising residential apartment units as well a hotel and commercial component; a summary of the proposed unit mix is outlined in Table 3.1. A total of 19 residential units are proposed to be designated as adaptable units.

Table 3.1 - Unit Mix

Component	Type	No. of Units/GFA
Residential	1-bedroom unit	16
	2-bedroom unit	143
	3-bedroom unit	16
	4-bedroom unit	4
	Total Residential Units	**179**
Hotel	-	113 rooms (5,928m^2)
Commercial	-	5,764m^2

Parking will be provided within the basement and level 1 car parks. Parking for the residential and commercial uses are provided within the four-level basement car park, whilst hotel parking is provided within Basement 1 and the Level 1 car park. The proposed site plan and vehicular access arrangement are outlined in Figure 3.4 and Figure 3.5, respectively.

As part of the development, a new laneway along the southern boundary of the subject site will be constructed to facilitate vehicular access to and from the site. The laneway will eventually be constructed to provide a two-way vehicular movement between Bigge and George Streets.

Two driveways are proposed within the new laneway to provide access to the basement and level 1 car parks. Furthermore, a one-way access road is also proposed along the eastern boundary of the site which will facilitate vehicular access to the hotel pick-up/drop-off area. The access road is proposed to operate as a one-way northbound link between the new laneway and Elizabeth Street. A boom gate and appropriate signage will be installed to prevent rat running from Bigge Street to Elizabeth Street.

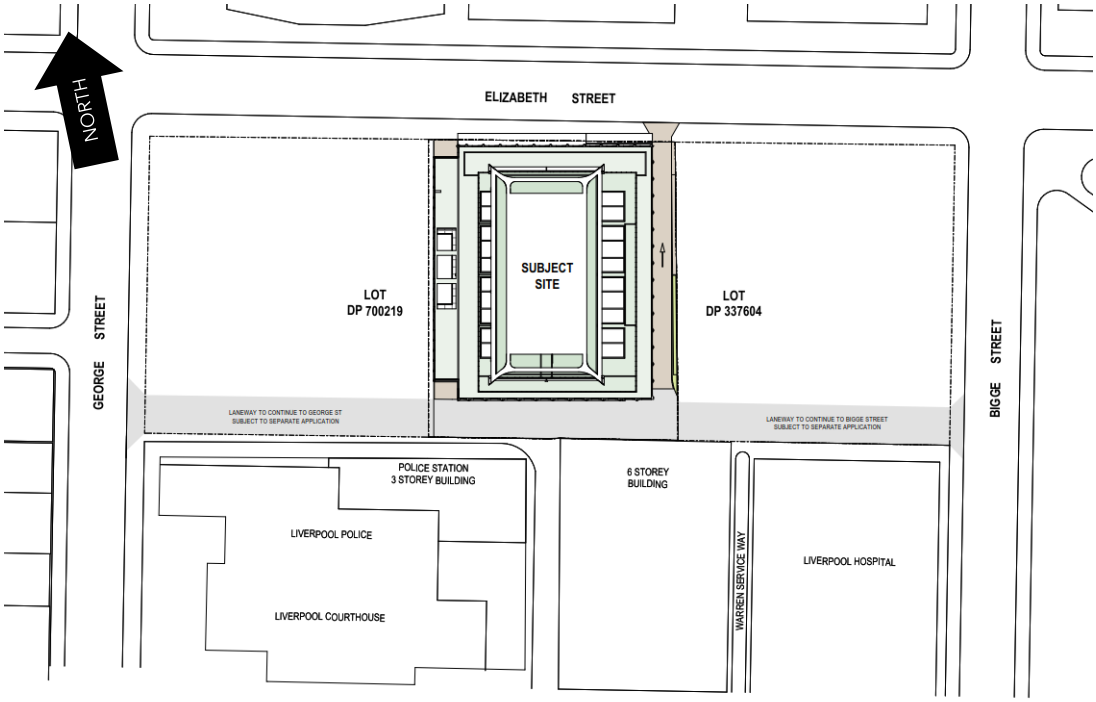


Figure 3.4 - Proposed Site Plan (Source: Rothelowman)

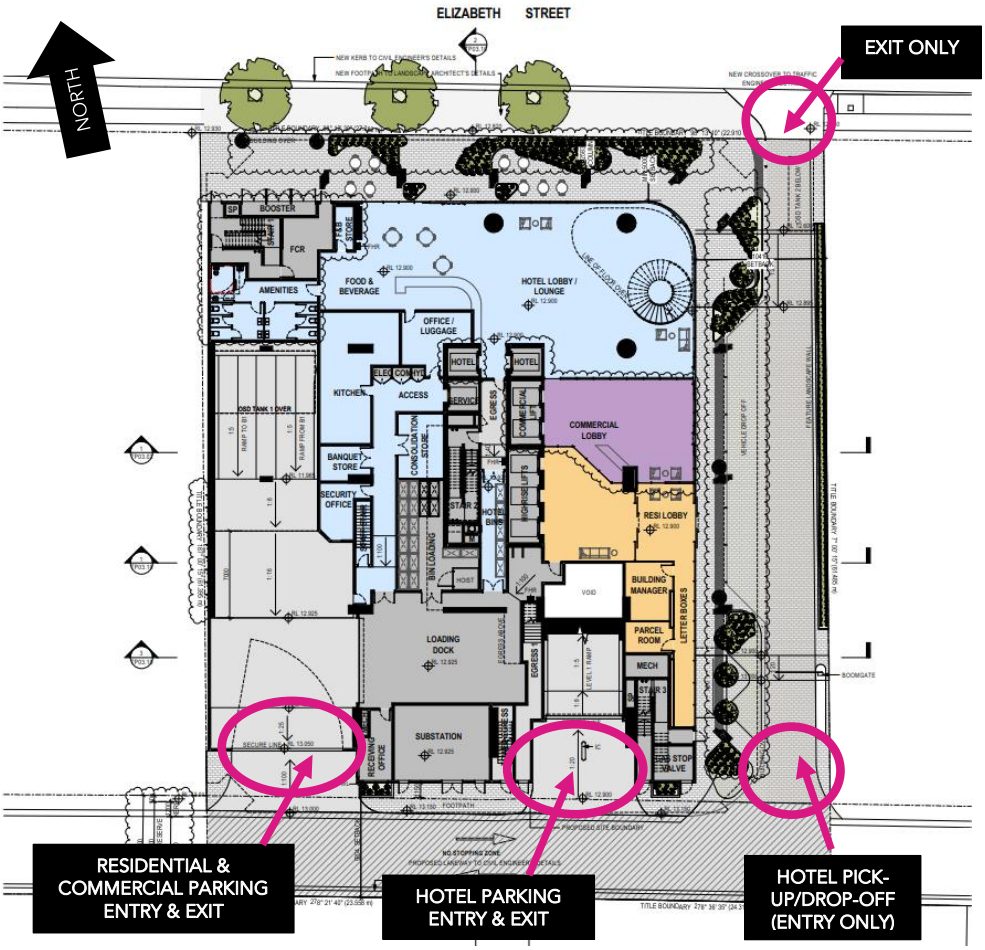


Figure 3.5 - Vehicular Access Arrangement (Source: Rothelowman)

Details of the proposal are presented on the architectural drawings provided by Rothelowman (see Attachment 1).

- Drawing No. TP01.00-BASEMENT 4 PLAN-(K) (Issued 15/11/19)
- Drawing No. TP01.01-BASEMENT 3 PLAN-(K) (Issued 15/11/19)
- Drawing No. TP01.02-BASEMENT 2 PLAN-(K) (Issued 15/11/19)
- Drawing No. TP01.03-BASEMENT 1 PLAN-(L) (Issued 19/11/19)
- Drawing No. TP01.04-GROUND PLAN-(L) (Issued 19/11/19)
- Drawing No. TP01.05-LEVEL 1 PLAN-(K) (Issued 15/11/19)
- Drawing No. TP03.01-SECTION 1-(H) (Issued 26/09/19)
- Drawing No. TP03.10-SECTION 3,4&5-(F) (Issued 26/09/19)
- Drawing No. TP03.12-RAMP SECTIONS-(E) (Issued 26/09/19)

4. Existing Transport Facilities

4.1 Road Hierarchy

The subject site is located in the suburb of Liverpool and is primarily serviced by state roads including Moore Street, Copeland Street, Hoxton Park Road, as well as a number of local roads managed by the Council. Refer to Figure 4.1 for a map of the road network servicing the site.

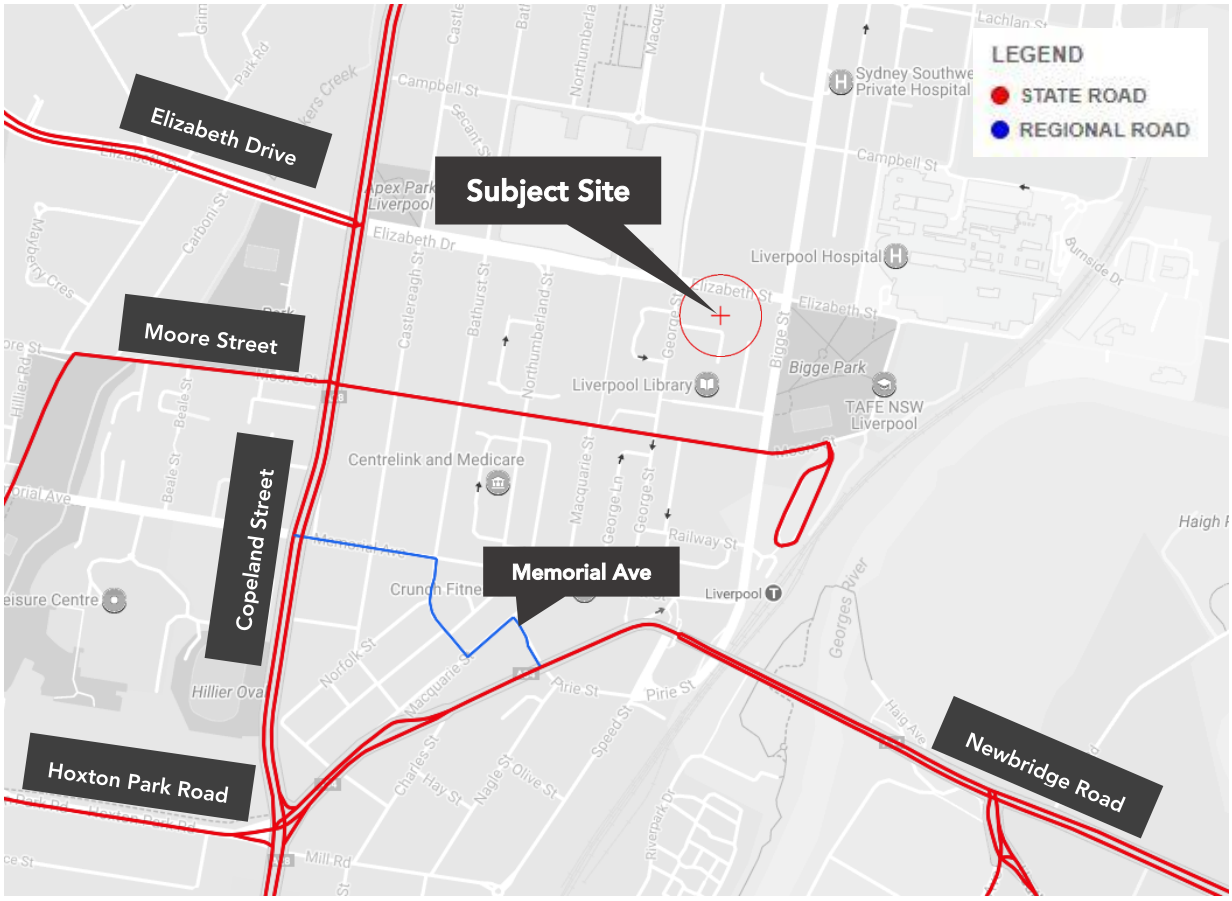


Figure 4.1 - Road Hierarchy (RMS Road Hierarchy Review)

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

State Roads	- Freeways and Primary Arterials (RMS Managed)
Regional Roads	- Secondary or sub arterials (Council Managed, Part funded by the State)
Local Roads	- Collector and local access roads (Council Managed)

Moore Street	
Road Classification	State Road
Alignment	East - West
Number of Lanes	1 lane in each direction with parking lanes on both sides of the carriageway
Carriageway Type	Undivided
Carriageway Width	12.5m
Speed Limit	40 km/h within immediate vicinity of site (high pedestrian activity)
School Zone	Yes, between George Street & Bigge Street
Parking Controls	Varies
Forms Site Frontage	No

Figure 4.2 – Moore Street – Eastbound towards Bigge Street

Copeland Street	
Road Classification	State Road
Alignment	North - South
Number of Lanes	3 lanes in each direction
Carriageway Type	Divided
Carriageway Width	23m
Speed Limit	60 km/h
School Zone	No
Parking Controls	No Stopping, No Parking and Clearway zones
Forms Site Frontage	No

Figure 4.3 – Copeland Street – Northbound towards Elizabeth Drive

George Street	
Road Classification	Local Road
Alignment	North – South
Number of Lanes	Typically, 1 lane in each direction with parking lanes on either side of the carriageway
Carriageway Type	Undivided
Carriageway Width	12.5m
Speed Limit	40km/h
School Zone	Yes, between Campbell Street & Elizabeth Street
Parking Controls	Varies - 1P ticket, unrestricted, No Parking zones
Forms Site Frontage	No

Figure 4.4 – George Street – Northbound towards Elizabeth Street

Elizabeth Street	
Road Classification	Local Road
Alignment	East - West
Number of Lanes	Typically, 1 lane in each direction with parking lanes on either side of the carriageway
Carriageway Type	Undivided
Carriageway Width	12.5m
Speed Limit	40km/h
School Zone	Yes, between George Street and Bigge Street
Parking Controls	Varies – 1P ticket, Loading Zones, Bus Zones, No Parking and No Stopping Zones
Forms Site Frontage	Yes

Figure 4.5 – Elizabeth Street – Westbound towards George Street

Bigge Street	
Road Classification	Local Road
Alignment	North – South
Number of Lanes	Typically, 1 lane in each direction with parking lanes on either side of the carriageway
Carriageway Type	Undivided
Carriageway Width	12.5m
Speed Limit	50km/h
School Zone	Yes, between Elizabeth Street & Campbell Street
Parking Controls	Varies – 1P ticket, No Parking and No Stopping Zones
Forms Site Frontage	No

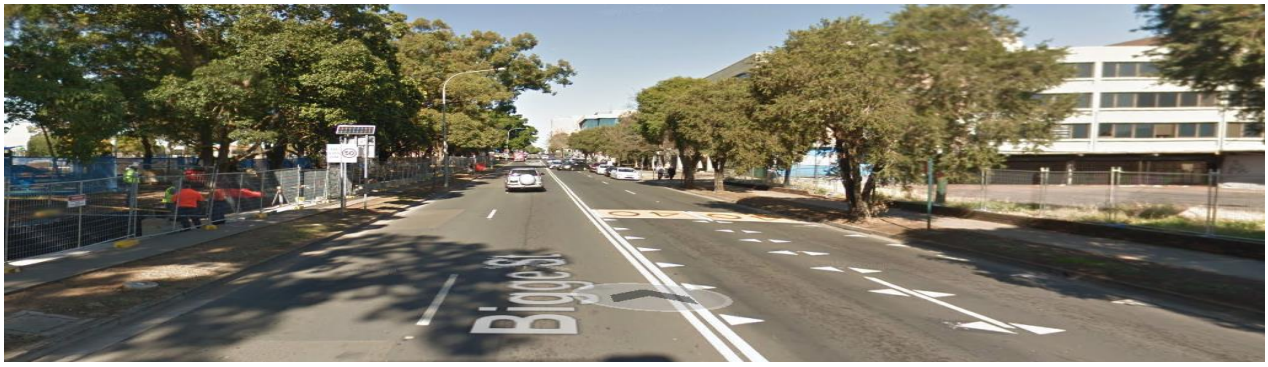


Figure 4.6 – Bigge Street – Southbound towards Moore Street

4.2 Public Transport

The locality has been assessed in the context of available forms of public transport that may be utilised by prospective residents, employees and visitors. When defining accessibility, the NSW Guidelines to Walking & Cycling (2004) suggests that 400m-800m is a comfortable walking distance.

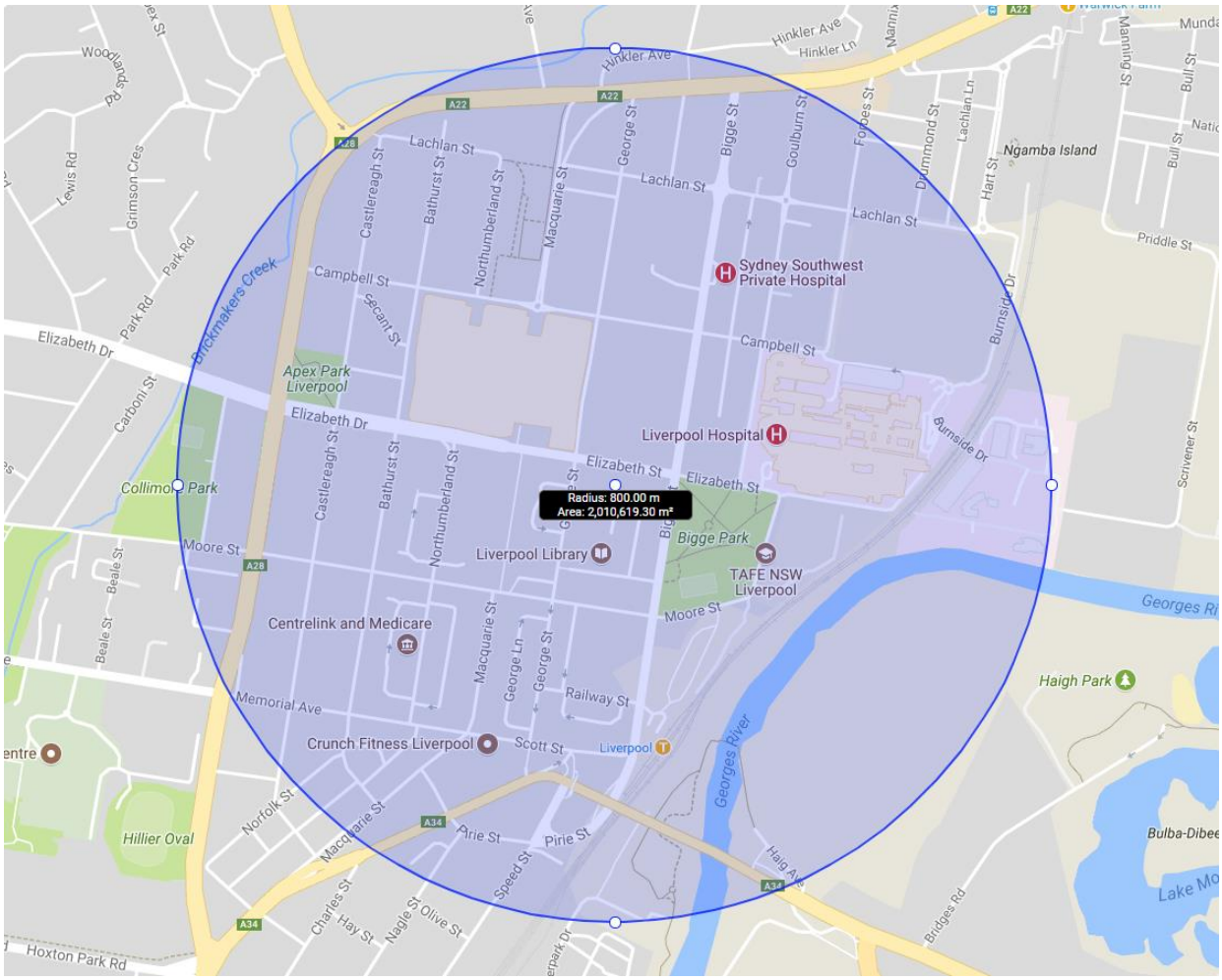


Figure 4.7 – Walking Catchment (800m radius from the Subject Site)

4.2.1 Train Services

The subject site is within 650m distance from Liverpool Train Station which is served by the Inner West & Leppington Line (T2), Bankstown Line (T3) and the Cumberland Line (T5).

A summary of the services is shown in Table 4.1.

Table 4.1 - Train Service Summary

Train Line	From	To	Frequency (approx.)	Services operate approx. (Weekdays)	Services operate approx. (Weekends)
Inner West & Leppington	Leppington	City	Every 10-20 minutes More frequent during the peak hours	5:21am to 12:35am	3:57am to 12:27am
Inner West & Leppington	City	Leppington	Every 20-30 minutes More frequent during the peak hours	4:58am to 2:32am	5:24am to 2:17am
Bankstown	Liverpool	City	Every 10-15 minutes in the peak hours	3:54am to 12:24am	4:06am to 11:36pm
Bankstown	City	Liverpool	Every 15-20 minutes in the peak hours	6:02am to 2:32am	5:47am to 2:17am
Cumberland	Leppington	Richmond	Every 30 minutes	6:21 am to 12:18am	4:23am to 11:53pm
Cumberland	Richmond	Leppington	Every 30 minutes	7:19am to 12:28am	5:24am to 12:54am

The train services provide high frequency access between Liverpool, the City and neighbouring town centres, particularly during the commuter peak periods. The high frequency services make it a viable alternative mode of transport for prospective residents, visitors and employees.

4.2.2 Bus Services

The site is serviced by medium frequency buses that operate from a number of bus stops located within close proximity. These services are operated by Sydney Bus Network and a summary of the services are shown in Table 4.2 and the bus stop locations are shown in Figure 4.8.

Table 4.2 - Bus Service Summary

Route No.	Coverage	Frequency	Stop Location
823	Liverpool to Warwick Farm (Loop Service)	Every 20-30 minutes during peak hours on weekdays, every 60 minutes off-peak	130m

Route No.	Coverage	Frequency	Stop Location
		Every 60 minutes on weekends	
851	Carnes Hill Marketplace to Liverpool via Cowpasture Rd	Every 30 minutes during peak hours on weekdays, every 60 minutes off-peak Every 60 minutes on weekends	110m
852	Carnes Hill Marketplace to Liverpool via Greenway Dr & Cowpasture Rd	Every 30-45 minutes during peak hours on weekdays, every 60 minutes off-peak Every 60 minutes on weekends	110m
853	Carnes Hill to Liverpool via Hoxton Park Rd	Every 20-30 minutes during peak hours on weekdays, every 60 minutes off-peak Every 60 minutes on weekends	110m
854	Carnes Hill to Liverpool via Greenway Dr & Hoxton Park Rd	Every 15-30 minutes during peak hours on weekdays, every 60 minutes off-peak Every 60 minutes on weekends	110m
855	Rutleigh Park to Liverpool via Austral & Leppington Station	Limited services every 3 hours during weekdays and weekends	110m
856	Bringelly to Liverpool	Limited services every 3 hours during weekdays and weekends	110m
857	Narellan to Liverpool	Every 30-45 minutes during peak hours on weekdays, every 60 minutes off-peak Limited services every 3 hours on weekends	110m
865	Casula to Liverpool via Lurnea Shops	Every 30 minutes during weekdays Every 60 minutes on weekends	110m
866	Casula to Liverpool	Every 30 minutes during weekdays Every 60 minutes on weekends	110m
901	Holsworthy to Liverpool via Wattle Grove	Every 30 minutes during peak hours on weekdays, every 60 minutes off-peak Every 60 minutes on weekends	50m
902	Holsworthy to Liverpool via Moorebank	Every 30 minutes during peak hours on weekdays, every 60 minutes off-peak	50m

Route No.	Coverage	Frequency	Stop Location
		Every 60 minutes on weekends	
903	Liverpool to Chipping Norton (Loop Service)	Every 30 minutes during peak hours on weekdays, every 60 minutes off-peak Every 60 minutes on weekends	50m
904	Fairfield to Liverpool	Every 30 minutes during peak hours on weekdays, every 60 minutes off-peak Every 60 minutes on weekends	50m
M90	Burwood to Liverpool	Every 10 minutes during peak hours on weekdays, every 15 minutes off-peak Every 20 minutes on weekends	50m

Figure 4.8 - Surrounding Bus Stops

4.3 Active Transport

In addition to public transport, the locality has been assessed for its active transport potential. It is noted that the subject site is adjacent to the Liverpool City Centre which will likely lead to higher rates of walking and cycling.

In terms of public infrastructure, the local road network offers a high level of amenity and safety for pedestrians, providing footpaths on either side of most roadways, signalised crossings, supporting signage and appropriate lighting throughout the locality.

In accordance with the RMS Cycleway Finder, the subject site is located within a bicycle network comprising of off-road paths as well as on-road cycle paths (see Figure 4.9). It is noted however, that within the vicinity of the subject site, the cycling network is disconnected between the Liverpool Hospital and the western side of the Liverpool City Centre. Notwithstanding this, the existing cycling infrastructure provides connection to Warwick Farm to the north, and the cycle route along the railway line towards the south provides linkage to Casula and Glenfield.

This will encourage and promote cycling as an alternative mode of transport for its occupants which is a healthy, low cost and environmentally-friendly method of travel.

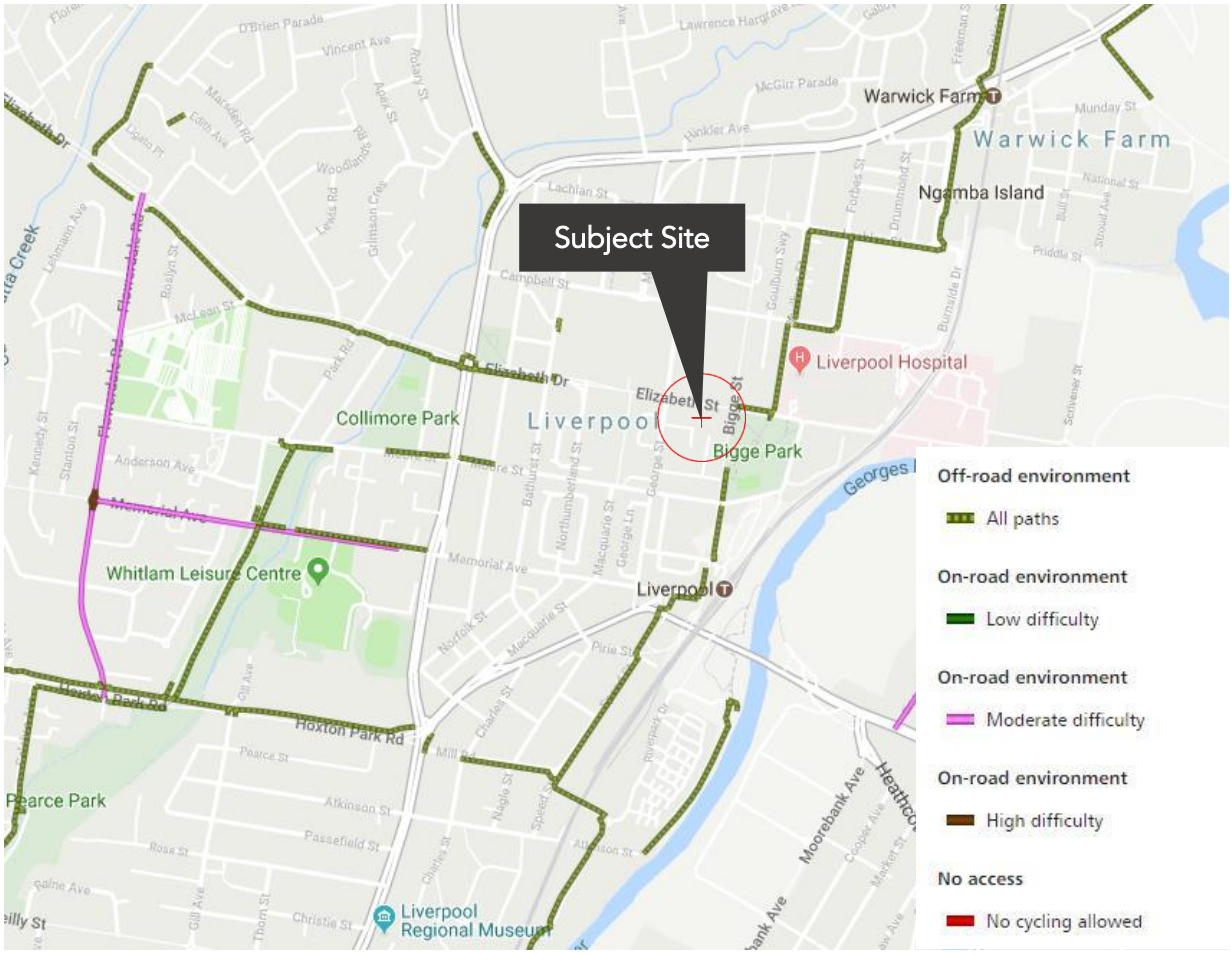


Figure 4.9 - Surrounding Cycle Paths (Source: RMS Cycleway Finder)

5. Development Traffic Assessment

The potential traffic generation of the proposed development has been estimated with reference to the following:

- RMS Guide to Traffic Generating Developments 2002 (RMS Guide)
- RMS Technical Direction 2013/04 (TDT)
- ITE Trip Generation (8th Edition)

The technical direction contains the most recent RMS survey data for high-density residential developments.

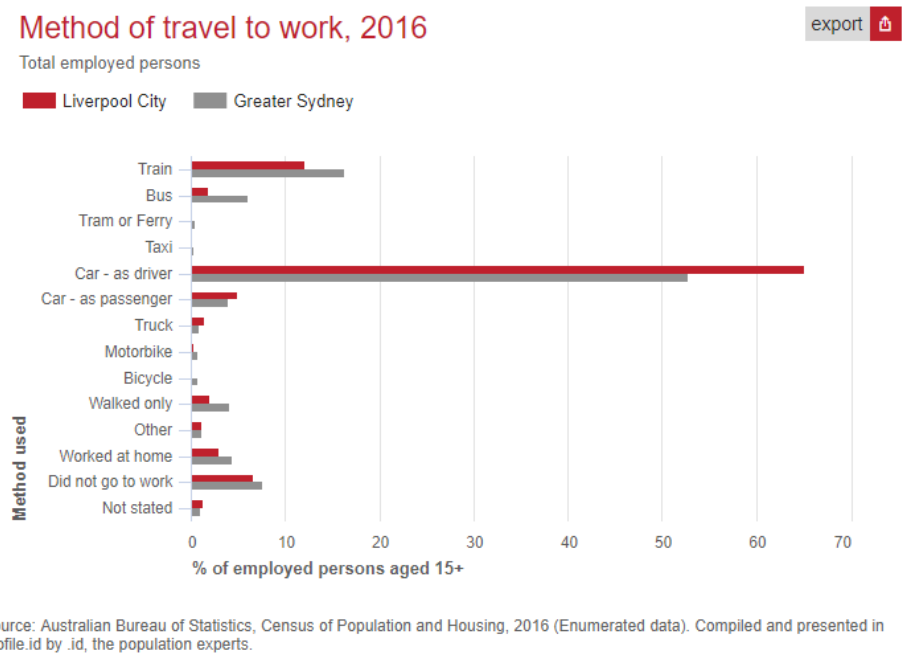
5.1 Existing Traffic Generation

The site was previously occupied by a Toyota service centre with an approximate site area of 3,082m^2. However, as the site is currently fenced off and not in use, there is no existing traffic generation from this site.

5.2 Development Traffic Generation

To assess the traffic generation for the proposed development, the site has been assessed against a similar site with comparable mode share characteristics for the residential component. Reviewing the RMS survey data for High Density Residential developments within TDT 2013/04, it has been assessed that the City of Bayside (Rockdale) site is the most comparable and this is described in more detail in the following paragraphs.

A review of the id. Profile 'Method of Travel to Work Database' has been undertaken to ascertain the existing travel modes utilised by residents of Liverpool. A summary of the statistical data for Liverpool is presented in Figure 5.1 and Figure 5.2 .



Source: Australian Bureau of Statistics, Census of Population and Housing, 2016 (Enumerated data). Compiled and presented in profile.id by .id, the population experts.

Figure 5.1 - Method of Travel to Work – Liverpool City Worker's Place of Residence Chart (Source: id. profile, 2016)

Method of travel to work

export reset

Liverpool City - Employed persons (Enumerated)	NEW 2016			2011			Change
Main method of travel	Number	%	Greater Sydney %	Number	%	Greater Sydney %	2011 to 2016
Train	10,072	12.0	16.3	7,816	10.5	13.8	+2,256
Bus	1,547	1.8	6.1	1,404	1.9	5.8	+143
Tram or Ferry	7	0.0	0.4	10	0.0	0.4	-3
Taxi	117	0.1	0.2	107	0.1	0.3	+10
Car - as driver	54,670	65.1	52.8	47,751	64.1	53.8	+6,919
Car - as passenger	4,155	4.9	3.9	4,296	5.8	4.5	-141
Truck	1,231	1.5	0.9	1,357	1.8	1.1	-126
Motorbike	275	0.3	0.7	246	0.3	0.6	+29
a Bicycle	166	0.2	0.7	249	0.3	0.8	-83
a Walked only	1,706	2.0	4.0	1,695	2.3	4.1	+11
Other	884	1.1	1.1	713	1.0	1.0	+171
a Worked at home	2,530	3.0	4.3	1,851	2.5	4.0	+679
Did not go to work	5,494	6.5	7.6	5,358	7.2	8.5	+136
Not stated	1,092	1.3	0.9	1,604	2.2	1.5	-512
Total employed persons aged 15+	83,946	100.0	100.0	74,457	100.0	100.0	+9,489

Source: Australian Bureau of Statistics, Census of Population and Housing 2011 and 2016. Compiled and presented by .id , the population experts.

Figure 5.2 - Method of Travel to Work – Liverpool City Worker's Place of Residence Table (Source: id. profile, 2016)

Based on the information taken from the 'Worker's Place of Residence' study, undertaken in 2016, it was concluded that:

- 65% of residents travel to work as the driver of a vehicle,
- 5% of residents travel to work as a passenger of a vehicle, and
- 14% of residents travel to work by public transport (bus, train, tram or ferry)

The 'Method of Travel to Work' data for Rockdale indicates a similar modal share as outlined below and presented in Figure 5.3 and Figure 5.4.

- 58% of residents travel to work as the driver of a vehicle,
- 3% of residents travel to work as a passenger of a vehicle, and
- 16% of residents travel to work by public transport (bus, train, tram or ferry)

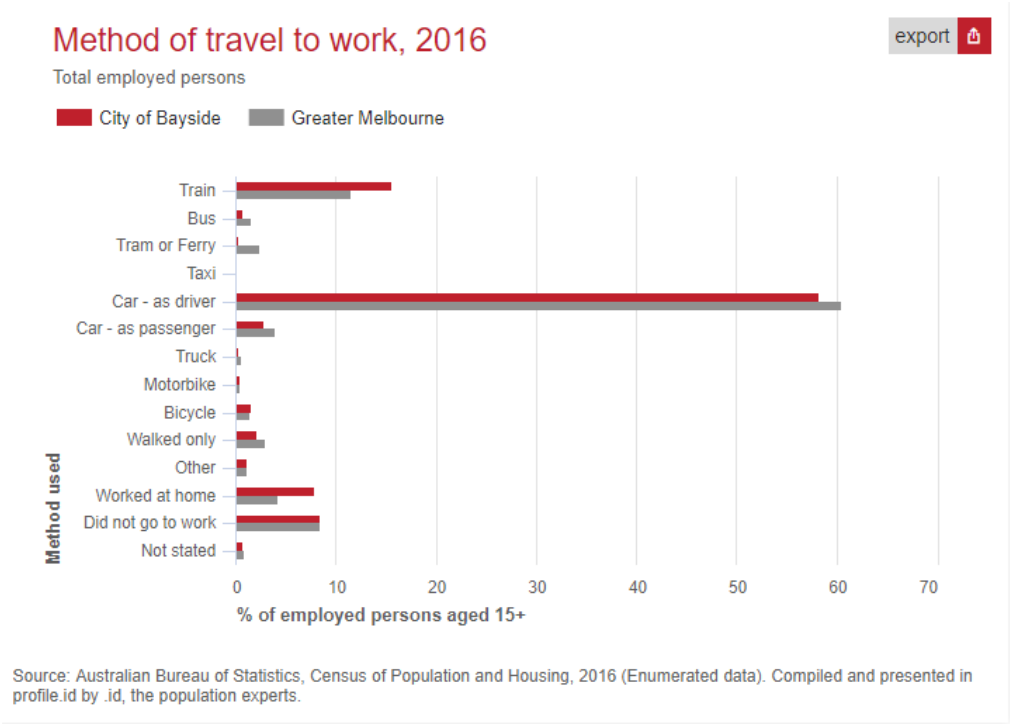


Figure 5.3 - Method of Travel to Work – City of Bayside Worker's Place of Residence Chart (Source: id. profile, 2016)

Method of travel to work

export reset

City of Bayside - Employed persons (Enumerated)	NEW 2016			2011			Change
Main method of travel	Number	%	Greater Melbourne %	Number	%	Greater Melbourne %	2011 to 2016
Train	7,035	15.5	11.5	5,515	12.8	10.0	+1,520
Bus	318	0.7	1.5	292	0.7	1.5	+26
Tram or Ferry	102	0.2	2.4	148	0.3	2.3	-46
Taxi	60	0.1	0.2	82	0.2	0.2	-22
Car - as driver	26,411	58.2	60.4	25,634	59.6	60.6	+777
Car - as passenger	1,293	2.9	3.9	1,323	3.1	4.3	-30
Truck	101	0.2	0.6	148	0.3	0.7	-47
Motorbike	164	0.4	0.4	189	0.4	0.4	-25
a Bicycle	705	1.6	1.4	693	1.6	1.3	+12
a Walked only	978	2.2	3.0	941	2.2	2.9	+37
Other	502	1.1	1.2	402	0.9	1.0	+100
a Worked at home	3,575	7.9	4.2	2,942	6.8	3.7	+633
Did not go to work	3,811	8.4	8.5	4,155	9.7	9.4	-344
Not stated	300	0.7	0.9	570	1.3	1.6	-270
Total employed persons aged 15+	45,355	100.0	100.0	43,034	100.0	100.0	+2,321

Source: Australian Bureau of Statistics, Census of Population and Housing 2011 and 2016. Compiled and presented by .id, the population experts.

Figure 5.4 - Method of Travel to Work – City of Bayside Worker's Place of Residence Table (Source: id. profile, 2016)

For the Rockdale site, the trip generation rates, per unit (based on the RMS data) is

- PM peak – 0.18 trips per unit

Based on this analysis, it is concluded that a more suitable traffic generation rate for the development is 0.18 trips per unit.

The rates from the RMS Guide and TDT were adopted to estimate the potential traffic generated by the development. The rates have been summarised below:

- High Density Residential: 0.18 trips per dwelling in the PM Peak
- Hotel: 0.4 trips per unit in the PM Peak (rate for motel developments)
- Commercial: 1.2 trips per 100m^2 GFA in the PM Peak

Considering that the RMS Guide does not provide traffic generation data relating to hotel developments, the rates stipulated for a motel has been adopted. However, a 20% reduction factor has been incorporated into the assessment based on the following reasons:

- The rates stipulated in the RMS guide assumes 100% occupancy of units. Although this may be a conservative approach, in reality the hotel will not experience 100% occupancy;
- Motels are roadside hotels designed primarily for motorists, with parking directly outside each room. As such, the rate is considered to be conservative as many visitors to the hotel will arrive/depart via public transport, shuttle buses and taxis;
- The area is predominantly a hospital precinct, as such the hotel is likely to accommodate many hospital staff/visitors, and therefore will not generate additional traffic to the road network;
- The hotel is serviced by a strong and frequent bus network. The site is also within a comfortable walking distance (650m) from Liverpool Train Station; and
- Not every room will be allocated a parking space under the basis that many of the visitors will be arriving via coaches, shuttle buses and taxis.

In light of the aforementioned points, a 20% reduction factor is considered to be reasonable for the subject development.

A 20% reduction factor has also been adopted for the traffic generation associated with the commercial component of the development. The reduction factor is considered reasonable based on the following points:

- The commercial component will primarily service the residents and hotel staff/visitors, and will not be the primary attractor to the development. As such, the commercial component is not likely to generate a large volume of external trips; and
- The development is serviced by a strong bus network which provides regular services. The site is also within a comfortable walking distance (650m) from Liverpool Train Station.

In light of this, the proposed development results in the following traffic activity as outlined in Table 5.1.

Table 5.1 - Trip Generation Summary

Component	Period	Vehicle Trip Rate	Dwellings/ GFA	Trips
Residential	PM Peak	0.18 trips per dwelling	179	33 (32.2)
Hotel	PM Peak	0.4 trips per unit (with 20% reduction)	113	37 (36.2)
Commercial	PM Peak	1.2 trips per 100m^2 GFA (with 20% reduction)	5,764m^2	56 (55.3)
			TOTAL	**126**

5.3 Surrounding Intersections

The following key intersections are located within the vicinity of the site:

- Elizabeth Street & George Street – Four-legged signalised intersection
- Elizabeth Street & Bigge Street – Four-legged signalised intersection
- Bigge Street & Moore Street – Four-legged signalised intersection
- Moore Street & George Street – Four-legged signalised intersection

5.4 Traffic Surveys

Traffic turning counts were undertaken at the two intersections above on Wednesday 25th July 2018 (outside school holiday period), between 7:00am to 6:00pm. These periods were selected in order to coincide with the morning and evening commuter peaks.

In general, the peak periods are 8am-9am in the morning and 4:30pm-5:30pm in the evening; however, the modelling adopts the worst-case scenario which utilises the peak traffic volumes for each intersection to provide a robust assessment.

The survey results are presented in the following figures.

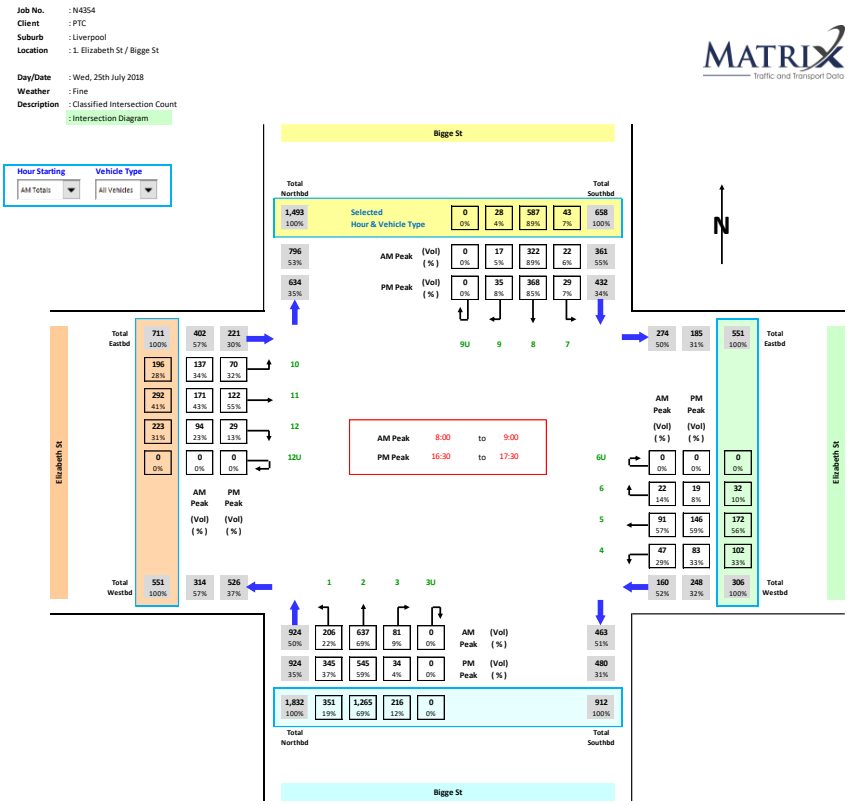


Figure 5.5 - Peak Hour Traffic Volume at Elizabeth Street/ Bigge Street intersection

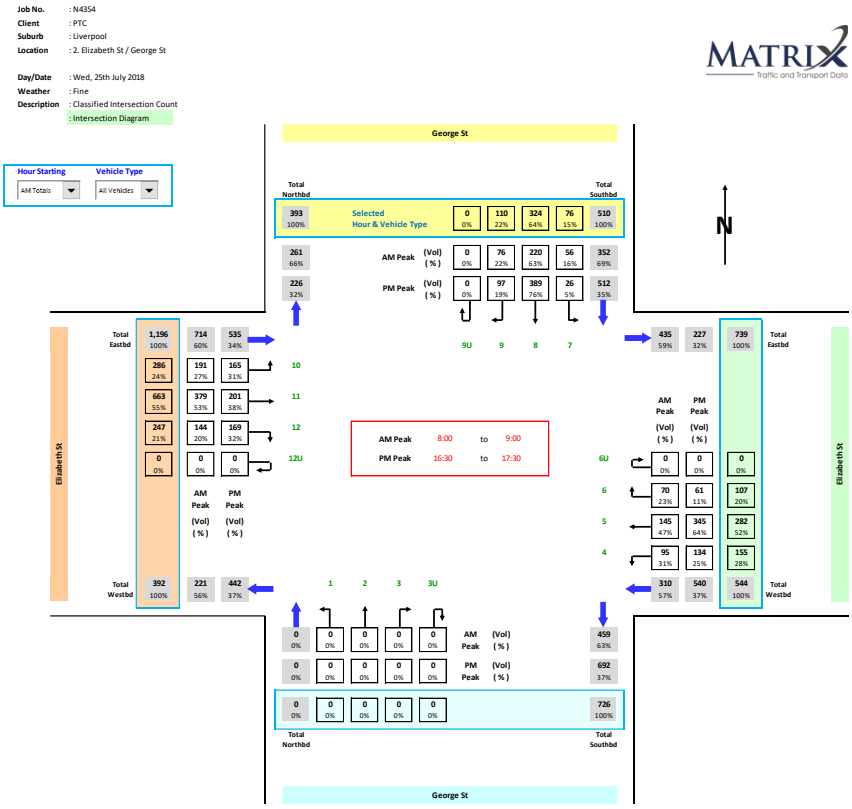


Figure 5.6 - Peak Hour Traffic Volume at Elizabeth Street/ George Street intersection

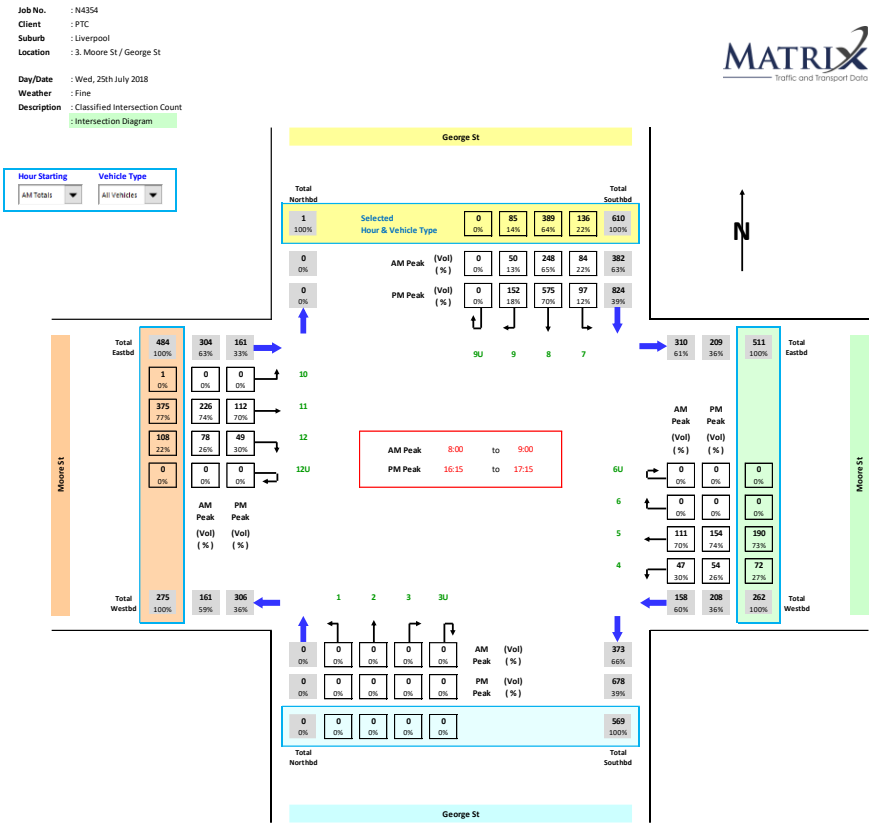


Figure 5.7 - Peak Hour Traffic Volume at Moore Street/George Street intersection

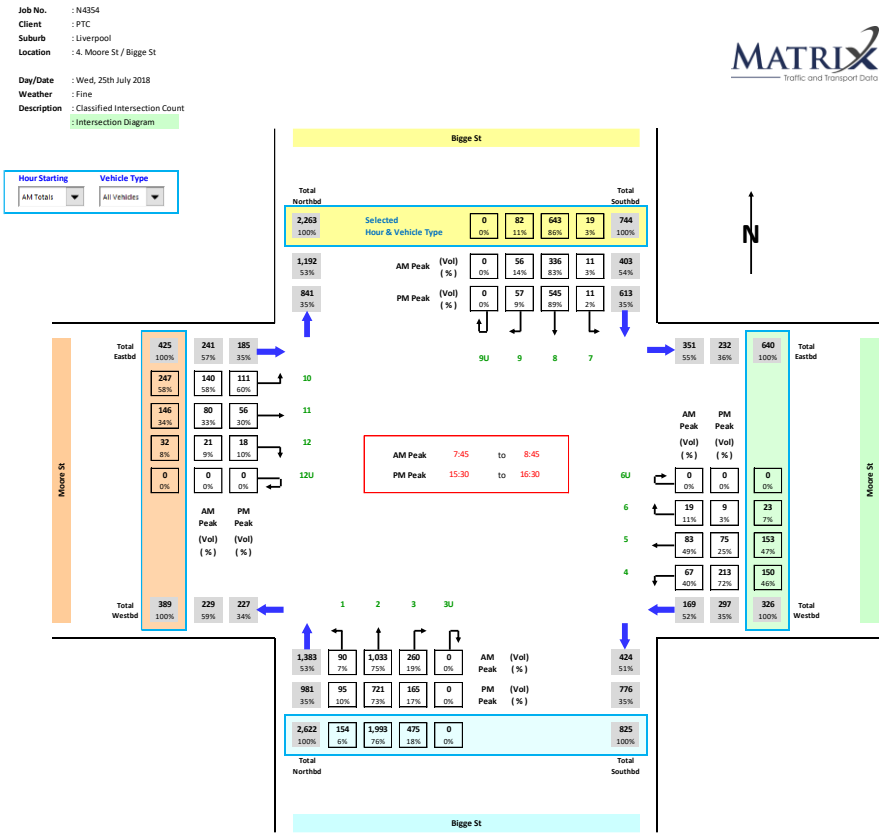


Figure 5.8 - Peak Hour Traffic Volume at Moore Street/ Bigge Street intersection

5.5 Trip Distribution

The following assumptions are made to determine the assignment of the additional trips generated by this development:

- It is assumed that in the AM Peak 80% of trips are outbound and 20% are inbound, whilst in the PM Peak, 20% of trips are outbound and 80% are inbound;
- AM Peak:
  - Outbound:
    - 40% of outbound vehicles will be northbound, along Bigge Street, onto Hume Highway and towards the Sydney CBD; and
    - 20% of outbound vehicles will be southbound, along George Street, onto Hume Highway and towards Campbelltown;
    - 20% of outbound vehicles will be southbound, along George Street, onto M5 and towards Sydney CBD; and
    - 20% of outbound vehicles will be westbound, along Elizabeth Street towards the west which are considered to be local trips; and
    - It is assumed that no vehicles will travel eastbound as the east is constrained by Liverpool Hospital and the heavy rail line.
  - Inbound:
    - 40% of inbound vehicles will be travelling from the north, along George Street from Hume Highway;
    - 20% of inbound vehicles will be travelling from the south, along Hume Highway and onto Elizabeth Street;
    - 20% of inbound vehicles will be travelling from the south, along the M5 and onto Bigge Street; and
    - 20% of inbound vehicles will be travelling from the west, along Elizabeth Street.
- PM Peak:
  - Outbound:
    - 40% of outbound vehicles will be northbound, along Bigge Street, onto Hume Highway and towards the Sydney CBD; and
    - 20% of outbound vehicles will be southbound, along George Street, onto Hume Highway and towards Campbelltown;
    - 20% of outbound vehicles will be southbound, along George Street, onto M5 and towards Sydney CBD; and
    - 20% of outbound vehicles will be westbound, along Elizabeth Street towards the west; and
    - It is assumed that no vehicles will travel eastbound as the east is constrained by Liverpool Hospital and the heavy rail line.

- Inbound:
    - 40% of inbound vehicles will be travelling from the north, along George Street from Hume Highway;
    - 20% of inbound vehicles will be travelling from the south, along Hume Highway and onto Elizabeth Street;
    - 20% of inbound vehicles will be travelling from the south, along the M5 and onto Bigge Street; and
    - 20% of inbound vehicles will be travelling from the west, along Elizabeth Street.

These assumptions have been represented in Figure 5.9 and Figure 5.10.

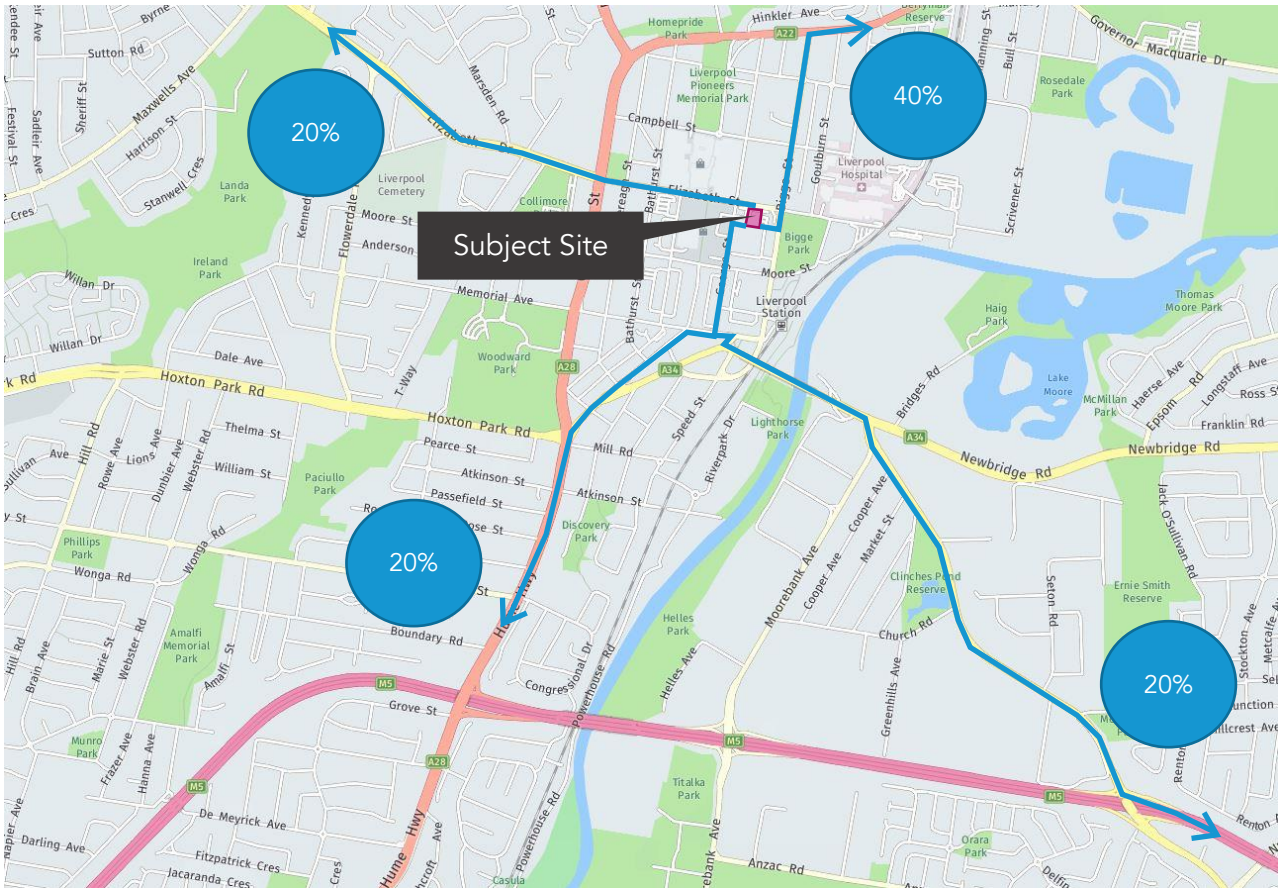


Figure 5.9 - AM and PM Peak Outbound Distribution

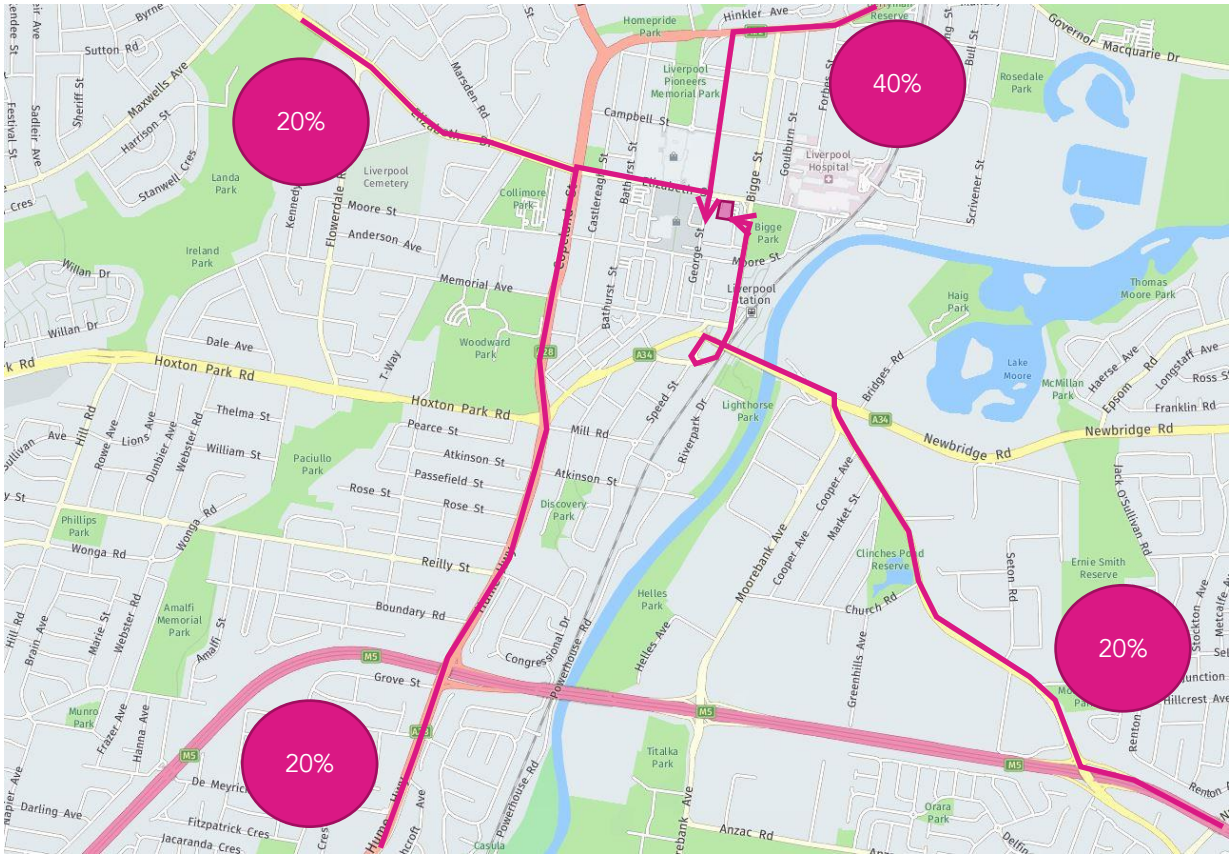


Figure 5.10 - AM and PM Peak Inbound Distribution

5.6 Surrounding Developments

To conduct a robust traffic assessment, nearby proposed developments have been considered and assessed in a cumulative manner. This cumulative traffic assessment has been directed by Liverpool City Council who has requested that that the proposed expansion of Westfield Shopping Centre and the redevelopment of Liverpool Hospital are considered in the SIDRA model.

5.6.1 Westfield Shopping Centre

Colston Budd Rogers & Kafes Pty Ltd have prepared a Traffic Report for the proposed Entertainment and Lifestyle Precinct and office tower on the roof of the existing Westfield Shopping Centre. The precinct will increase the shopping centre floor area by approximately 5,417m^2 whilst the office tower will provide an additional 11,174m^2 floor space.

It is noted that the peak period for Westfield Shopping Centre, which the traffic report has modelled, is Thursday afternoon and Saturday middays. As such, the potential traffic generated by the expansion of the shopping centre has only been added to the weekday PM peaks.

The additional volumes generated by the Westfield development and included in the model is shown in Figure 5.11.

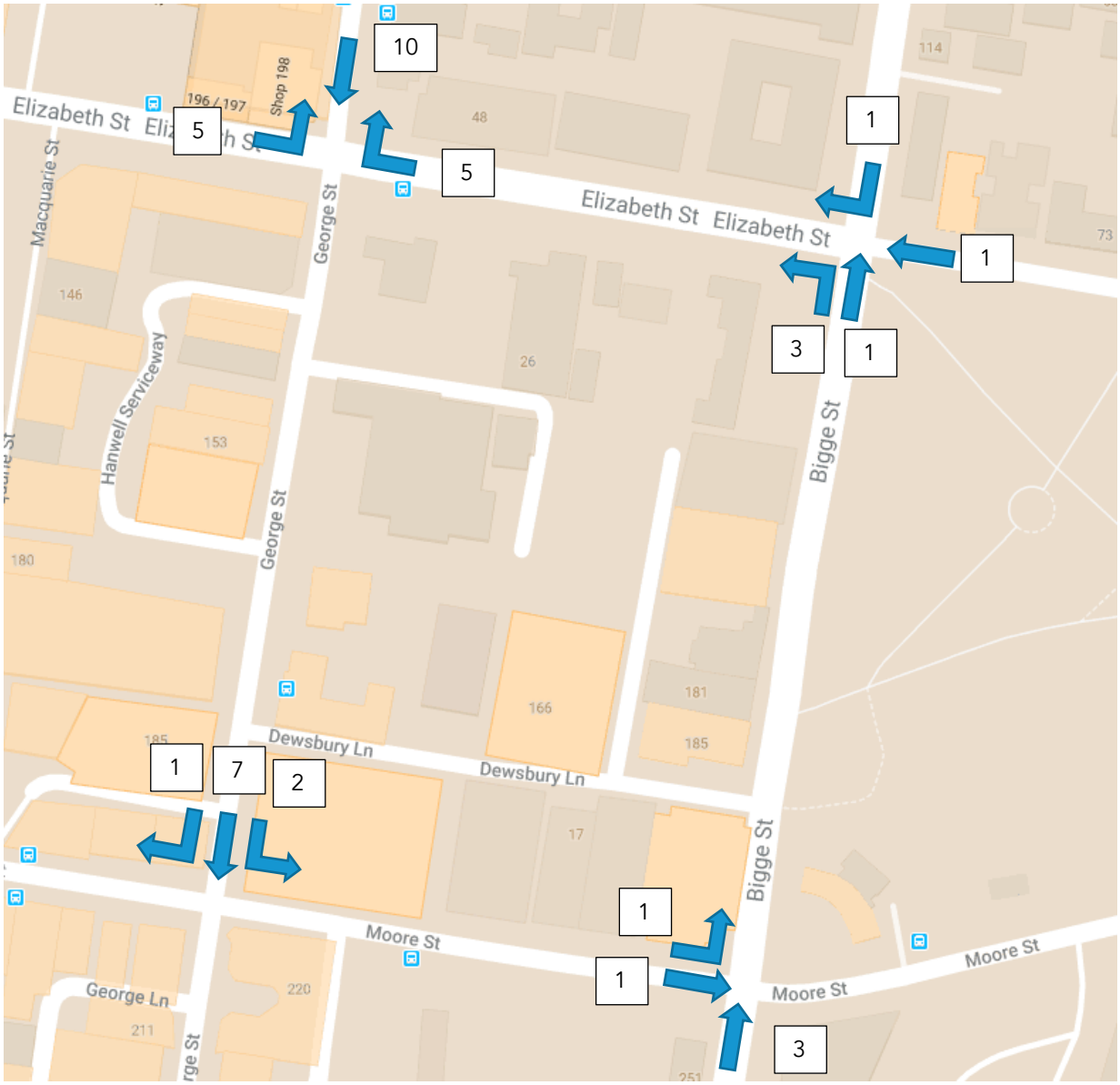


Figure 5.11 – Westfield Shopping Centre Traffic Volume (Weekday PM Peak)

5.6.2 Liverpool Hospital

Potential traffic generation from the Liverpool Hospital redevelopment have also been included in the SIDRA model. The traffic volumes are based on the model provided by GTA consultants.

The volumes included in the model for the AM and PM peak periods are shown in Figure 5.12 and Figure 5.13, respectively.

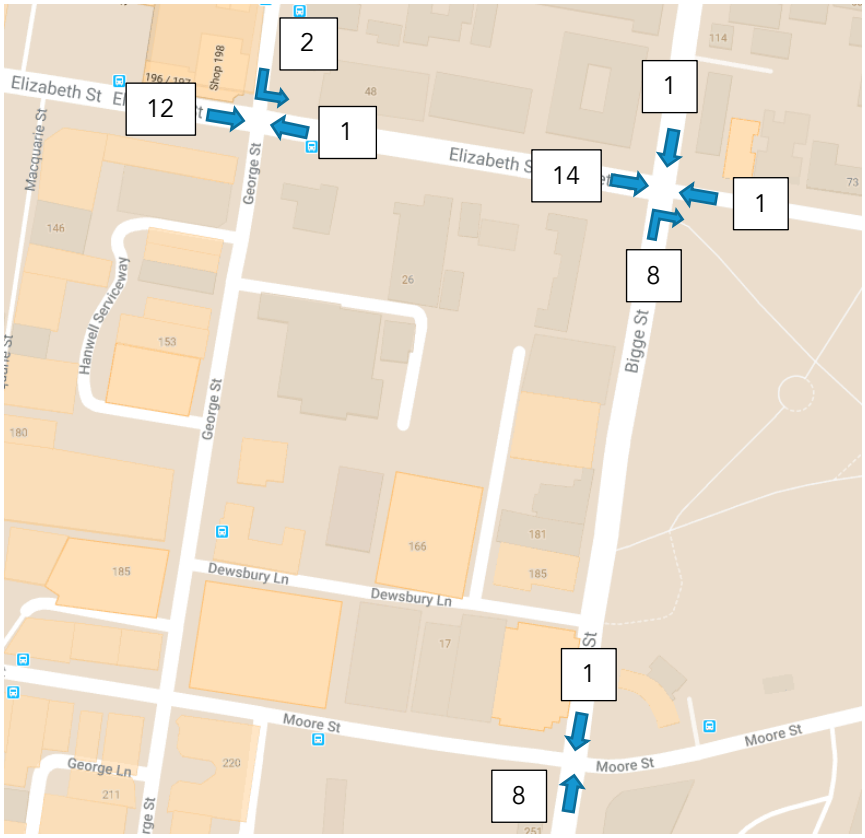


Figure 5.12 – Liverpool Hospital Traffic Volume (Weekday AM Peak)

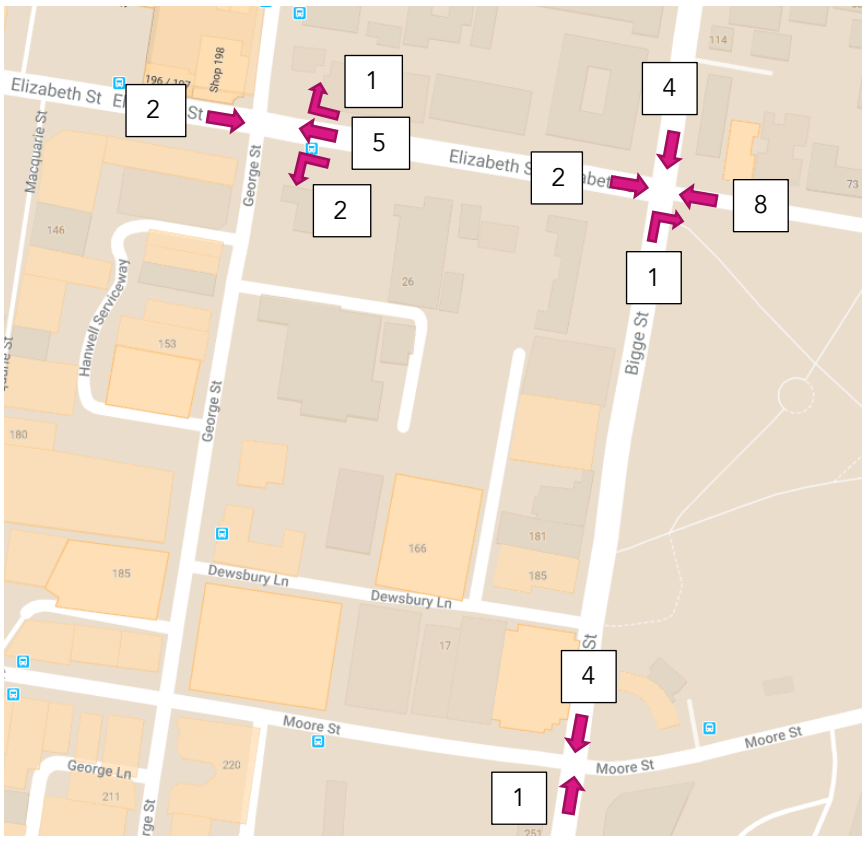


Figure 5.13 – Liverpool Hospital Traffic Volume (Weekday PM Peak)

5.7 Scenarios

Three scenarios have been modelled as part of the assessment:

- Scenario 1: Existing
- Scenario 2: Future Base (Existing + Traffic Generated by Westfield Shopping Centre & Liverpool Hospital)
- Scenario 3: Future Base + Development Traffic Generation

5.8 SIDRA Results

The surveyed intersections have been modelled with SIDRA Intersection 8.0 software, a micro-analytical tool for individual intersections and whole-network modelling. The models are based on the traffic survey data in Section 5.4. SIDRA provides a number of performance indicators, outline below:

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

Level of Service is a good indicator of overall performance for individual intersections, with each level summarised in Table 5.2.

Table 5.2 – Level of Service Definitions

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

A SIDRA analysis has been conducted for the following key intersections, based upon the survey data collected on 25th July 2018 (which lies outside the school holiday period):

- Elizabeth Street & George Street
- Elizabeth Street & Bigge Street
- Moore Street & Bigge Street
- Moore Street & George Street

The fill movement summary outputs from SIDRA are provided in Attachment 2.

The SIDRA results are summarised in Table 5.3.

Table 5.3 - Summary of Existing and Future Traffic Conditions

Intersection	Time	Period	Level of Service	Degree of Saturation (v/c)	Average Delay (s)	95% Queue Length (m)
Elizabeth Street & George Street	AM Peak	Scenario 1	B	0.598	24.7	87.5
		Scenario 2	B	0.588	24.3	89.4
		Scenario 3	B	0.606	24.7	93.1
	PM Peak	Scenario 1	B	0.693	28.0	126.0
		Scenario 2	B	0.706	28.1	129.5
		Scenario 3	B	0.697	28.0	132.6
Elizabeth Street & Bigge Street	AM Peak	Scenario 1	B	0.599	24.0	155.1
		Scenario 2	B	0.719	25.8	201.2
		Scenario 3	B	0.757	27.4	209.1
	PM Peak	Scenario 1	B	0.521	19.7	123.9
		Scenario 2	B	0.528	17.3	109.2
		Scenario 3	B	0.532	17.3	112.0
Moore Street & Bigge Street	AM Peak	Scenario 1	B	0.454	14.7	60.5
		Scenario 2	B	0.457	14.8	61.7
		Scenario 3	B	0.459	14.8	61.7
	PM Peak	Scenario 1	B	0.495	19.3	124.3
		Scenario 2	B	0.503	17.1	113.0
		Scenario 3	B	0.503	17.0	113.0

Intersection	Time	Period	Level of Service	Degree of Saturation (v/c)	Average Delay (s)	95% Queue Length (m)
Moore Street & George Street	AM Peak	Scenario 1	B	0.314	25.9	41.3
		Scenario 2	B	0.314	25.9	41.3
		Scenario 3	B	0.338	26.0	47.3
	PM Peak	Scenario 1	B	0.386	23.2	76.4
		Scenario 2	B	0.392	23.0	77.7
		Scenario 3	B	0.397	22.7	76.0

5.8.1 Elizabeth Street & George Street

The level of service at this intersection, post-development remains at LOS B for both the AM and PM peak. Each performance measure is affected marginally for both the AM and PM peaks and are considered to be acceptable. Post-development there will be approximately 30-40% spare capacity for the AM and PM peaks. The traffic impact at this intersection as a result of the development will be minor.

5.8.2 Elizabeth Street & Bigge Street

This intersection is currently performing at a LOS B during both the AM peak and PM peak. The level of service at this intersection remains at the same level of service post-development, with each performance measure increasing marginally.

5.8.3 Moore Street & Bigge Street

The level of service at this intersection, post-development remains at LOS B for both the AM and PM peak. Each performance measure increases marginally for both the AM and PM peaks and are considered to be acceptable. Post-development there will be approximately 50-55% spare capacity for the AM peak and PM peak. It is noted that in the post-development scenario is an improvement in the performance of the intersection during the PM peak due to the increase in through movement along Bigge Street which lowers the weighted average delay.

5.8.4 Moore Street & George Street

The level of service at this intersection, post-development remains at LOS B for both the AM peak and PM peak. Each performance measure increases marginally for both the AM and PM peaks and are considered to be acceptable. Post-development there will be approximately 60-70% spare capacity for the AM and PM peak. It is noted that in the post-development scenario is an improvement in the performance of the intersection during the PM peak due to the increase in through movement along George Street which lowers the weighted average delay.

5.9 Traffic Impact Summary

A trip generation of 126 trips in the PM peak is anticipated to have a minor impact on the surrounding road networks. Although this equates to approximately two additional vehicular trips per minute, these trips will be distributed throughout the road network and can be accommodated within the existing conditions.

The SIDRA results also indicate that the development will have minimal impact on the existing road network with a marginal increase in the performance indicators at each intersection.

6. Parking Provision

6.1 Planning Policy

The proposed development is subject to the parking provision rates and requirements for End of Trip Facilities (EOTF) as stipulated in the following planning documents:

- Liverpool Development Control Plan 2008 (DCP) – Part 4 Liverpool City Centre
- RMS Guide to Traffic Generating Developments 2002 (RMS Guide)
- NSW Planning Guidelines for Walking & Cycling 2004

6.2 Proposed Parking Provision

6.2.1 Car Parking Provision

As outlined in Section 3.5, the proposed development will accommodate 179 residential units. Of the 179 residential apartments, a total of 19 dwellings are proposed to be adaptable units. Applying the DCP parking rates to the proposal results in the following provision requirements outlined in Table 6.1.

Table 6.1 – Car Parking Provision

Component	No. of Dwellings/GFA	DCP Parking Rate (min)	DCP Parking Provision Requirement (min)	Proposed Parking Provision
RESIDENTIAL				
1-bedroom	16	1 space / unit	16	
2-bedroom	143	1 space / unit	143	
3-bedroom	16	1.5 spaces / unit	24	
4-bedroom	4	1.5 spaces / unit	6	
		Sub-total	**189**	**184**
Residential Visitors	179	1 space / 10 units	18 *(17.9)*	18
		Total Residential Parking Spaces	**207**	**202**
HOTEL				
Hotel	5,928m^2	1 space per 100m^2 GFA	60	58
COMMERCIAL				
Commercial Premises	5,764m^2	1 space per 100m^2 GFA	58	58
		TOTAL:	**325**	**318**

It is noted that the DCP does not stipulate the requirements between staff and visitor parking for non-residential uses. Thus, an assumption has been made that the commercial development will be predominantly under office use. In this regard, the parking provision of 60% staff and 40% visitor has been adopted.

Whilst it is acknowledged that there is an overall shortfall of seven parking spaces, the proposal includes the provision of car share parking which can reduce the off-street parking demand by allowing multiple users to share a single parking space. Further details in relation to car share parking are provided in Section 6.2.2.

6.2.2 Car Share Parking

Car share parking allows for a convenient and affordable transport mode which encourages more sustainable travel habits. Furthermore, car share bays provide an efficient use of available parking space whereby a single car share vehicle can replace up to 12 private vehicles that would otherwise compete for local parking, as described by City of Sydney Council[1]. Furthermore, the Inner West Council (Leichhardt DCP 2013) adopts a parking concession whereby one car share space can be provided in lieu of five car spaces.

Car share spaces have been proposed for the residential and hotel components of the development. Based on the parking concession rates adopted by the City of Sydney and Inner West Council's, a rate of one car share space per three car spaces has been adopted for the development. This provides a conservative rate which takes into account the higher car dependency which may be associated with regional centres located further west of the Sydney CBD. In light of the above, the proposed parking provision outlined in Table 6.1 includes the combined provision of three car share bays, which has the potential to offset a parking requirement of 9 car spaces.

In light of the above, the provision of car share parking, in addition to the proposed 318 spaces, is able to offset the shortfall of seven spaces and therefore should be considered on merit.

6.2.3 Accessible Parking Provision

The accessible parking provisions have been determined based on the requirements of the DCP. Applying the rates from the DCP to the proposal results in the following parking provisions summarised in Table 6.2.

Table 6.2 - Accessible Car Parking Provision

Component	No. of Adaptable Dwelling/ Spaces	DCP Parking Rate (min)	DCP Parking Provision Requirement (min)	Proposed Parking Provision
RESIDENTIAL				
Residents	19 dwellings	1 space / adaptable dwelling	19	19
Visitors	18 spaces	2 spaces / 100 visitor car spaces	1 *(0.4)*	1
HOTEL				
Hotel	58 spaces	2 spaces / 100 car spaces	2 (1.2)	2

[1]Source: https://www.cityofsydney.nsw.gov.au/live/residents/car-sharing

Component	No. of Adaptable Dwelling/ Spaces	DCP Parking Rate (min)	DCP Parking Provision Requirement (min)	Proposed Parking Provision
COMMERCIAL				
Commercial	58 spaces	2 spaces / 100 car spaces	2 *(1.2)*	2
		TOTAL	**24**	**24**

As shown in Table 6.2, a total of 24 accessible parking spaces are required under the DCP. A total of 24 accessible parking spaces are proposed and therefore aligns with the DCP requirement.

6.2.4 Bicycle Parking Provision

As outlined in Part 4.3 of the DCP, bicycle parking is to be provided in accordance with the following minimum rates (applicable to all developments):

- 1 bicycle space per 200m^2 GFA
- 15% of the required bicycle parking provision is to be accessible to visitors

Applying the above rates to the subject proposal leads to the provisions outlined in Table 6.3.

Table 6.3 - Bicycle Parking Provision

Component	Type	GFA (m^2)	DCP Parking Provision Rate (min)	DCP Parking Provision Requirement (min)	Proposed Bicycle Parking Provision
Residential	Residents	15,855m^2	85% * (1 space / 200m^2 GFA)	68	79
	Residential Visitor	15,855m^2	15% * (1 space / 200m^2 GFA)	12	14
			Residential Subtotal	**80**	**93**
Hotel	Hotel Staff	5,928m^2	85% * (1 space / 200m^2 GFA)	25	26
	Hotel Visitor	5,928m^2	15% * (1 space / 200m^2 GFA)	5	5
			Hotel Subtotal	**30**	**31**
Commercial	Commercial Staff	5,764m^2	85% * (1 space / 200m^2 GFA)	24	24

Component	Type	GFA (m^2)	DCP Parking Provision Rate (min)	DCP Parking Provision Requirement (min)	Proposed Bicycle Parking Provision
	Commercial Visitor	5,764m^2	15% * (1 space / 200m^2 GFA)	5	5
			Commercial Subtotal	**29**	**29**
			TOTAL	**139**	**153**

The development will provide bicycle parking facilities in accordance with the requirements of AS2890.3 (2015):

- Class B bicycle facilities are to be provided for residents and staff; and
- Class C bicycle rails are to be provided for the visitors.

As outlined in Table 6.3, a total of 139 bicycle parking spaces are required and 153 have been provided (including 24 visitor bicycle spaces, which adheres to the minimum requirement of 24) within the basement and level 1 car parks.

6.2.5 End of Trip Facilities

In accordance with the recommendations outlined within the NSW Planning Guidelines for Walking 7 Cycling, end of trip facilities (EOTF) have been provided within the Basement 1 car park which will serve the staff associated with the hotel and commercial component of the development. The EOTF includes the following amenities:

Hotel

- 2 x showers;
- 2 x changing cubicles; and
- 10 x personal lockers.

Commercial

- 8 x showers;
- 2 x changing cubicles; and
- 5 x personal lockers.

6.2.6 Motorcycle Parking Provision

As outlined in Part 4.3 of the DCP, motorcycle parking is to be provided in accordance with the following minimum rate (applicable to all developments):

- 1 motorcycle space per 20 car parking spaces

Applying the above rates to the proposal leads to the provisions outlined in the following table.

Table 6.4 - Motorcycle Parking Provision

Component	No. of Proposed Car Parking Spaces	DCP Parking Provision Rate (min)	DCP Parking Provision Requirement (min)	Proposed Parking Provision
Residential	202	1 space / 20 car spaces	11 *(10.1)*	12
Hotel	58	1 space / 20 car spaces	3 *(2.9)*	4
Commercial	58	1 space / 20 car spaces	3 *(2.9)*	3
		TOTAL	**17**	**19**

As shown in Table 6.4, a total of 17 motorcycle parking spaces are required under the DCP. A total of 19 motorcycle parking spaces are included in the proposal which meets the DCP requirements.

6.2.7 Service Bay Provision

In regards to servicing, the DCP outlines the service vehicle parking requirements for residential uses as outlined below:

- 1 space per 40 units (including removalist vans and car washing bays, up to a maximum of 4 spaces per building)

It is noted that the DCP does not stipulate the service vehicle parking requirements for other types of development. In lieu of such information, reference has been made to Section 5.2.3 of the RMS Guide which outlines the recommended minimum parking provisions for delivery and service vehicles.

Applying the RMS parking rates to the proposal results in the following provision requirements outlined in Table 6.5.

Table 6.5 - Service Bay Provision

Component	No. of Dwellings/ GFA	DCP/RMS Parking Rate	DCP/RMS Parking Provision Requirement (min)	Proposed Parking Provision
Residential	179	1 space per 40 units *(up to a maximum of 4 spaces)*	4	-
Hotel (50% of spaces adequate for trucks)	113	1 space for the first 50 suites + 1 space per 100 suites thereafter	2 (1.6)	-
Commercial (50 % of spaces adequate for trucks)	5,764m^2	1 space per 4,000m^2 GFA (up to 20,000m^2) + 1 space per 8,000m^2 thereafter	2 *(1.4)*	-
		TOTAL	**8**	**7**

As outlined in Table 6.5, a total of eight service bays are required in accordance with the requirements of the DCP and RMS Guide. The proposal includes a provision of 7 service bays which are provided within the loading dock as well as the basement and level 1 car parks.

The loading dock is provided on the ground floor for servicing and deliveries. Two truck bays are proposed within the loading dock where the northern bay has been designed to accommodate trucks up to a 9.9m long Council refuse vehicle. The southern loading bay is capable of accommodating trucks up to a standard 6.4m SRV.

A car wash bay for residential use has been provided within the basement car park, whilst four service bays are allocated within the level 1 car park. Connection between the residential and hotel lift lobbies will allow shared use of the service bays by the residential and hotel components of the development. The service bays located within the level 1 car park are able to accommodate B99 car-derived vans and utes; larger vehicles will be required to utilise the loading dock.

In regards to hotel servicing, a service bay accommodating B99 car derived vans/utes is provided within Basement 1, whereas trucks are proposed to utilise the two loading bays within the loading dock.

It is proposed that the service bays located within the ground floor loading dock and the level 1 car park will be shared amongst the residential, hotel and commercial components of the development. As such, the shortfall of one service bay is able to accommodate the servicing demand of the development through appropriate management measures. A separate LDMP will need to be prepared in due course to manage the shared use of the proposed loading dock and level 1 service bays.

7. Access and Car Park Assessment

The following section presents an assessment of the proposed development with reference to the requirements of AS2890.1:2004 (Off-street car parking), AS2890.2:2018 (Off-street commercial vehicle facilities), AS2890.3:2015 (Bicycle Parking) and AS2890.6:2009 (Off-street parking for people with disabilities). This section is to be read in conjunction with the architectural plans prepared by Rothelowman (see Attachment 1), issued on 19 November 2019, and the car park assessment undertaken by **ptc.** (see Attachment 3).

7.1 Vehicular Access & Circulation

The following subsections outline the proposed access arrangements to the subject site.

7.1.1 Proposed Laneway Access

As outlined in Section 3.5, two driveways are proposed within the new laneway to provide access to the basement and level 1 car parks. The new laneway will be accommodated within an 8m wide road reserve, comprising of a 1.2m wide footpath along the northern side of the laneway and a 6.5m wide trafficable area along the southern portion of the carriageway (assuming the provision of a 300mm wide kerb on the southern side of the laneway). The trafficable area will consist of a 3m wide traffic lane in each direction with No Stopping restrictions on both sides of the laneway.

As outlined in Section 2, the new east-west laneway will be constructed along the southern boundary of the subject site to facilitate entry and egress via Bigge Street (and ultimately George Street). The construction of the laneway be staged such that the Developer will construct the portion of the laneway between Bigge Street and the western boundary of the subject site. Upon development of the neighbouring site to the west, the laneway will be extended to George Street which will ultimately provide a two-way connection between George and Bigge Streets. Furthermore, a hotel pick-up/drop-off area driveway is also proposed along the eastern boundary of the site which can be accessed via the new laneway with egress onto Elizabeth Street (one-way northbound flow) link In order to restrict access to the pick-up/drop-off area to hotel vehicles only (to prevent rat running from Bigge Street to Elizabeth Street), a boom gate is provided for access control.

The proposed vehicular access arrangement is presented in Figure 7.1.

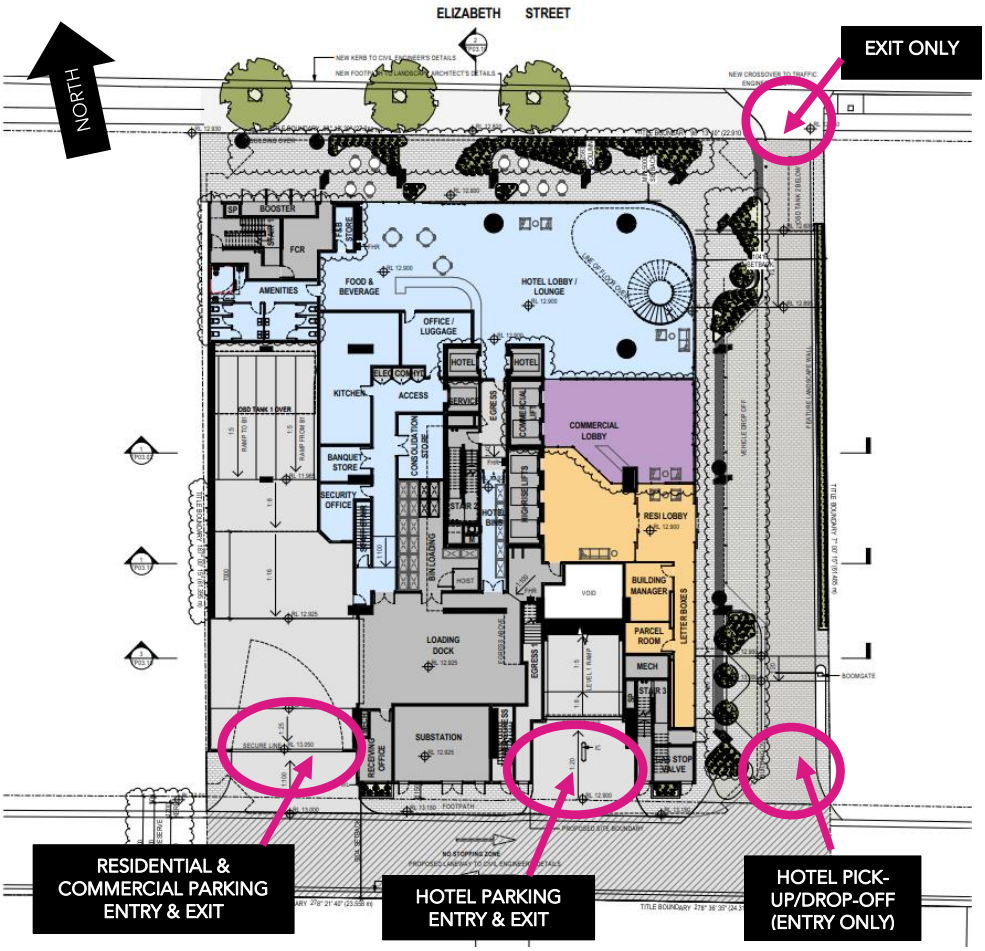


Figure 7.1 - Vehicular Access Arrangement (Source: Rothelowman)

7.1.2 Signage

In order to allow for unimpeded two-way access throughout the new laneway and the hotel drop off/pick up area, appropriate signage will need to be installed to prohibit parking along these roads. Figure 7.2 presents the proposed signage locations.

It should be noted that in order to achieve the sight distance requirement exiting from the hotel drop off/pick up area onto Elizabeth Street, there is a loss of three on street parking spaces. Nevertheless, the net loss of on-street parking spaces can be reduced to one space after reinstating the kerb and gutter at the existing driveway on Elizabeth Street.

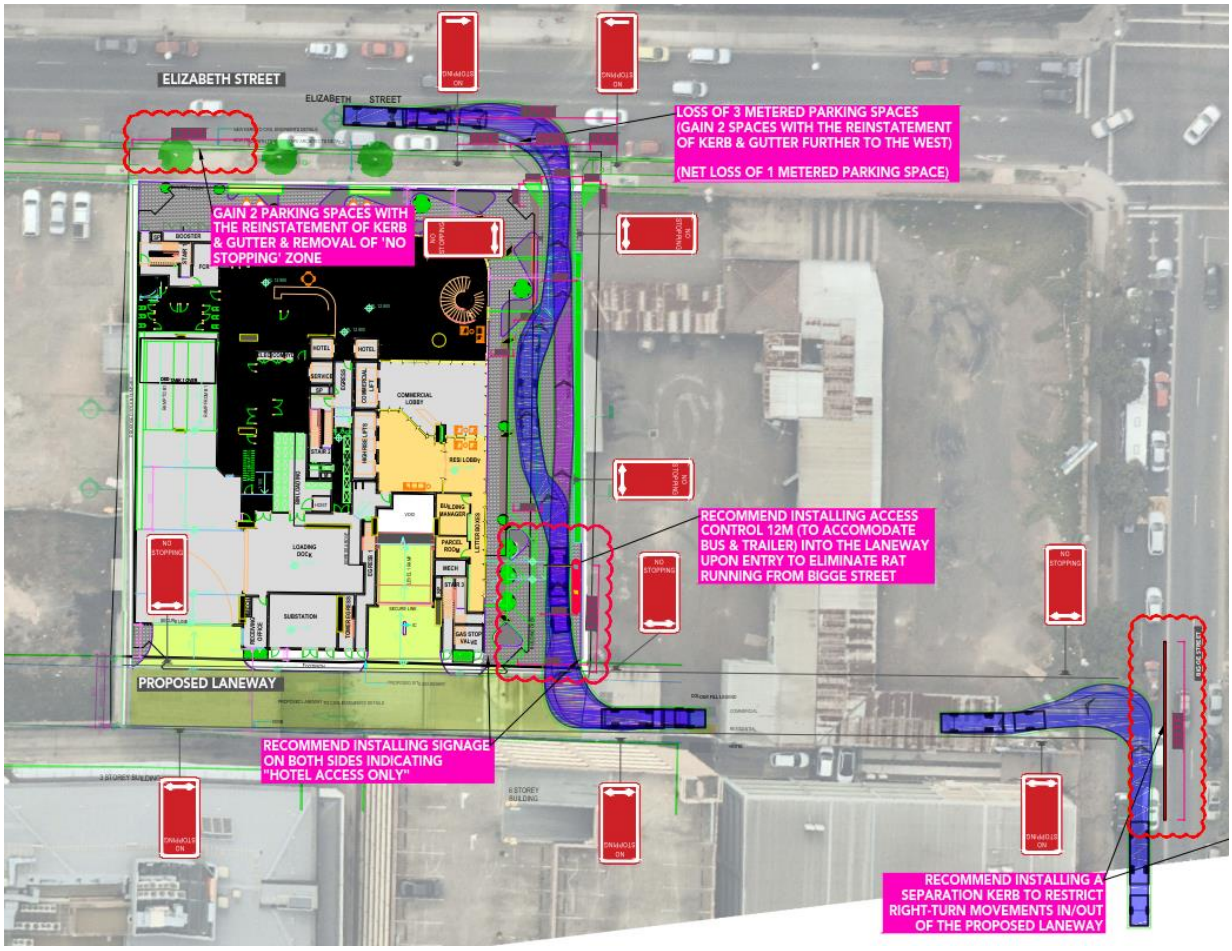


Figure 7.2 – Proposed Signage Plan

7.1.3 Loading Dock and Basement Car Park Access

Access into the loading dock and basement car park is provided via a 9.5m wide driveway located at the south-western corner of the site. This driveway will facilitate access by light vehicles and service/refuse vehicles, with a 10.54m long substation service vehicle expected to be the longest vehicle required to access the site. Refer to Section 7.6 for further details of the substation service vehicle access and Attachment 3 for details of the swept path assessment.

7.1.4 Level 1 Car Park Access

The driveway located to the east of the substation will facilitate access to the level 1 car park and will only be required to accommodate light vehicles. The development proposes a 6.1m wide access driveway which is capable of allowing two-way passing of a B99 and a B85 vehicle. Refer to Attachment 3 for details of the swept path assessment.

7.2 Pick-up and Drop-off Facility

7.2.1 Hotel Pick-up/Drop-off Access

Access to the hotel pick-up and drop-off facility has been designed to accommodate a 7m Toyota Coaster minibus with trailer, resulting in a total overall vehicle length of 11.65m. Smaller vehicles such as a 5.4m Toyota HiAce Minibus with trailer (total vehicle length of 9.4m) is also able to be accommodated.

The width of the entry driveway to the pick-up/drop-off facility is approximately 7.8m and has been determined based on a swept path assessment for a 7m Toyota Coaster minibus. The link road accommodates a 3.2m wide parking lane to accommodate a bus bay (as per the NSW State Transit Bus Infrastructure Guide) and accessible parallel parking (as per AS2890.6). The one-way (northbound) traffic lane has been designed to accommodate heavy vehicles and has a width of 3.5m (between kerbs).

The egress driveway located within the Elizabeth Street frontage is 8.95m wide (including wings), which has been determined on a performance basis to facilitate the left turn manoeuvre for a 7m Toyota Coaster minibus onto Elizabeth Street. It is noted that all traffic exiting from the link road onto Elizabeth Street will need to be restricted to left-out only due to the close proximity to the upstream intersection of Bigge Street/Elizabeth Street.

7.3 Pedestrian Access

In terms of pedestrian connectivity, a new 1.2m wide footpath will be constructed along the northern side of the laneway to provide an east-west pedestrian link along the southern frontage of the site. The existing pedestrian footpath along the northern frontage on Elizabeth Street will be retained, providing a convenient link to the Liverpool town centre.

Furthermore, the new access road along the eastern site boundary at the hotel pick-up/drop-off facility will accommodate north-south pedestrian connectivity between the two frontages. This pedestrian pathway is will be protected by bollards to ensure physical separation between pedestrian and vehicular movements.

7.4 Ramp Design

The initial portion of the access ramp connecting the ground floor to the basement car park is to be designed in accordance with AS2890.2, as heavy vehicles will be required to utilise the area to the west of the loading dock for vehicle manoeuvring.

In accordance with AS2890.2, maximum ramp grades are to meet the following requirements:

- Maximum grades do not exceed 1:8 (12.5%) where reverse manoeuvres are required;
- Transition grades do not exceed 1:16 (6.25%) in 7.0m in travel; and
- Maximum grades do not exceed 1:20 (5%) for at least the longest wheelbase from the property line.

The access ramps within the basement and level 1 car parks are designed in accordance with AS2890.1 where:

- Maximum grades do not exceed 1:4 (25%) for residential private car parking;
- Maximum grades do not exceed 1:5 (20%) for non-residential and public parking;
- Transition grades do not exceed *\1:8 (12.5%) for at least 2m in length; and
- Maximum grades do not exceed 1:20 (5%) for first 6m from the property line.

7.5 Sight Distance

The sight distance requirements are outlined in Section 3.2.4 of AS2890.1 and Section 3.4.5 of AS2890.2, and are prescribed on the basis of the post speed limit or 85th percentile vehicle speeds along the frontage road.

The section of Elizabeth Street between Bigge Street and Bathurst Street is designated as a high pedestrian activity zone with a posted speed limit of 40km/h. In accordance with Figure 3.2 of AS2890.1, a desirable visibility distance of 55 metres and a minimum stopping sight distance of 35 metres is required for light vehicles. For heavy vehicles, the sight distance requirement is outlined in Figure 3.3 of AS2890.2 which stipulates a desirable sight distance of 89m and a minimum stopping sight distance of 55m. The proposed egress-only driveway within the Elizabeth Street frontage is located in a straight section of the road. It is noted that there is existing on-street parking on the southern side of Elizabeth Street along the site frontage. Due to proposed driveway on Elizabeth Street, some on-street parking spaces will be lost. However, the development will provide 339 off-street parking spaces. In light of this, the net loss of parking in the locality is considered to be minimal.

In regards to the driveways located at the southern boundary of the site, the driveway to the loading dock and basement car park has been designed in accordance with the sight distance requirements of AS2890.2 for heavy vehicle access. Furthermore, the access driveway to the level 1 car park has been designed as per the visibility requirements of AS2890.1 for light vehicles.

For pedestrian visibility, the sight splays in the form of 2.5m x 2.0m right-angled triangles will need to be provided to ensure visibility of pedestrians travelling along the footpath adjacent to the southern site boundary. Minor amendments to ensure that the sight splays are achieved as well as the provision of traffic safety devices (e.g. convex mirrors, flashing lights etc.) shall be finalised during the detailed design stage.

The proposed car parks allow all vehicles to enter and exit in a forward direction, therefore minimising potential conflict points and maintaining the overall safety of the road network.

7.6 Substation Service Vehicle Access

A substation is proposed along the southern boundary of the site adjoining the rear laneway. In order to facilitate servicing and maintenance of the substation, heavy vehicle access is required by mobile cranes. ptc. has been advised by the Project Electrical Engineer that a 10.54m long rigid vehicle will require access to the substation. The prescribed service vehicle is identified as the Type 1 truck within the Endeavour Energy (EE) Network Standard. The EE Network Standard outlines the requirements for the design, construction and maintenance of assets in the Endeavour Energy network.

The vehicle manoeuvring of a 10.54m long Type 1 service truck has been modelled using an HRV and a swept path assessment has been conducted to demonstrate site access. It is highlighted that an HRV has been used only to model the vehicle manoeuvring space required for the 10.54m Type 1 substation service truck. The requirements for the height clearance have been adopted from the EE Standard which are specific to the Type 1 service vehicle and stipulates a minimum height clearance of 4.4m (for vehicular access only, excluding loading and unloading operation). Details of the swept path assessment is presented in Attachment 3.

The swept path assessment demonstrates that the service vehicle will enter from the east via Bigge Street, enter the loading dock and utilise the two service vehicle bays to turn around and exit. It is noted that a five-point turn will be required for the substation service vehicle to enter and exit the site via Bigge Street.

A height clearance of 4.5m has been provided within the loading dock and along the vehicle path, satisfying the requirement for HRV access in AS2890.2.

It is proposed that the service vehicle will occupy the laneway in order to conduct servicing and maintenance of the substation. As such, the lane way will be required to be closed and vehicular access to the car parks will not be possible for the duration of the maintenance works. As such, a Road Closure and Standing Plant Permit will need to be lodged to Council for approval for any servicing and maintenance works.

It is noted that substation servicing will only occur in the event of a catastrophic failure of the equipment or at the end of the equipment life cycle. As such, servicing operations are anticipated to occur only every 20 years, as per the advice by the Project Electrical Engineer.

7.7 Car Park Arrangement

7.7.1 Typical Requirements

The car park access and parking arrangements have been assessed against the requirements of AS2890.1:2004, with reference to Class 1A (residential/employee) facilities, Class 2 (long-term city and town centre parking for hotels) and Class 3 (short-term town centre parking) facilities for the commercial visitor component of the development. The development is to provide the following dimensions for the parking spaces:

Class 1A (Residential/employee) Parking Facilities:

- Car Spaces: 2.4m x 5.4m
- Aisle Width: 5.8m (minimum)

Class 2 (Long-term City and Town Centre/Hotel) Parking Facilities:

- Car Spaces: 2.5m x 5.4m
- Aisle Width: 5.8m (minimum)

Class 3 (Short-term Town Centre) Facilities:

- Car Spaces: 2.6m x 5.4m
- Aisle Width: 5.8m (minimum)

Parallel Spaces (based on 3.6m one-way aisle width):

- Space Length: 5.9m
- Space Length (obstructed end): 6.2m
- Space Width: 2.1m *(plus 300mm to any obstructions higher than 150mm)*

The parking spaces have been individually assessed and found to be generally compliant with or meeting the intent of AS2890.1. The parking spaces meet the clearance requirements (door opening, entry flanges, column locations) of the parking space envelope requirements provided in Figure 5.2 of AS2890.1, and a minimum blind aisle of 1 metre has been provided where required.

The aisle widths provided have been measured to be minimum of 5.8m with an additional 300mm provided in areas where one side of the aisle is bounded by a structure higher than 150mm. In locations whether there is a vertical obstruction greater than 150mm and the additional 300mm has not been provided, a swept path assessment has been undertaken to demonstrate the parking spaces are fit-for-purpose on a performance basis. Refer to Attachment 3 for further details of the swept path assessment.

7.7.2 Accessible Parking

The accessible parking spaces have been assessed against the requirements of AS2890.6. Accessible parking spaces are to be designed based on the following dimensions:

- Accessible Space: 2.4m x 5.4m
- Adjacent Shared Bay: 2.4m x 5.4m (with a bollard)

All shared bays and accessible spaces shall be installed in accordance with AS2890, including the installation of bollards and relevant pavement marking. A minimum height clearance of 2.5m is to be maintained above all accessible and shared bays.

It is noted that some shared areas are partially obstructed by adjoining car spaces. Approval from the Accessibility Consultant is required to confirm access to the shared bays is acceptable.

7.7.3 Headroom Clearance

Headroom clearances have also been assessed against the requirements of the Australian Standards. Headroom clearances are to be provided as follows:

- Minimum 2.2m above all general spaces;
- Minimum 2.5m above all accessible spaces and adjacent shared bays;

AS2890.2 stipulates that a minimum 4.5m headroom clearance needs to be provided for on-site parking facilities accommodating HRVs.

It is anticipated that the 10.54m substation service truck will be the largest vehicle which will require access to the loading dock (approximately once every 20 years). A vertical clearance assessment has been undertaken using a standard 12.5m HRV for access into the loading dock (see Attachment 3 for details). The assessment identified a minor overhead infringement of 10mm at the entry to the loading dock due to the change in grades at the entry; however, this is considered to be within tolerance and therefore acceptable. Furthermore, it is highlighted that under general operation, the largest vehicle anticipated to utilise the loading dock is a 9.9m Council refuse truck which has a body height of 3.4m.

A height clearance of 4.75m is provided within the hotel pick-up/drop-off facility, satisfying the minimum height requirement of 4.5m for MRVs, as per AS2890.2.

7.7.4 Bicycle Parking

All bicycle parking spaces are to be provided in accordance with AS2890.3 and the Council DCP.

- Class 2 bicycle facilities are to be provided for residents and staff of the hotel/commercial components; and
- Class 3 bicycle rails are to be provided for the visitors.

Approved bicycle parking devices (BPD's) shall be installed as per the following requirements of AS2890.3:2015:

- Horizontal parking: 1800mm x 500mm;
- Vertical Parking: 1200mm x 500mm;
- Access aisle: 1500mm OR 2000mm for lockers

7.7.5 Motorcycle Spaces

Motorcycle parking spaces are to be provided in accordance with the requirements of AS2890.1. Motorcycle spaces are to provide the following dimensions:

- Length: 2.5m
- Width: 1.2m

7.7.6 Loading Dock

The Loading Dock has been designed to accommodate a 9.9m Council refuse vehicle, which is anticipated to be the largest vehicle requiring access to the site under general operation. The loading dock includes a provision of two loading bays, one capable of accommodating trucks up to and including a 9.9m Council refuse vehicle, and the other capable of accommodating trucks up to 6.4m SRVs.

As outlined in Section 7.6, access to the loading dock will also be required by a 10.54m substation service vehicle to perform the required manoeuvres to turn around and exit via Bigge Street. A swept path assessment for the substation service truck (based on a 12.5m HRV) has been undertaken indicating that a five-point turn is required for manoeuvring.

A swept path assessment has been conducted to ensure that heavy vehicles accessing the loading dock are able to enter and exit the site in a forward direction and ensure sufficient manoeuvring area has been provided. Refer to Attachment 3 for details of the swept path assessment.

8. Conclusion

ptc. has been engaged by Binah Group to prepare a Traffic Impact Assessment to accompany a Development Application (DA) to Liverpool City Council for the construction of a mixed-use development located at 26 Elizabeth Street, Liverpool. The proposal comprises the following:

- 179 residential apartments;
- 113 hotel rooms; and
- 5,764m^2 GFA allocated to commercial premises.

Parking will be provided within the basement and level 1 car parks. Parking for the residential and commercial uses are provided within the four-level basement car park, whilst hotel parking is provided within the Basement 1 and Level 1 car parks. As part of the development, a new laneway along the southern boundary of the subject site will be constructed to facilitate vehicular access to and from the site. The laneway will be constructed to provide two-way vehicle movement between Bigge and George Streets. In terms of pedestrian connectivity, a new 1.2m wide footpath will be constructed along the northern side of the laneway to provide an east-west pedestrian link along the southern frontage of the site.

Two driveways are proposed within the new laneway to provide access to the basement and level 1 car parks. Furthermore, a one-way access road is also proposed along the eastern boundary of the site which will facilitate vehicular access to the hotel pick-up/drop-off area. The access road is proposed to operate as a one-way northbound link between the new laneway and Elizabeth Street. Traffic exiting onto Elizabeth Street will be restricted to left-out only due to the close proximity to the signalised intersection located upstream on Elizabeth Street. A boom gate will be installed to restrict access for the general public to avoid rat running.

A trip generation of 126 trips in the PM peak is anticipated to have a minor impact on the surrounding road networks. Although this equates to approximately two additional vehicular trips per minute, these trips will be distributed throughout the road network and can be accommodated within the existing conditions. The SIDRA results also indicate that the development will have minimal impact on the existing road network with a marginal increase in the performance indicators at each intersection.

In regards to parking, the development provides a total of 321 car parking spaces. Included within this provision are:

- 184 residential spaces (including 19 residential accessible bays);
- 18 residential visitor spaces (including one accessible bay);
- 58 hotel parking spaces (including two accessible bays);
- 58 commercial parking spaces (including two accessible bay); and
- 3 car share spaces (comprising two hotel and one residential car share spaces).

The proposed provision of 318 car parking spaces (excluding the three car share spaces) results in a shortfall of 7 car parking spaces when compared with the minimum requirement of 325 car spaces as stipulated within the DCP. However, integrating the principles adopted by City of Sydney and Inner West Council, whereby the car share vehicles are able to reduce the number of private vehicles competing for parking spaces, it is anticipated that the provision of 3 car share parking spaces (in addition to the 318 proposed car spaces) can offset the shortfall in the parking provision.

In addition to car parking, seven service bays have been provided which are proposed to be shared amongst the various users. A separate LDMP will need to be prepared in due course to manage the shared use of the proposed service bays.

A total of 153 bicycle parking spaces and 19 motorcycle bays have also been provided within the basement and level 1 car parks for prospective residents, visitors and staff associated with the development.

A review of the facility has been undertaken with reference to AS2890.1:2004, AS2890.2:2018, AS2890.3:2015 and AS2890.6:2009 and found the proposal to be generally in compliance with or meeting the intent of the relevant standards. Any non-standard elements within the design are able to be revisited and adjusted during the detailed design stage to ensure full compliance prior to Construction Certification.

Attachment 1 Architectural Plans

						APARTMENTS					AMENITY			HOTEL ROOMS			
LEVEL	RESIDENTIAL	PARKING	COMMERCIAL	HOTEL	TERRACE	No. 1 BEDS	No. 2 BEDS	No. 3 BEDS	No. 4 BEDS	TOTAL APARTMENTS	No. ADAPTABLE	No. LHA	No. SOLAR	No. HOTEL STANDARD	No. HOTEL ACCESSIBLE	No. HOTEL SELF CONTAINED	TOTAL HOTEL
BASEMENT 4	22 m²	2609 m²	0 m²	0 m²	0 m²	0	0	0	0	0	0	0	0	0	0	0	0
BASEMENT 3	21 m²	2471 m²	0 m²	0 m²	0 m²	0	0	0	0	0	0	0	0	0	0	0	0
BASEMENT 2	16 m²	2321 m²	101 m²	0 m²	0 m²	0	0	0	0	0	0	0	0	0	0	0	0
BASEMENT 1	16 m²	1575 m²	43 m²	383 m²	0 m²	0	0	0	0	0	0	0	0	0	0	0	0
GROUND	138 m²	381 m²	89 m²	570 m²	0 m²	0	0	0	0	0	0	0	0	0	0	0	0
LEVEL 1	0 m²	1206 m²	0 m²	393 m²	0 m²	0	0	0	0	0	0	0	0	0	0	0	0
LEVEL 2	0 m²	0 m²	1844 m²	0 m²	0 m²	0	0	0	0	0	0	0	0	0	0	0	0
LEVEL 3	0 m²	0 m²	1849 m²	0 m²	23 m²	0	0	0	0	0	0	0	0	0	0	0	0
LEVEL 4	0 m²	0 m²	1838 m²	0 m²	22 m²	0	0	0	0	0	0	0	0	0	0	0	0
LEVEL 5	0 m²	0 m²	0 m²	1164 m²	22 m²	0	0	0	0	0	0	0	0	25	2	1	28
LEVEL 6	0 m²	0 m²	0 m²	1174 m²	0 m²	0	0	0	0	0	0	0	0	25	2	1	28
LEVEL 7	0 m²	0 m²	0 m²	1173 m²	0 m²	0	0	0	0	0	0	0	0	25	2	1	28
LEVEL 8	0 m²	0 m²	0 m²	1069 m²	38 m²	0	0	0	0	0	0	0	0	28	0	1	29
LEVEL 9	561 m²	0 m²	0 m²	0 m²	291 m²	0	0	0	0	0	0	0	0	0	0	0	0
LEVEL 10	627 m²	0 m²	0 m²	0 m²	79 m²	4	0	4	0	8	0	4	6	0	0	0	0
LEVEL 11	641 m²	0 m²	0 m²	0 m²	85 m²	0	8	0	0	8	1	0	6	0	0	0	0
LEVEL 12	642 m²	0 m²	0 m²	0 m²	74 m²	0	8	0	0	8	1	0	6	0	0	0	0
LEVEL 13	642 m²	0 m²	0 m²	0 m²	74 m²	0	8	0	0	8	1	0	6	0	0	0	0
LEVEL 14	642 m²	0 m²	0 m²	0 m²	84 m²	0	8	0	0	8	1	0	6	0	0	0	0
LEVEL 15	627 m²	0 m²	0 m²	0 m²	79 m²	4	0	4	0	8	0	4	6	0	0	0	0
LEVEL 16	642 m²	0 m²	0 m²	0 m²	84 m²	0	8	0	0	8	1	0	6	0	0	0	0
LEVEL 17	642 m²	0 m²	0 m²	0 m²	74 m²	0	8	0	0	8	1	0	6	0	0	0	0
LEVEL 18	642 m²	0 m²	0 m²	0 m²	74 m²	0	8	0	0	8	1	0	6	0	0	0	0
LEVEL 19	642 m²	0 m²	0 m²	0 m²	84 m²	0	8	0	0	8	1	0	6	0	0	0	0
LEVEL 20	627 m²	0 m²	0 m²	0 m²	67 m²	4	0	4	0	8	0	4	6	0	0	0	0
LEVEL 21	642 m²	0 m²	0 m²	0 m²	84 m²	0	8	0	0	8	1	0	6	0	0	0	0
LEVEL 22	642 m²	0 m²	0 m²	0 m²	74 m²	0	8	0	0	8	1	0	6	0	0	0	0
LEVEL 23	642 m²	0 m²	0 m²	0 m²	74 m²	0	8	0	0	8	1	0	6	0	0	0	0
LEVEL 24	642 m²	0 m²	0 m²	0 m²	84 m²	0	8	0	0	8	1	0	6	0	0	0	0
LEVEL 25	627 m²	0 m²	0 m²	0 m²	67 m²	4	0	4	0	8	0	4	6	0	0	0	0
LEVEL 26	642 m²	0 m²	0 m²	0 m²	84 m²	0	8	0	0	8	1	0	6	0	0	0	0
LEVEL 27	642 m²	0 m²	0 m²	0 m²	74 m²	0	8	0	0	8	1	0	6	0	0	0	0
LEVEL 28	642 m²	0 m²	0 m²	0 m²	63 m²	0	8	0	0	8	1	0	6	0	0	0	0
LEVEL 29	642 m²	0 m²	0 m²	0 m²	53 m²	0	8	0	0	8	1	0	6	0	0	0	0
LEVEL 30	664 m²	0 m²	0 m²	0 m²	82 m²	0	5	0	1	6	1	0	4	0	0	0	0
LEVEL 31	665 m²	0 m²	0 m²	0 m²	80 m²	0	5	0	1	6	1	0	4	0	0	0	0
LEVEL 32	665 m²	0 m²	0 m²	0 m²	80 m²	0	5	0	1	6	1	0	4	0	0	0	0
LEVEL 33	311 m²	0 m²	0 m²	0 m²	383 m²	0	0	0	1	1	0	0	1	0	0	0	0
	15855 m²	10562 m²	5764 m²	5928 m²	2538 m²	16	143	16	4	179	19	16	133	103	6	4	113

1 BED	2 BED	3 BED	4 BED	TOTAL
9%	80%	9%	3%	100%

SOLAR COMPLIANT
74.3%

NOTES

GFA
Gross Floor Area has been calculated as per the definition in the relevant Local Environmentl Plan (LEP) as shown in the GFA diagrams

SOLAR ACCESS
Living rooms and private open spaces of at least 70% of apartments in a building receive a minimum of 2 hours direct sunlight between 9am and
3pm at mid winter in the Sydney Metropolitan Area and in the Newcastle and Wollongong local government areas.

CROSS VENTILATION
Apartments at ten storeys or greater are deemed to be cross ventilated only if any enclosure of the balconies at these levels allows adequate natural ventilation and cannot be fully enclosed.

ADAPTABLE UNITS
A minimum of 10% o all apartments are to be designed to be capable of adaption for access by people with all levels of mobility. In accordance with the Australian Apaptable Housing Standard (AS 4299-1995), which includes 'pre-adaption' design details to ensure visitability is achieved.

UNIVERSAL DESIGN
20% of the total apartments in a development to incorporate the Liveable Housing Guideline's Silver Level Universal Design features.

DISCLAIMER
Areas are not to be used for the purpose of lease or sale agreements. The information in these schedules is believed forrect at the time of printing. Areas are generally measured in accordance with the Property Council of Australia Method of Measurement, unless otherwise noted above.

	CARPARKS											
LEVEL	RESIDENTIAL	VISITOR	COMMERCIAL	HOTEL	CARESHARE	**FLOOR TOTAL**	ACCESSIBLE INCL. IN TOTAL	SERVICE	CARWASH	MOTORCYCLE / SCOOTER PARKS	BICYCLE PARKS	RESIDENTIAL STORES
BASEMENT 4	88	0	0	0	0	**88**	7	0	0	6	33	70
BASEMENT 3	79	0	0	0	0	**79**	10	0	1	4	43	72
BASEMENT 2	17	5	58	0	0	**80**	4	0	0	3	27	29
BASEMENT 1	0	13	0	30	3	**46**	2	1	0	4	35	0
LEVEL 1	0	0	0	28	0	**28**	1	4	0	2	15	0
TOTAL	**184**	**18**	**58**	**58**	**3**	**321**	**24**	**5**	**1**	**19**	**153**	**171**

CAR SHARE SPACES
TO MAKE UP THE SHORTFALL IN CAR PARKING SPACES SHARE CARS SPACES ARE PROPOSED AS INDICATED ON PLANS

CAR PARKING PROVISION		
	Rates	Reqd.
1 bed	1	16
2 bed	1	143
3+ bed	1.5	30
Resident		189
Visitor	0.1	18
Commercial	1 / 100sqm	57
Hotel	1 / 100sqm	62
Total		326

MOTORBIKE PROVISION		
	Rates	Reqd.
Residential	0.05 x car	10
Commercial	0.05 x car	3
Hotel	0.05 x car	4
Total		18

BICYCLE PROVISION		
	Rates	Reqd.
Residential	1 / 200sqm	93
Commercial	1 / 200sqm	29
Hotel	1 / 200sqm	31
Total		153

SITE AREA	PERMISSIBLE FSR	MAXIMUM GFA
3082m²	1:10	30,820m²

PROGRAM	GFA
COMMERCIAL	5676 m²
HOTEL	6112 m²
RESIDENTIAL	18118 m²
	29906 m²

DEVELOPMENT APPLICATION

Revisions

F	13.08.19	FOR COORDINATION	JLi
G	22.08.19	FOR COORDINATION	JLi
H	05.09.19	ISSUED FOR SUBMISSION	JLi
J	26.09.19	ISSUED FOR SUBMISSION	JLi
K	15.11.19	FOR TRAFFIC REVIEW	NE

15/11/2019 3:12:33 PM

Project: **ELIZABETH STREET**
26 ELIZABETH STREET
LIVERPOOL

Drawing: **DEVELOPMENT SUMMARY**

Project No: **218004** Date: **14/09/18** Author: **YY** Scale: @ A1 **1 : 200** Drawing No.: **TP00.01** **K**

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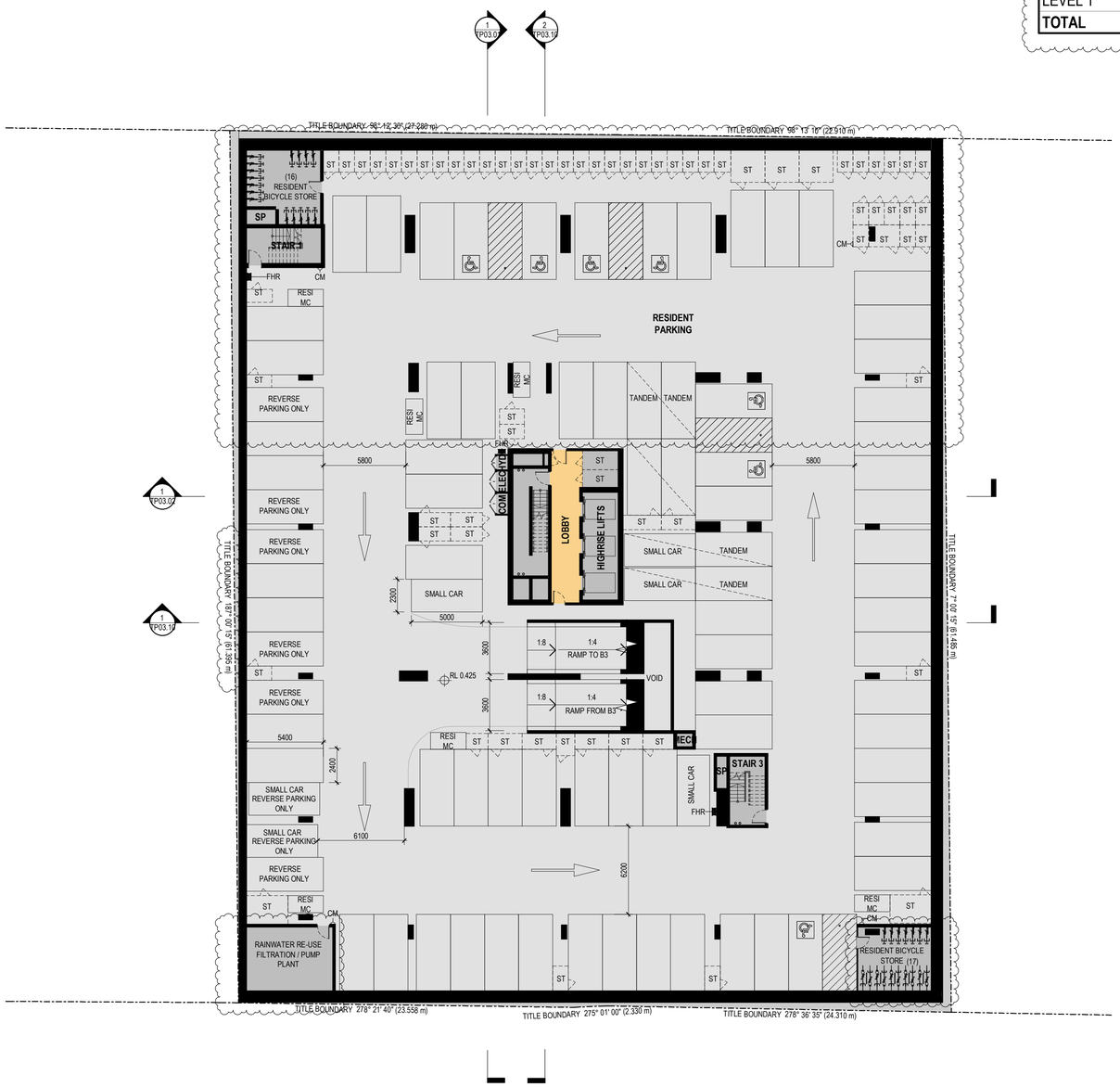
LEVEL	CARPARKS						
	RESIDENTIAL	VISITOR	COMMERCIAL	HOTEL	CARESHARE	**FLOOR TOTAL**	ACCESSIBLE INCL. IN TOTAL
BASEMENT 4	88	0	0	0	0	**88**	7
BASEMENT 3	79	0	0	0	0	**79**	10
BASEMENT 2	17	5	58	0	0	**80**	4
BASEMENT 1	0	13	0	30	3	**46**	2
LEVEL 1	0	0	0	28	0	**28**	1
TOTAL	**184**	**18**	**58**	**58**	**3**	**321**	**24**



DEVELOPMENT APPLICATION

Revisions

F	13.08.19	FOR COORDINATION	JLi
G	22.08.19	FOR COORDINATION	JLi
H	05.09.19	ISSUED FOR SUBMISSION	JLi
J	26.09.19	ISSUED FOR SUBMISSION	JLi
K	15.11.19	FOR TRAFFIC REVIEW	NE

15/11/2019 3:13:14 PM

ABBREVIATIONS LEGEND

COM	COMMUNICATIONS SERVICES
CM	CONVEX MIRROR
EL	ELECTRICAL SERVICES
ELEC	ELECTRICAL SERVICES
EOT	END OF TRIP FACILITIES
EX	FIRE EXTINGUISHER
FHR	FIRE HOSE REEL
HY	HYDRAULIC RISERS
HYD	HYDRAULIC SERVICES
IC	INTERCOM / CARD READER
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
MC	MOTORCYCLE PARK
OSD	ON SITE DETENTION
RF	REFUSE CHUTE
ST	STORE
SP	STAIR PRESSURISATION
VD	VEHICLE DETECTOR IN SLAB
WL	VEHICLE WARNING LIGHT

COLOUR FILL LEGEND

COMMERCIAL
RESIDENTIAL
HOTEL

Project: **ELIZABETH STREET**
Drawing: **BASEMENT 4 PLAN**
Project No: **218004**
Date: **07/11/18**
Author: **MG**
Scale: @ A1 **1 : 200**
Drawing No.: **TP01.00** **K**

26 ELIZABETH STREET
LIVERPOOL

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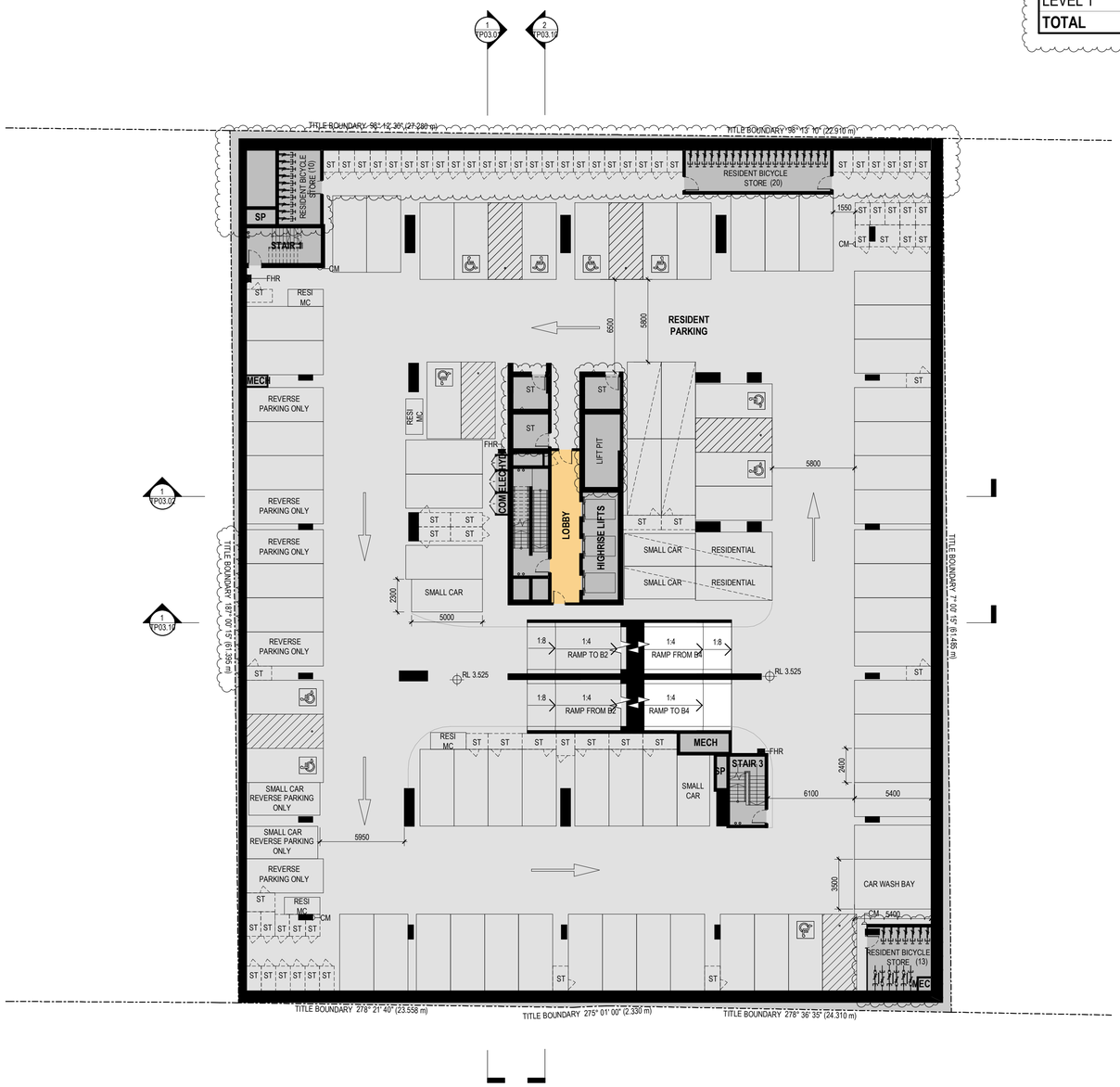
LEVEL	CARPARKS						
	RESIDENTIAL	VISITOR	COMMERCIAL	HOTEL	CARESHARE	**FLOOR TOTAL**	ACCESSIBLE INCL. IN TOTAL
BASEMENT 4	88	0	0	0	0	**88**	7
BASEMENT 3	79	0	0	0	0	**79**	10
BASEMENT 2	17	5	58	0	0	**80**	4
BASEMENT 1	0	13	0	30	3	**46**	2
LEVEL 1	0	0	0	28	0	**28**	1
TOTAL	**184**	**18**	**58**	**58**	**3**	**321**	**24**



DEVELOPMENT APPLICATION

Revisions			
F	13.08.19	FOR COORDINATION	JLi
G	22.08.19	FOR COORDINATION	JLi
H	05.09.19	ISSUED FOR SUBMISSION	JLi
J	26.09.19	ISSUED FOR SUBMISSION	JLi
K	15.11.19	FOR TRAFFIC REVIEW	NE

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ABBREVIATIONS LEGEND

COM	COMMUNICATIONS SERVICES
CM	CONVEX MIRROR
EL	ELECTRICAL SERVICES
ELEC	ELECTRICAL SERVICES
EOT	END OF TRIP FACILITIES
EX	FIRE EXTINGUISHER
FHR	FIRE HOSE REEL
HY	HYDRAULIC RISERS
HYD	HYDRAULIC SERVICES
IC	INTERCOM / CARD READER
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
MC	MOTORCYCLE PARK
OSD	ON SITE DETENTION
RF	REFUSE CHUTE
ST	STORE
SP	STAIR PRESSURISATION
VD	VEHICLE DETECTOR IN SLAB
WL	VEHICLE WARNING LIGHT

COLOUR FILL LEGEND

COMMERCIAL

RESIDENTIAL

HOTEL

Project: **ELIZABETH STREET**

Drawing: **BASEMENT 3 PLAN**

Project No: **218004**

Date: **07/11/18**

Author: **MG**

Scale: @ A1: **1 : 200**

Drawing No.: **TP01.01** **K**

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LIVERPOOL

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LEVEL	CARPARKS						
	RESIDENTIAL	VISITOR	COMMERCIAL	HOTEL	CARESHARE	**FLOOR TOTAL**	ACCESSIBLE INCL. IN TOTAL
BASEMENT 4	88	0	0	0	0	**88**	7
BASEMENT 3	79	0	0	0	0	**79**	10
BASEMENT 2	17	5	58	0	0	**80**	4
BASEMENT 1	0	13	0	30	3	**46**	2
LEVEL 1	0	0	0	28	0	**28**	1
TOTAL	**184**	**18**	**58**	**58**	**3**	**321**	**24**

DEVELOPMENT APPLICATION

Revisions				
F	13.08.19	FOR COORDINATION	JLi
G	22.08.19	FOR COORDINATION	JLi
H	05.09.19	ISSUED FOR SUBMISSION	JLi
J	26.09.19	ISSUED FOR SUBMISSION	JLi
K	15.11.19	FOR TRAFFIC REVIEW	NE

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ABBREVIATIONS LEGEND

COM	COMMUNICATIONS SERVICES
CM	CONVEX MIRROR
EL	ELECTRICAL SERVICES
ELEC	ELECTRICAL SERVICES
EOT	END OF TRIP FACILITIES
EX	FIRE EXTINGUISHER
FHR	FIRE HOSE REEL
HY	HYDRAULIC RISERS
HYD	HYDRAULIC SERVICES
IC	INTERCOM / CARD READER
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
MC	MOTORCYCLE PARK
OSD	ON SITE DETENTION
RF	REFUSE CHUTE
ST	STORE
SP	STAIR PRESSURISATION
VD	VEHICLE DETECTOR IN SLAB
WL	VEHICLE WARNING LIGHT

COLOUR FILL LEGEND

- COMMERCIAL
- RESIDENTIAL
- HOTEL

Project: **ELIZABETH STREET** | Drawing: **BASEMENT 2 PLAN** | Project No: **218004** | Date: **07/11/18** | Author: **MG** | Scale: @ A1 **1 : 200** | Drawing No.: **TP01.02** **K**

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LEVEL	CARPARKS						
	RESIDENTIAL	VISITOR	COMMERCIAL	HOTEL	CARESHARE	**FLOOR TOTAL**	ACCESSIBLE INCL. IN TOTAL
BASEMENT 4	88	0	0	0	0	**88**	7
BASEMENT 3	79	0	0	0	0	**79**	10
BASEMENT 2	17	5	58	0	0	**80**	4
BASEMENT 1	0	13	0	30	3	**46**	2
LEVEL 1	0	0	0	28	0	**28**	1
TOTAL	**184**	**18**	**58**	**58**	**3**	**321**	**24**

DEVELOPMENT APPLICATION

Revisions

G	22.08.19	FOR COORDINATION
H	05.09.19	ISSUED FOR SUBMISSION
J	26.09.19	ISSUED FOR SUBMISSION
K	15.11.19	FOR TRAFFIC REVIEW
L	19.11.19	FOR TRAFFIC REVIEW

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JLi	
JLi	
JLi	
NE	
JLi	

ABBREVIATIONS LEGEND

COM	COMMUNICATIONS SERVICES
CM	CONVEX MIRROR
EL	ELECTRICAL SERVICES
ELEC	ELECTRICAL SERVICES
EOT	END OF TRIP FACILITIES
EX	FIRE EXTINGUISHER
FHR	FIRE HOSE REEL
HY	HYDRAULIC RISERS
HYD	HYDRAULIC SERVICES
IC	INTERCOM / CARD READER
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
MC	MOTORCYCLE PARK
OSD	ON SITE DETENTION
RF	REFUSE CHUTE
ST	STORE
SP	STAIR PRESSURISATION
VD	VEHICLE DETECTOR IN SLAB
WL	VEHICLE WARNING LIGHT

COLOUR FILL LEGEND

COMMERCIAL
RESIDENTIAL
HOTEL

Project: **ELIZABETH STREET**
Drawing: **BASEMENT 1 PLAN**
Project No: **218004**
Date: **07/11/18**
Author: **MG**
Scale: @ A1: **1 : 200**
Drawing No.: **TP01.03** **L**

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DEVELOPMENT APPLICATION

Revisions				
	G	22.08.19	FOR COORDINATION	JLi
	H	05.09.19	ISSUED FOR SUBMISSION	JLi
	J	26.09.19	ISSUED FOR SUBMISSION	JLi
	K	15.11.19	FOR TRAFFIC REVIEW	NE
	L	19.11.19	FOR TRAFFIC REVIEW	JLi

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ABBREVIATIONS LEGEND

COM	COMMUNICATIONS SERVICES
CM	CONVEX MIRROR
EL	ELECTRICAL SERVICES
ELEC	ELECTRICAL SERVICES
EOT	END OF TRIP FACILITIES
EX	FIRE EXTINGUISHER
FHR	FIRE HOSE REEL
HY	HYDRAULIC RISERS
HYD	HYDRAULIC SERVICES
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M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
MC	MOTORCYCLE PARK
OSD	ON SITE DETENTION
RF	REFUSE CHUTE
ST	STORE
SP	STAIR PRESSURISATION
VD	VEHICLE DETECTOR IN SLAB
WL	VEHICLE WARNING LIGHT

COLOUR FILL LEGEND

COMMERCIAL

RESIDENTIAL

HOTEL

Project: **ELIZABETH STREET**

Drawing: **GROUND PLAN**

Project No: **218004**

Date: **07/11/18**

Author: **MG**

Scale: @ A1 **1 : 200**

Drawing No.: **TP01.04** **L**

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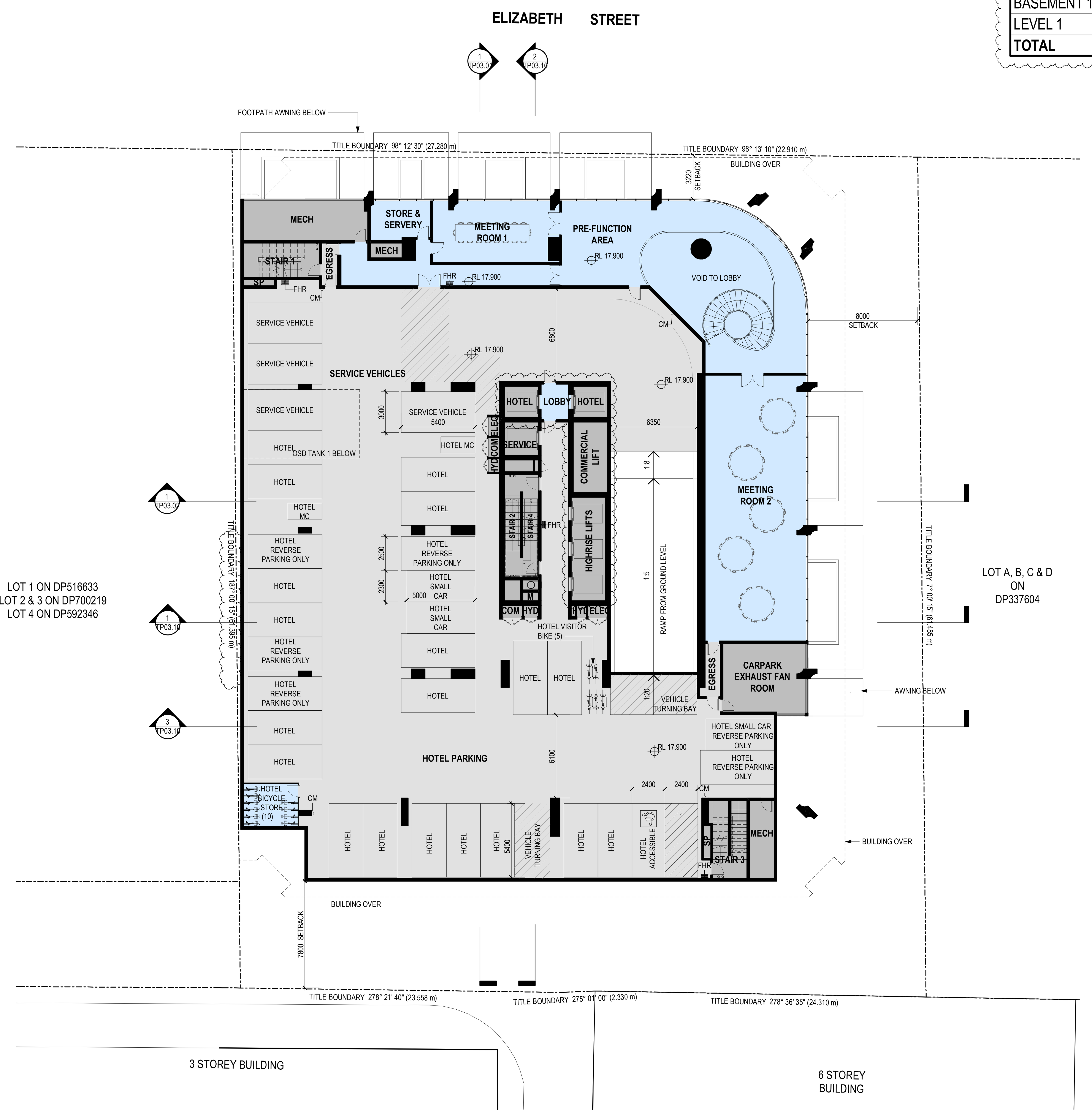
LEVEL	CARPARKS						
	RESIDENTIAL	VISITOR	COMMERCIAL	HOTEL	CARESHARE	**FLOOR TOTAL**	ACCESSIBLE INCL. IN TOTAL
BASEMENT 4	88	0	0	0	0	**88**	7
BASEMENT 3	79	0	0	0	0	**79**	10
BASEMENT 2	17	5	58	0	0	**80**	4
BASEMENT 1	0	13	0	30	3	**46**	2
LEVEL 1	0	0	0	28	0	**28**	1
TOTAL	**184**	**18**	**58**	**58**	**3**	**321**	**24**



DEVELOPMENT APPLICATION

Revisions

F	13.08.19	FOR COORDINATION	JLi
G	22.08.19	FOR COORDINATION	JLi
H	05.09.19	ISSUED FOR SUBMISSION	JLi
J	26.09.19	ISSUED FOR SUBMISSION	JLi
K	15.11.19	FOR TRAFFIC REVIEW	NE

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ABBREVIATIONS LEGEND

COM	COMMUNICATIONS SERVICES
CM	CONVEX MIRROR
EL	ELECTRICAL SERVICES
ELEC	ELECTRICAL SERVICES
EOT	END OF TRIP FACILITIES
EX	FIRE EXTINGUISHER
FHR	FIRE HOSE REEL
HY	HYDRAULIC RISERS
HYD	HYDRAULIC SERVICES
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M	MECHANICAL RISERS
MECH	MECHANICAL SERVICES
MC	MOTORCYCLE PARK
OSD	ON SITE DETENTION
RF	REFUSE CHUTE
ST	STORE
SP	STAIR PRESSURISATION
VD	VEHICLE DETECTOR IN SLAB
WL	VEHICLE WARNING LIGHT

COLOUR FILL LEGEND

- COMMERCIAL
- RESIDENTIAL
- HOTEL

Project: **ELIZABETH STREET**

Drawing: **LEVEL 1 PLAN**

Project No: **218004**

Date: **07/11/18**

Author: **MG**

Scale: @ A1: **1 : 200**

Drawing No.: **TP01.05** **K**

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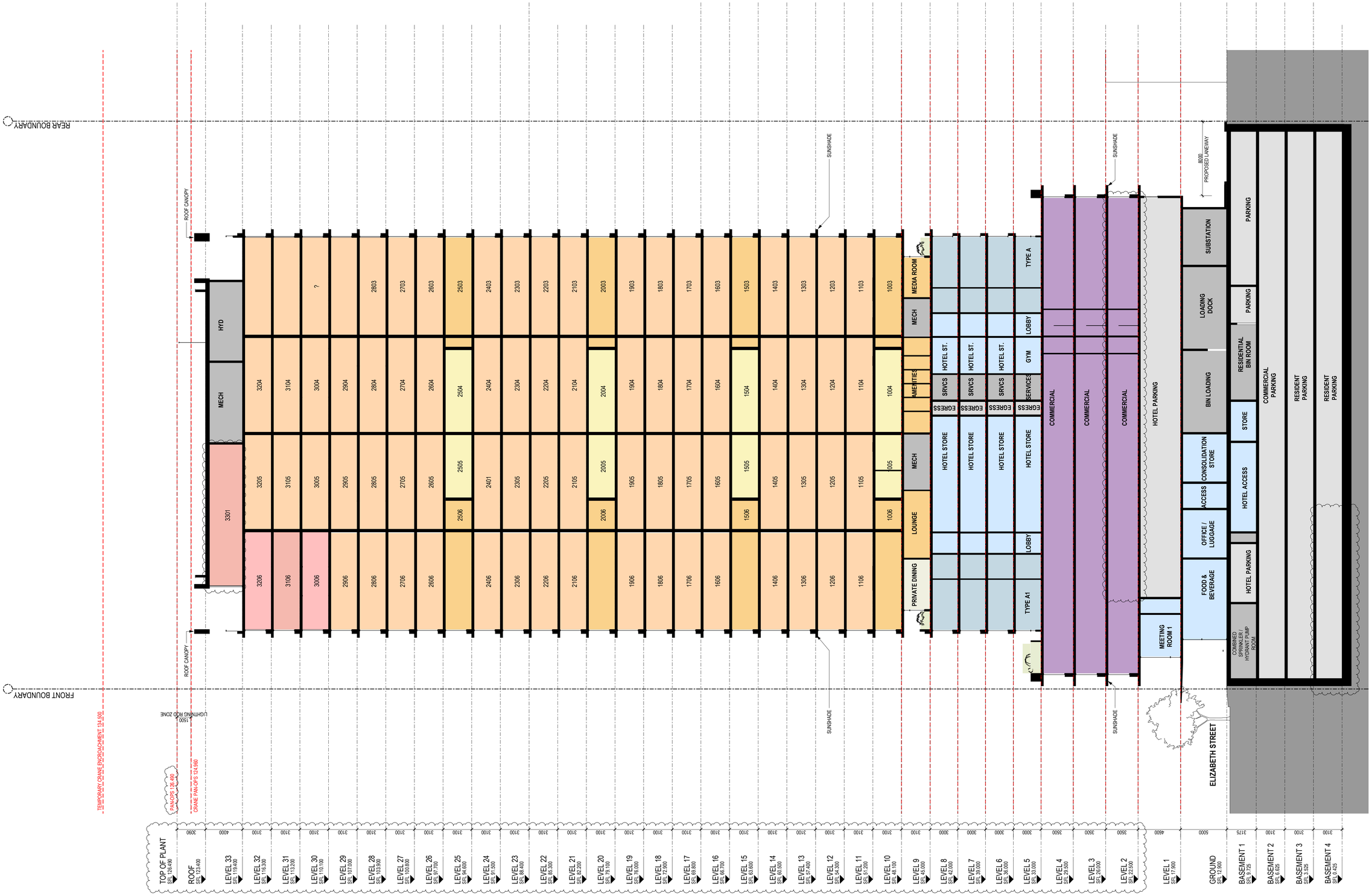

DEVELOPMENT APPLICATION

Revisions			
D	08.04.19	DRAFT DEP ISSUE	NE
E	09.04.19	ISSUE FOR DEP	NE
F	27.05.19	CONSULTANT COORDINATION	NE
G	05.09.19	ISSUED FOR SUBMISSION	JLI
H	26.09.19	ISSUED FOR SUBMISSION	JLI

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COLOUR FILL LEGEND

- COMMERCIAL
- RESIDENTIAL
- HOTEL

Project: **ELIZABETH STREET**

26 ELIZABETH STREET
LIVERPOOL

Drawing: **SECTION 1**

Project No: **218004**

Date: **07/11/18**

Author: **YY**

Scale: @ A1 **1 : 200**

Drawing No.: **TP03.01** **H**

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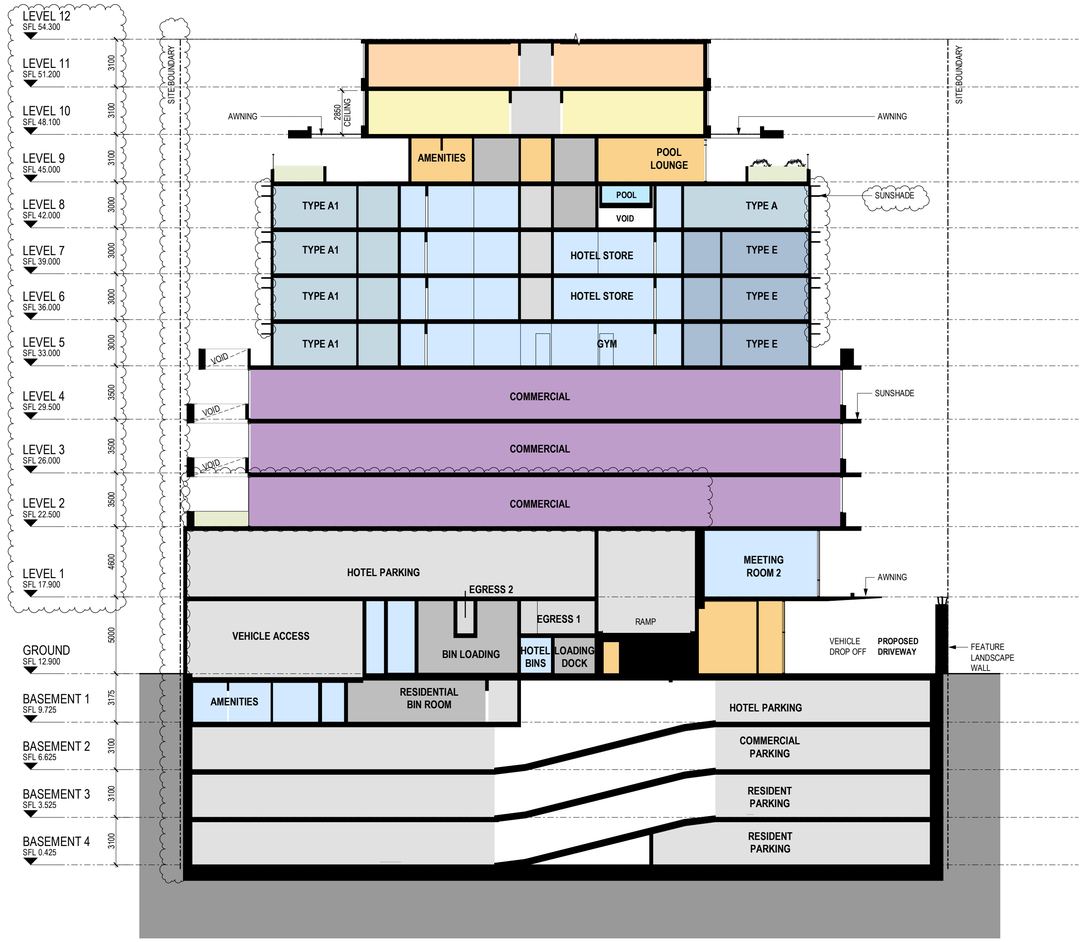

1 TP01.00 SECTION 3
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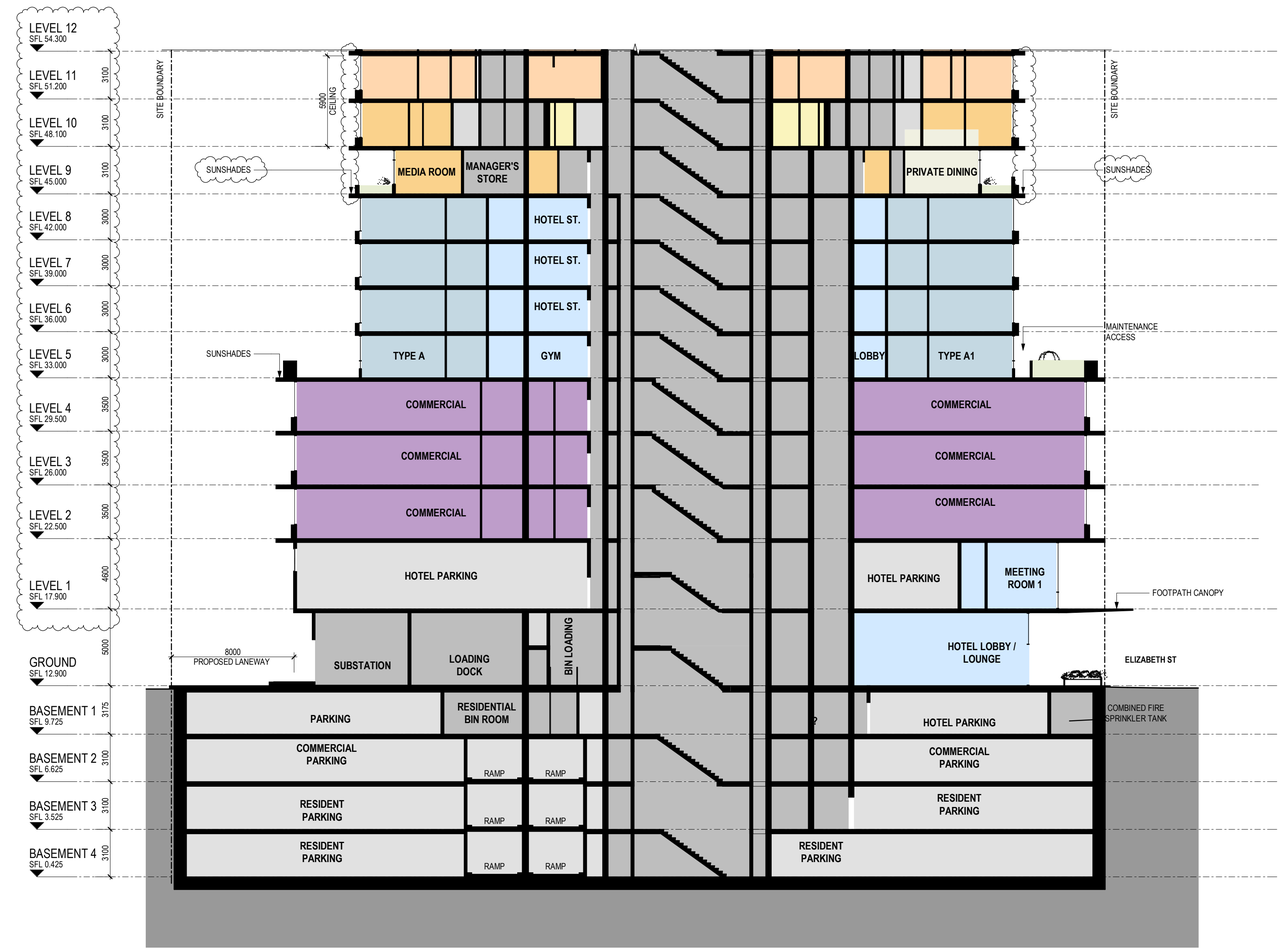

2 TP01.00 SECTION 4
SCALE 1 : 200

3 TP01.03 SECTION 5
SCALE 1 : 200

DEVELOPMENT APPLICATION

Revisions			
B	02.08.19	FOR COORDINATION	JLi
C	13.08.19	FOR COORDINATION	JLi
D	22.08.19	FOR COORDINATION	JLi
E	05.09.19	ISSUED FOR SUBMISSION	JLi
F	26.09.19	ISSUED FOR SUBMISSION	JLi

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COLOUR FILL LEGEND

- COMMERCIAL
- RESIDENTIAL
- HOTEL

Project: **ELIZABETH STREET**
Drawing: **SECTION 3,4&5**
Project No: **218004**
Date: **07/11/18**
Author: **YY**
Scale: @ A1: **1 : 200**
Drawing No.: **TP03.10** **F**

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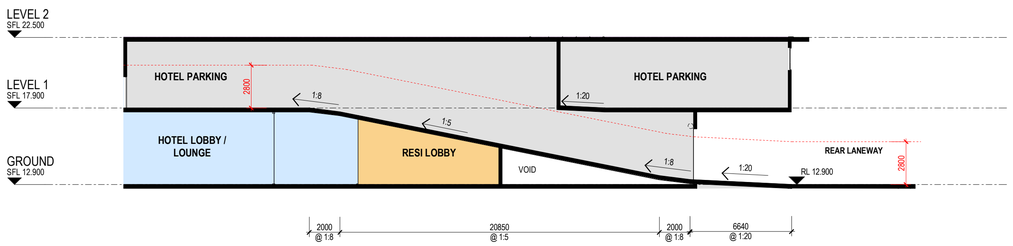

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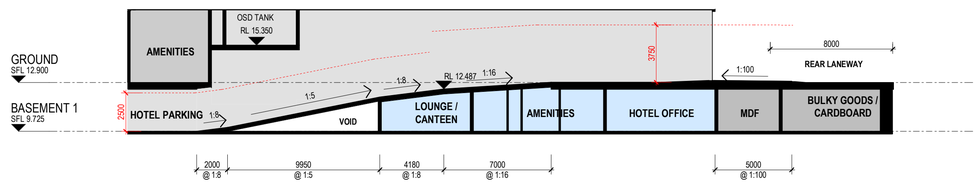
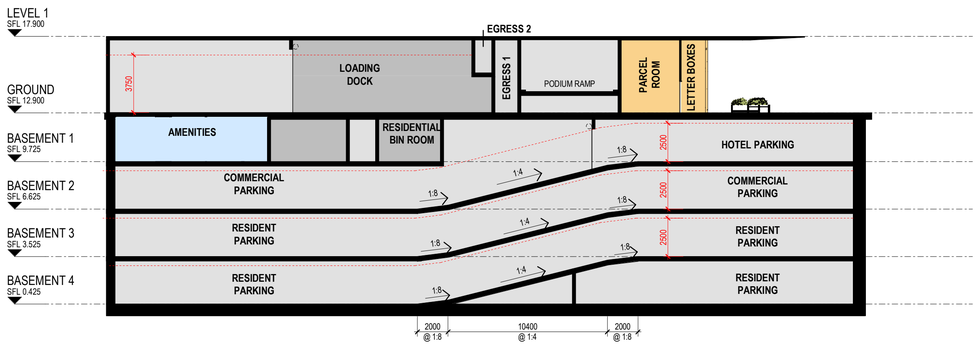


2 BASEMENT RAMP 1
SCALE 1 : 200



3 BASEMENT RAMP 2
TP01.00 SCALE 1 : 200

DEVELOPMENT APPLICATION

Revisions			
A	02.08.19	FOR COORDINATION	JLi
B	13.08.19	FOR COORDINATION	JLi
C	22.08.19	FOR COORDINATION	JLi
D	05.09.19	ISSUED FOR SUBMISSION	JLi
E	26.09.19	ISSUED FOR SUBMISSION	JLi

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COLOUR FILL LEGEND

- COMMERCIAL
- RESIDENTIAL
- HOTEL

Project: **ELIZABETH STREET**
Drawing: **RAMP SECTIONS**
Project No: **218004**
Date: **07/11/18**
Author: **YY**
Scale: @ A1: **1 : 200**
Drawing No.: **TP03.12** **E**

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LIVERPOOL

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Attachment 2 SIDRA Results

MOVEMENT SUMMARY

Site: 101 [1. Elizabeth St / George St - Existing AM Peak]

Network: N101 [Existing AM Peak]

Existing AM Peak
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Elizabeth St (E)														
4	L2	100	7.4	100	7.4	0.598	41.1	LOS C	11.0	79.5	0.95	0.80	0.95	11.5
5	T1	153	2.1	153	2.1	0.598	38.1	LOS C	11.0	79.5	0.95	0.80	0.95	14.9
6	R2	74	5.7	74	5.7	0.598	52.4	LOS D	4.0	29.3	0.99	0.82	1.06	16.7
Approach		326	4.5	326	4.5	0.598	42.3	LOS C	11.0	79.5	0.96	0.81	0.97	14.6
North: George St (N)														
7	L2	59	7.1	59	7.1	0.119	32.3	LOS C	2.1	15.9	0.78	0.70	0.78	16.6
8	T1	232	5.5	232	5.5	0.568	30.9	LOS C	12.0	87.5	0.84	0.74	0.84	16.8
9	R2	80	1.3	80	1.3	0.568	34.3	LOS C	12.0	87.5	0.84	0.74	0.84	19.7
Approach		371	4.8	371	4.8	0.568	31.8	LOS C	12.0	87.5	0.83	0.73	0.83	17.4
West: Elizabeth St (W)														
10	L2	201	2.1	201	2.1	0.433	14.5	LOS B	10.0	73.1	0.50	0.55	0.50	28.5
11	T1	399	7.1	399	7.1	0.433	11.8	LOS A	10.0	73.1	0.57	0.59	0.57	16.0
12	R2	152	2.1	152	2.1	0.433	16.5	LOS B	7.2	52.3	0.68	0.66	0.68	15.0
Approach		752	4.8	752	4.8	0.433	13.5	LOS A	10.0	73.1	0.58	0.59	0.58	20.9
All Vehicles		1448	4.7	1448	4.7	0.598	24.7	LOS B	12.0	87.5	0.73	0.68	0.73	17.6

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 ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
P2	East Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
P3	North Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
P4	West Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
All Pedestrians		421	44.4	LOS E			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.

MOVEMENT SUMMARY

Site: 102 [2. Elizabeth St / Bigge St - Existing AM Peak]

Network: N101 [Existing AM Peak]

Existing AM Peak
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Bigge St (S)														
1	L2	217	4.9	217	4.9	0.580	20.6	LOS B	21.4	155.1	0.68	0.67	0.68	22.2
2	T1	671	3.6	671	3.6	0.580	18.6	LOS B	21.4	155.1	0.69	0.66	0.69	27.8
3	R2	85	1.2	85	1.2	0.477	23.7	LOS B	14.4	103.7	0.69	0.64	0.69	24.6
Approach		973	3.7	973	3.7	0.580	19.5	LOS B	21.4	155.1	0.69	0.66	0.69	26.7
East: Elizabeth St (E)														
4	L2	49	4.3	49	4.3	0.177	35.9	LOS C	4.2	30.8	0.77	0.67	0.77	9.3
5	T1	96	8.8	96	8.8	0.177	34.1	LOS C	4.2	30.8	0.78	0.67	0.78	9.1
6	R2	23	27.3	23	27.3	0.177	39.4	LOS C	3.2	24.9	0.80	0.66	0.80	18.6
Approach		168	10.0	168	10.0	0.177	35.4	LOS C	4.2	30.8	0.78	0.67	0.78	11.0
North: Bigge St (N)														
7	L2	23	0.0	23	0.0	0.102	12.5	LOS A	1.9	13.7	0.32	0.33	0.32	30.9
8	T1	339	1.6	339	1.6	0.314	12.8	LOS A	6.6	46.4	0.42	0.39	0.42	25.5
9	R2	18	0.0	18	0.0	0.314	17.6	LOS B	6.6	46.4	0.45	0.41	0.45	24.7
Approach		380	1.4	380	1.4	0.314	13.0	LOS A	6.6	46.4	0.41	0.38	0.41	25.8
West: Elizabeth St (W)														
10	L2	144	3.6	144	3.6	0.277	38.6	LOS C	6.5	46.9	0.81	0.75	0.81	19.8
11	T1	180	15.2	180	15.2	0.599	38.9	LOS C	14.1	107.3	0.91	0.79	0.91	6.4
12	R2	99	2.1	99	2.1	0.599	42.4	LOS C	14.1	107.3	0.91	0.79	0.91	4.4
Approach		423	8.2	423	8.2	0.599	39.6	LOS C	14.1	107.3	0.88	0.78	0.88	8.6
All Vehicles		1944	4.8	1944	4.8	0.599	24.0	LOS B	21.4	155.1	0.68	0.63	0.68	18.4

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	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	105	54.4	LOS E	0.3	0.3	0.95	0.95
P2	East Full Crossing	105	54.4	LOS E	0.3	0.3	0.95	0.95
P3	North Full Crossing	105	54.4	LOS E	0.3	0.3	0.95	0.95
P4	West Full Crossing	105	54.4	LOS E	0.3	0.3	0.95	0.95
All Pedestrians		421	54.4	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.

MOVEMENT SUMMARY

Site: 103 [3. Moore St / Bigge St - Existing AM Peak]

Network: N101 [Existing AM Peak]

Existing AM Peak
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Bigge St (S)														
1	L2	95	1.1	95	1.1	0.454	8.6	LOS A	6.8	48.2	0.22	0.27	0.22	34.5
2	T1	1087	2.2	1087	2.2	0.454	3.4	LOS A	6.8	48.2	0.19	0.20	0.19	36.8
3	R2	274	1.9	274	1.9	0.448	17.7	LOS B	8.5	60.5	0.57	0.74	0.57	29.8
Approach		1456	2.1	1456	2.1	0.454	6.4	LOS A	8.5	60.5	0.26	0.31	0.26	33.3
East: Moore St (E)														
4	L2	71	4.5	71	4.5	0.214	48.7	LOS D	3.5	25.8	0.89	0.74	0.89	19.4
5	T1	87	61.4	87	61.4	0.449	48.4	LOS D	5.8	59.7	0.94	0.76	0.94	16.0
6	R2	20	31.6	20	31.6	0.449	52.0	LOS D	5.8	59.7	0.94	0.76	0.94	16.0
Approach		178	35.5	178	35.5	0.449	48.9	LOS D	5.8	59.7	0.92	0.75	0.92	17.4
North: Bigge St (N)														
7	L2	12	0.0	12	0.0	0.282	11.8	LOS A	7.6	55.2	0.39	0.36	0.39	38.3
8	T1	354	3.9	354	3.9	0.282	7.2	LOS A	7.6	55.2	0.39	0.36	0.39	39.5
9	R2	59	0.0	59	0.0	0.232	14.9	LOS B	1.3	9.1	0.39	0.65	0.39	27.6
Approach		424	3.2	424	3.2	0.282	8.4	LOS A	7.6	55.2	0.39	0.40	0.39	37.9
West: Moore St (W)														
10	L2	147	2.1	147	2.1	0.439	51.0	LOS D	7.8	55.5	0.94	0.79	0.94	9.5
11	T1	84	47.5	84	47.5	0.367	44.8	LOS D	5.5	50.8	0.90	0.74	0.90	20.3
12	R2	22	4.8	22	4.8	0.367	48.1	LOS D	5.5	50.8	0.90	0.74	0.90	15.4
Approach		254	17.4	254	17.4	0.439	48.7	LOS D	7.8	55.5	0.92	0.77	0.92	14.4
All Vehicles		2312	6.6	2312	6.6	0.454	14.7	LOS B	8.5	60.5	0.41	0.41	0.41	26.8

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.
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	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	105	54.4	LOS E	0.3	0.3	0.95	0.95
P2	East Full Crossing	105	54.4	LOS E	0.3	0.3	0.95	0.95
P3	North Full Crossing	105	54.4	LOS E	0.3	0.3	0.95	0.95
P4	West Full Crossing	105	54.4	LOS E	0.3	0.3	0.95	0.95
All Pedestrians		421	54.4	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.

MOVEMENT SUMMARY

Site: 104 [4. Moore St / George St - Existing AM Peak]

Network: N101 [Existing AM Peak]

Existing AM Peak
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Moore Street (E)														
4	L2	49	29.8	49	29.8	0.308	43.9	LOS D	3.6	31.8	0.92	0.74	0.92	16.1
5	T1	117	29.7	117	29.7	0.308	40.3	LOS C	3.7	32.5	0.92	0.73	0.92	14.4
Approach		166	29.7	166	29.7	0.308	41.4	LOS C	3.7	32.5	0.92	0.73	0.92	14.9
North: George Street (N)														
7	L2	88	13.1	88	13.1	0.227	36.7	LOS C	3.5	27.3	0.84	0.74	0.84	15.4
8	T1	261	2.8	261	2.8	0.314	33.7	LOS C	5.8	41.3	0.86	0.69	0.86	20.5
9	R2	53	4.0	53	4.0	0.121	35.7	LOS C	2.0	14.6	0.82	0.72	0.82	18.1
Approach		402	5.2	402	5.2	0.314	34.6	LOS C	5.8	41.3	0.85	0.71	0.85	19.2
West: Moore Street (W)														
11	T1	238	12.4	238	12.4	0.246	5.7	LOS A	3.9	29.4	0.29	0.31	0.29	22.5
12	R2	82	1.3	82	1.3	0.246	10.2	LOS A	3.9	29.4	0.35	0.39	0.35	28.7
Approach		320	9.5	320	9.5	0.246	6.9	LOS A	3.9	29.4	0.31	0.33	0.31	25.0
All Vehicles		888	11.4	888	11.4	0.314	25.9	LOS B	5.8	41.3	0.67	0.58	0.67	18.9

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.
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	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P2	East Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P3	North Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
All Pedestrians		211	44.3	LOS E			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.

MOVEMENT SUMMARY

Site: 101 [1. Elizabeth St / George St - Existing PM Peak]

Network: N102 [Existing PM Peak]

Existing PM Peak
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Elizabeth St (E)														
4	L2	141	5.2	141	5.2	0.692	37.1	LOS C	16.6	118.4	0.94	0.83	0.94	12.5
5	T1	363	0.9	363	0.9	0.692	37.2	LOS C	16.6	118.4	0.96	0.84	0.98	15.2
6	R2	64	6.6	64	6.6	0.692	47.6	LOS D	9.1	65.4	0.99	0.87	1.06	18.1
Approach		568	2.6	568	2.6	0.692	38.3	LOS C	16.6	118.4	0.96	0.84	0.98	15.1
North: George St (N)														
7	L2	27	7.7	27	7.7	0.139	26.3	LOS B	2.6	19.3	0.64	0.56	0.64	19.6
8	T1	409	4.1	409	4.1	0.693	27.2	LOS B	17.5	126.0	0.82	0.73	0.82	18.0
9	R2	102	0.0	102	0.0	0.693	31.5	LOS C	17.5	126.0	0.85	0.76	0.85	20.7
Approach		539	3.5	539	3.5	0.693	28.0	LOS B	17.5	126.0	0.82	0.73	0.82	18.6
West: Elizabeth St (W)														
10	L2	174	1.2	174	1.2	0.418	17.5	LOS B	9.8	72.9	0.56	0.59	0.56	26.6
11	T1	212	12.4	212	12.4	0.418	14.1	LOS A	9.8	72.9	0.57	0.59	0.57	14.6
12	R2	178	1.2	178	1.2	0.418	22.1	LOS B	4.9	34.4	0.87	0.78	0.87	11.2
Approach		563	5.4	563	5.4	0.418	17.7	LOS B	9.8	72.9	0.66	0.65	0.66	18.8
All Vehicles		1671	3.8	1671	3.8	0.693	28.0	LOS B	17.5	126.0	0.81	0.74	0.82	17.1

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	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
P2	East Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
P3	North Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
P4	West Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
All Pedestrians		421	44.4	LOS E			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.

MOVEMENT SUMMARY

Site: 102 [2. Elizabeth St / Bigge St - Existing PM Peak]

Network: N102 [Existing PM Peak]

Existing PM Peak
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Bigge St (S)														
1	L2	363	2.3	363	2.3	0.314	13.5	LOS A	10.1	71.9	0.52	0.68	0.52	25.2
2	T1	574	2.2	574	2.2	0.510	10.2	LOS A	17.4	123.9	0.54	0.50	0.54	32.4
3	R2	36	2.9	36	2.9	0.510	13.7	LOS A	17.4	123.9	0.54	0.50	0.54	30.8
Approach		973	2.3	973	2.3	0.510	11.6	LOS A	17.4	123.9	0.53	0.57	0.53	30.3
East: Elizabeth St (E)														
4	L2	87	1.2	87	1.2	0.380	49.5	LOS D	7.0	49.7	0.92	0.77	0.92	7.1
5	T1	154	4.1	154	4.1	0.380	45.6	LOS D	7.0	49.7	0.91	0.75	0.91	7.3
6	R2	20	52.6	20	52.6	0.380	49.1	LOS D	6.5	50.1	0.91	0.74	0.91	16.4
Approach		261	6.9	261	6.9	0.380	47.2	LOS D	7.0	50.1	0.92	0.76	0.92	8.2
North: Bigge St (N)														
7	L2	31	0.0	31	0.0	0.111	6.9	LOS A	1.3	9.4	0.17	0.23	0.17	35.6
8	T1	387	2.4	387	2.4	0.339	6.0	LOS A	5.0	35.4	0.26	0.28	0.26	31.2
9	R2	37	0.0	37	0.0	0.339	10.4	LOS A	5.0	35.4	0.29	0.30	0.29	30.3
Approach		455	2.1	455	2.1	0.339	6.4	LOS A	5.0	35.4	0.26	0.28	0.26	31.5
West: Elizabeth St (W)														
10	L2	74	0.0	74	0.0	0.220	48.7	LOS D	3.7	25.9	0.89	0.74	0.89	17.4
11	T1	128	23.0	128	23.0	0.521	47.9	LOS D	8.5	69.3	0.95	0.78	0.95	13.5
12	R2	31	0.0	31	0.0	0.521	51.3	LOS D	8.5	69.3	0.95	0.78	0.95	9.8
Approach		233	12.7	233	12.7	0.521	48.6	LOS D	8.5	69.3	0.93	0.77	0.93	14.5
All Vehicles		1921	4.1	1921	4.1	0.521	19.7	LOS B	17.4	123.9	0.57	0.55	0.57	23.8

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.
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	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	105	54.4	LOS E	0.3	0.3	0.95	0.95
P2	East Full Crossing	105	54.4	LOS E	0.3	0.3	0.95	0.95
P3	North Full Crossing	105	54.4	LOS E	0.3	0.3	0.95	0.95
P4	West Full Crossing	105	54.4	LOS E	0.3	0.3	0.95	0.95
All Pedestrians		421	54.4	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.

MOVEMENT SUMMARY

Site: 103 [3. Moore St / Bigge St - Existing PM Peak]

Network: N102 [Existing PM Peak]

Existing PM Peak
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Bigge St (S)														
1	L2	100	3.2	100	3.2	0.372	12.9	LOS A	7.9	57.4	0.35	0.39	0.35	26.5
2	T1	759	4.0	759	4.0	0.372	7.2	LOS A	7.9	57.4	0.31	0.31	0.31	28.9
3	R2	174	6.7	174	6.7	0.495	29.7	LOS C	7.3	53.9	0.75	0.78	0.75	24.8
Approach		1033	4.4	1033	4.4	0.495	11.6	LOS A	7.9	57.4	0.39	0.40	0.39	26.9
East: Moore St (E)														
4	L2	224	0.0	224	0.0	0.483	44.9	LOS D	11.3	78.8	0.90	0.80	0.90	20.3
5	T1	79	66.7	79	66.7	0.245	36.8	LOS C	4.1	43.0	0.82	0.67	0.82	18.7
6	R2	9	0.0	9	0.0	0.245	40.2	LOS C	4.1	43.0	0.82	0.67	0.82	18.7
Approach		313	16.8	313	16.8	0.483	42.7	LOS D	11.3	78.8	0.88	0.76	0.88	19.9
North: Bigge St (N)														
7	L2	12	0.0	12	0.0	0.493	17.0	LOS B	17.5	124.3	0.56	0.51	0.56	35.1
8	T1	574	1.5	574	1.5	0.493	12.4	LOS A	17.5	124.3	0.56	0.51	0.56	34.5
9	R2	60	1.8	60	1.8	0.185	19.9	LOS B	1.6	11.5	0.48	0.67	0.48	24.0
Approach		645	1.5	645	1.5	0.493	13.2	LOS A	17.5	124.3	0.56	0.53	0.56	33.6
West: Moore St (W)														
10	L2	117	4.5	117	4.5	0.269	41.7	LOS C	5.6	41.5	0.84	0.75	0.84	11.0
11	T1	59	64.3	59	64.3	0.269	42.7	LOS D	5.6	41.5	0.87	0.71	0.87	20.7
12	R2	19	0.0	19	0.0	0.269	46.3	LOS D	3.7	36.6	0.87	0.71	0.87	15.7
Approach		195	22.2	195	22.2	0.269	42.5	LOS C	5.6	41.5	0.85	0.73	0.85	15.4
All Vehicles		2185	6.9	2185	6.9	0.495	19.3	LOS B	17.5	124.3	0.55	0.52	0.55	25.2

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	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	105	54.4	LOS E	0.3	0.3	0.95	0.95
P2	East Full Crossing	105	54.4	LOS E	0.3	0.3	0.95	0.95
P3	North Full Crossing	105	54.4	LOS E	0.3	0.3	0.95	0.95
P4	West Full Crossing	105	54.4	LOS E	0.3	0.3	0.95	0.95
All Pedestrians		421	54.4	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.

MOVEMENT SUMMARY

Site: 104 [4. Moore St / George St - Existing PM Peak]

Network: N102 [Existing PM Peak]

Existing PM Peak
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Moore Street (E)														
4	L2	57	11.1	57	11.1	0.375	43.3	LOS D	4.9	41.2	0.92	0.76	0.92	16.2
5	T1	162	33.1	162	33.1	0.375	39.9	LOS C	4.9	41.2	0.92	0.74	0.92	14.5
Approach		219	27.4	219	27.4	0.375	40.8	LOS C	4.9	42.4	0.92	0.75	0.92	15.0
North: George Street (N)														
7	L2	102	8.2	102	8.2	0.129	19.9	LOS B	2.8	21.2	0.61	0.67	0.61	21.5
8	T1	605	3.0	605	3.0	0.386	18.6	LOS B	10.6	76.4	0.69	0.59	0.69	26.3
9	R2	160	1.3	160	1.3	0.189	20.5	LOS B	4.6	32.3	0.63	0.70	0.63	23.5
Approach		867	3.3	867	3.3	0.386	19.1	LOS B	10.6	76.4	0.67	0.62	0.67	25.3
West: Moore Street (W)														
11	T1	118	27.7	118	27.7	0.232	19.7	LOS B	4.0	31.8	0.60	0.52	0.60	11.6
12	R2	52	0.0	52	0.0	0.232	25.0	LOS B	4.0	31.8	0.66	0.59	0.66	18.9
Approach		169	19.3	169	19.3	0.232	21.3	LOS B	4.0	31.8	0.61	0.54	0.61	14.5
All Vehicles		1256	9.6	1256	9.6	0.386	23.2	LOS B	10.6	76.4	0.70	0.63	0.70	22.1

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	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P2	East Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P3	North Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
All Pedestrians		211	44.3	LOS E			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.

MOVEMENT SUMMARY

Site: 101 [1. Elizabeth St / George St - Future Base AM Peak]

Network: N101 [Future Base AM Peak]

Existing AM Peak
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Elizabeth St (E)														
4	L2	100	7.4	100	7.4	0.574	40.1	LOS C	10.8	78.5	0.93	0.80	0.93	11.8
5	T1	154	2.1	154	2.1	0.574	37.1	LOS C	10.8	78.5	0.94	0.80	0.94	15.1
6	R2	74	5.7	74	5.7	0.574	51.1	LOS D	4.0	29.0	0.98	0.81	1.03	16.9
Approach		327	4.5	327	4.5	0.574	41.2	LOS C	10.8	78.5	0.95	0.80	0.96	14.8
North: George St (N)														
7	L2	61	6.9	61	6.9	0.128	33.2	LOS C	2.3	16.7	0.79	0.71	0.79	16.4
8	T1	232	5.5	232	5.5	0.588	32.0	LOS C	12.3	89.4	0.85	0.75	0.85	16.4
9	R2	80	1.3	80	1.3	0.588	35.5	LOS C	12.3	89.4	0.85	0.75	0.85	19.3
Approach		373	4.8	373	4.8	0.588	32.9	LOS C	12.3	89.4	0.84	0.74	0.84	17.1
West: Elizabeth St (W)														
10	L2	201	2.1	201	2.1	0.431	13.9	LOS A	9.8	71.6	0.49	0.54	0.49	29.0
11	T1	412	6.9	412	6.9	0.431	11.2	LOS A	9.8	71.6	0.56	0.58	0.56	16.5
12	R2	152	2.1	152	2.1	0.431	15.9	LOS B	7.1	51.9	0.67	0.65	0.67	15.4
Approach		764	4.7	764	4.7	0.431	12.8	LOS A	9.8	71.6	0.56	0.58	0.56	21.4
All Vehicles		1464	4.7	1464	4.7	0.588	24.3	LOS B	12.3	89.4	0.72	0.67	0.72	17.7

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	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
P2	East Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
P3	North Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
P4	West Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
All Pedestrians		421	44.4	LOS E			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.

MOVEMENT SUMMARY

Site: 102 [2. Elizabeth St / Bigge St - Future Base AM Peak]

Network: N101 [Future Base AM Peak]

Existing AM Peak
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Bigge St (S)														
1	L2	217	4.9	217	4.9	0.340	16.7	LOS B	10.2	73.9	0.54	0.61	0.54	24.0
2	T1	671	3.6	671	3.6	0.719	21.2	LOS B	28.0	201.2	0.77	0.73	0.77	26.8
3	R2	94	1.1	94	1.1	0.719	26.6	LOS B	28.0	201.2	0.82	0.76	0.82	23.4
Approach		981	3.6	981	3.6	0.719	20.8	LOS B	28.0	201.2	0.72	0.71	0.72	26.1
East: Elizabeth St (E)														
4	L2	49	4.3	49	4.3	0.198	38.5	LOS C	4.5	33.0	0.80	0.69	0.80	8.8
5	T1	97	8.7	97	8.7	0.198	37.1	LOS C	4.5	33.0	0.82	0.68	0.82	8.5
6	R2	23	27.3	23	27.3	0.198	42.9	LOS D	3.2	25.6	0.84	0.68	0.84	17.7
Approach		169	9.9	169	9.9	0.198	38.3	LOS C	4.5	33.0	0.81	0.68	0.81	10.4
North: Bigge St (N)														
7	L2	23	0.0	23	0.0	0.103	11.0	LOS A	1.8	12.7	0.29	0.30	0.29	32.1
8	T1	340	1.5	340	1.5	0.316	13.3	LOS A	6.8	48.3	0.42	0.39	0.42	25.1
9	R2	18	0.0	18	0.0	0.316	18.9	LOS B	6.8	48.3	0.48	0.43	0.48	23.8
Approach		381	1.4	381	1.4	0.316	13.4	LOS A	6.8	48.3	0.42	0.39	0.42	25.5
West: Elizabeth St (W)														
10	L2	144	3.6	144	3.6	0.304	41.3	LOS C	6.7	48.7	0.84	0.76	0.84	19.1
11	T1	195	14.1	195	14.1	0.693	42.7	LOS D	15.7	119.2	0.95	0.83	0.96	14.4
12	R2	99	2.1	99	2.1	0.693	46.2	LOS D	15.7	119.2	0.95	0.83	0.96	10.5
Approach		438	7.9	438	7.9	0.693	43.0	LOS D	15.7	119.2	0.92	0.81	0.92	15.4
All Vehicles		1969	4.7	1969	4.7	0.719	25.8	LOS B	28.0	201.2	0.72	0.67	0.72	21.8

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.
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	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	105	54.4	LOS E	0.3	0.3	0.95	0.95
P2	East Full Crossing	105	54.4	LOS E	0.3	0.3	0.95	0.95
P3	North Full Crossing	105	54.4	LOS E	0.3	0.3	0.95	0.95
P4	West Full Crossing	105	54.4	LOS E	0.3	0.3	0.95	0.95
All Pedestrians		421	54.4	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.

MOVEMENT SUMMARY

Site: 103 [3. Moore St / Bigge St - Future Base AM Peak]

Network: N101 [Future Base AM Peak]

Existing AM Peak
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Bigge St (S)														
1	L2	95	1.1	95	1.1	0.457	8.6	LOS A	6.8	48.7	0.22	0.27	0.22	34.5
2	T1	1096	2.2	1096	2.2	0.457	3.4	LOS A	6.8	48.7	0.19	0.20	0.19	36.8
3	R2	274	1.9	274	1.9	0.452	18.3	LOS B	8.7	61.7	0.58	0.74	0.58	29.5
Approach		1464	2.1	1464	2.1	0.457	6.5	LOS A	8.7	61.7	0.26	0.31	0.26	33.1
East: Moore St (E)														
4	L2	71	4.5	71	4.5	0.214	48.7	LOS D	3.5	25.8	0.89	0.74	0.89	19.4
5	T1	87	61.4	87	61.4	0.449	48.4	LOS D	5.8	59.7	0.94	0.76	0.94	16.0
6	R2	20	31.6	20	31.6	0.449	52.0	LOS D	5.8	59.7	0.94	0.76	0.94	16.0
Approach		178	35.5	178	35.5	0.449	48.9	LOS D	5.8	59.7	0.92	0.75	0.92	17.4
North: Bigge St (N)														
7	L2	12	0.0	12	0.0	0.283	12.3	LOS A	8.2	59.0	0.42	0.38	0.42	37.9
8	T1	355	3.9	355	3.9	0.283	7.8	LOS A	8.2	59.0	0.42	0.38	0.42	38.9
9	R2	59	0.0	59	0.0	0.235	15.6	LOS B	1.4	9.8	0.41	0.66	0.41	27.0
Approach		425	3.2	425	3.2	0.283	9.0	LOS A	8.2	59.0	0.42	0.42	0.42	37.3
West: Moore St (W)														
10	L2	147	2.1	147	2.1	0.439	51.0	LOS D	7.8	55.5	0.94	0.79	0.94	9.5
11	T1	84	47.5	84	47.5	0.367	44.8	LOS D	5.5	50.8	0.90	0.74	0.90	20.3
12	R2	22	4.8	22	4.8	0.367	48.1	LOS D	5.5	50.8	0.90	0.74	0.90	15.4
Approach		254	17.4	254	17.4	0.439	48.7	LOS D	7.8	55.5	0.92	0.77	0.92	14.4
All Vehicles		2321	6.5	2321	6.5	0.457	14.8	LOS B	8.7	61.7	0.41	0.41	0.41	26.7

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	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	105	54.4	LOS E	0.3	0.3	0.95	0.95
P2	East Full Crossing	105	54.4	LOS E	0.3	0.3	0.95	0.95
P3	North Full Crossing	105	54.4	LOS E	0.3	0.3	0.95	0.95
P4	West Full Crossing	105	54.4	LOS E	0.3	0.3	0.95	0.95
All Pedestrians		421	54.4	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.

MOVEMENT SUMMARY

Site: 104 [4. Moore St / George St - Future Base AM Peak]

Network: N101 [Future Base AM Peak]

Existing AM Peak
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Moore Street (E)														
4	L2	49	29.8	49	29.8	0.308	43.9	LOS D	3.6	31.8	0.92	0.74	0.92	16.1
5	T1	117	29.7	117	29.7	0.308	40.3	LOS C	3.7	32.5	0.92	0.73	0.92	14.4
Approach		166	29.7	166	29.7	0.308	41.4	LOS C	3.7	32.5	0.92	0.73	0.92	14.9
North: George Street (N)														
7	L2	88	13.1	88	13.1	0.227	36.7	LOS C	3.5	27.3	0.84	0.74	0.84	15.4
8	T1	261	2.8	261	2.8	0.314	33.7	LOS C	5.8	41.3	0.86	0.69	0.86	20.5
9	R2	53	4.0	53	4.0	0.121	35.7	LOS C	2.0	14.6	0.82	0.72	0.82	18.1
Approach		402	5.2	402	5.2	0.314	34.6	LOS C	5.8	41.3	0.85	0.71	0.85	19.2
West: Moore Street (W)														
11	T1	238	12.4	238	12.4	0.246	5.7	LOS A	3.9	29.4	0.29	0.31	0.29	22.5
12	R2	82	1.3	82	1.3	0.246	10.2	LOS A	3.9	29.4	0.35	0.39	0.35	28.7
Approach		320	9.5	320	9.5	0.246	6.9	LOS A	3.9	29.4	0.31	0.33	0.31	25.0
All Vehicles		888	11.4	888	11.4	0.314	25.9	LOS B	5.8	41.3	0.67	0.58	0.67	18.9

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.
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	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P2	East Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P3	North Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
All Pedestrians		211	44.3	LOS E			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.

MOVEMENT SUMMARY

Site: 101 [1. Elizabeth St / George St - Future Base PM Peak]

Network: N102 [Future Base PM Peak]

Existing PM Peak
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Elizabeth St (E)														
4	L2	143	5.1	143	5.1	0.695	36.4	LOS C	17.1	122.2	0.94	0.82	0.94	12.7
5	T1	368	0.9	368	0.9	0.695	36.9	LOS C	17.1	122.2	0.96	0.84	0.98	15.2
6	R2	71	6.0	71	6.0	0.695	49.1	LOS D	9.3	66.4	1.00	0.88	1.08	17.8
Approach		582	2.5	582	2.5	0.695	38.3	LOS C	17.1	122.2	0.96	0.84	0.98	15.1
North: George St (N)														
7	L2	27	7.7	27	7.7	0.142	26.3	LOS B	2.7	19.7	0.64	0.56	0.64	19.6
8	T1	420	4.0	420	4.0	0.706	27.4	LOS B	18.0	129.5	0.83	0.74	0.83	18.0
9	R2	102	0.0	102	0.0	0.706	31.6	LOS C	18.0	129.5	0.86	0.77	0.86	20.6
Approach		549	3.4	549	3.4	0.706	28.1	LOS B	18.0	129.5	0.82	0.73	0.82	18.6
West: Elizabeth St (W)														
10	L2	179	1.2	179	1.2	0.426	17.6	LOS B	10.0	74.7	0.57	0.59	0.57	26.6
11	T1	214	12.3	214	12.3	0.426	14.2	LOS A	10.0	74.7	0.57	0.59	0.57	14.5
12	R2	178	1.2	178	1.2	0.426	21.8	LOS B	4.9	34.6	0.86	0.77	0.86	11.3
Approach		571	5.4	571	5.4	0.426	17.6	LOS B	10.0	74.7	0.66	0.65	0.66	18.9
All Vehicles		1702	3.8	1702	3.8	0.706	28.1	LOS B	18.0	129.5	0.81	0.74	0.82	17.2

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	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
P2	East Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
P3	North Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
P4	West Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
All Pedestrians		421	44.4	LOS E			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.

MOVEMENT SUMMARY

Site: 102 [2. Elizabeth St / Bigge St - Future Base PM Peak]

Network: N102 [Future Base PM Peak]

Existing PM Peak
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Bigge St (S)														
1	L2	366	2.3	366	2.3	0.322	12.6	LOS A	9.0	63.9	0.54	0.68	0.54	25.8
2	T1	575	2.2	575	2.2	0.524	9.4	LOS A	15.3	109.2	0.56	0.52	0.56	32.9
3	R2	37	2.9	37	2.9	0.524	12.8	LOS A	15.3	109.2	0.56	0.52	0.56	31.5
Approach		978	2.3	978	2.3	0.524	10.7	LOS A	15.3	109.2	0.56	0.58	0.56	30.9
East: Elizabeth St (E)														
4	L2	87	1.2	87	1.2	0.401	42.4	LOS C	6.2	43.9	0.92	0.77	0.92	8.1
5	T1	163	3.9	163	3.9	0.401	39.1	LOS C	6.2	43.9	0.92	0.75	0.92	8.3
6	R2	20	52.6	20	52.6	0.401	42.9	LOS D	5.7	43.6	0.92	0.75	0.92	17.9
Approach		271	6.6	271	6.6	0.401	40.5	LOS C	6.2	43.9	0.92	0.76	0.92	9.2
North: Bigge St (N)														
7	L2	31	0.0	31	0.0	0.113	6.5	LOS A	1.2	8.2	0.18	0.23	0.18	36.0
8	T1	392	2.4	392	2.4	0.347	5.3	LOS A	4.4	31.6	0.27	0.29	0.27	31.9
9	R2	38	0.0	38	0.0	0.347	9.7	LOS A	4.4	31.6	0.31	0.31	0.31	31.0
Approach		460	2.1	460	2.1	0.347	5.8	LOS A	4.4	31.6	0.27	0.28	0.27	32.2
West: Elizabeth St (W)														
10	L2	74	0.0	74	0.0	0.224	41.8	LOS C	3.1	21.9	0.89	0.74	0.89	19.0
11	T1	131	22.6	131	22.6	0.528	39.7	LOS C	7.2	58.7	0.94	0.78	0.94	15.2
12	R2	31	0.0	31	0.0	0.528	43.1	LOS D	7.2	58.7	0.94	0.78	0.94	11.2
Approach		235	12.6	235	12.6	0.528	40.8	LOS C	7.2	58.7	0.93	0.77	0.93	16.1
All Vehicles		1943	4.1	1943	4.1	0.528	17.3	LOS B	15.3	109.2	0.58	0.56	0.58	25.0

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.
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	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
P2	East Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
P3	North Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
P4	West Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
All Pedestrians		421	44.4	LOS E			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.

MOVEMENT SUMMARY

Site: 103 [3. Moore St / Bigge St - Future Base PM Peak]

Network: N102 [Future Base PM Peak]

Existing PM Peak
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Bigge St (S)														
1	L2	100	3.2	100	3.2	0.376	11.5	LOS A	6.6	48.0	0.35	0.39	0.35	28.5
2	T1	760	4.0	760	4.0	0.376	6.2	LOS A	6.6	48.0	0.31	0.31	0.31	30.6
3	R2	174	6.7	174	6.7	0.503	27.0	LOS B	6.3	46.6	0.77	0.79	0.77	25.8
Approach		1034	4.4	1034	4.4	0.503	10.2	LOS A	6.6	48.0	0.39	0.40	0.39	28.3
East: Moore St (E)														
4	L2	224	0.0	224	0.0	0.503	39.3	LOS C	9.6	67.2	0.92	0.80	0.92	21.7
5	T1	79	66.7	79	66.7	0.255	32.2	LOS C	3.5	36.9	0.83	0.68	0.83	19.9
6	R2	9	0.0	9	0.0	0.255	35.6	LOS C	3.5	36.9	0.83	0.68	0.83	19.9
Approach		313	16.8	313	16.8	0.503	37.4	LOS C	9.6	67.2	0.89	0.77	0.89	21.3
North: Bigge St (N)														
7	L2	12	0.0	12	0.0	0.501	16.2	LOS B	15.9	113.0	0.61	0.55	0.61	35.6
8	T1	578	1.5	578	1.5	0.501	11.6	LOS A	15.9	113.0	0.61	0.55	0.61	35.2
9	R2	60	1.8	60	1.8	0.179	17.5	LOS B	1.4	10.2	0.50	0.68	0.50	25.6
Approach		649	1.5	649	1.5	0.501	12.3	LOS A	15.9	113.0	0.60	0.56	0.60	34.4
West: Moore St (W)														
10	L2	118	4.5	118	4.5	0.278	36.3	LOS C	4.8	34.9	0.85	0.75	0.85	12.1
11	T1	60	63.2	60	63.2	0.278	36.6	LOS C	4.8	34.9	0.88	0.71	0.88	22.1
12	R2	19	0.0	19	0.0	0.278	40.1	LOS C	3.2	32.0	0.88	0.71	0.88	17.3
Approach		197	21.9	197	21.9	0.278	36.8	LOS C	4.8	34.9	0.86	0.73	0.86	16.8
All Vehicles		2193	6.9	2193	6.9	0.503	17.1	LOS B	15.9	113.0	0.57	0.53	0.57	26.5

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.
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	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
P2	East Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
P3	North Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
P4	West Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
All Pedestrians		421	44.4	LOS E			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.

MOVEMENT SUMMARY

Site: 104 [4. Moore St / George St - Future Base PM Peak]

Network: N102 [Future Base PM Peak]

Existing PM Peak
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Moore Street (E)														
4	L2	57	11.1	57	11.1	0.356	42.3	LOS C	4.9	40.6	0.91	0.75	0.91	16.5
5	T1	162	33.1	162	33.1	0.356	38.9	LOS C	4.9	40.6	0.91	0.74	0.91	14.7
Approach		219	27.4	219	27.4	0.356	39.8	LOS C	4.9	41.8	0.91	0.74	0.91	15.2
North: George Street (N)														
7	L2	104	8.1	104	8.1	0.131	20.0	LOS B	2.9	21.6	0.61	0.67	0.61	21.4
8	T1	613	2.9	613	2.9	0.392	18.6	LOS B	10.8	77.7	0.69	0.59	0.69	26.3
9	R2	161	1.3	161	1.3	0.190	20.5	LOS B	4.6	32.6	0.63	0.70	0.63	23.5
Approach		878	3.2	878	3.2	0.392	19.2	LOS B	10.8	77.7	0.67	0.62	0.67	25.3
West: Moore Street (W)														
11	T1	118	27.7	118	27.7	0.232	19.6	LOS B	4.0	31.6	0.60	0.52	0.60	11.6
12	R2	52	0.0	52	0.0	0.232	24.9	LOS B	4.0	31.6	0.66	0.59	0.66	18.9
Approach		169	19.3	169	19.3	0.232	21.2	LOS B	4.0	31.6	0.61	0.54	0.61	14.5
All Vehicles		1266	9.6	1266	9.6	0.392	23.0	LOS B	10.8	77.7	0.70	0.63	0.70	22.2

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	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P2	East Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P3	North Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
All Pedestrians		211	44.3	LOS E			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.

MOVEMENT SUMMARY

Site: 101 [1. Elizabeth St / George St - Future Base + Development AM Peak]

Network: N101 [Future Base + Development AM Peak]

Existing AM Peak
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Elizabeth St (E)														
4	L2	100	7.4	100	7.4	0.603	40.4	LOS C	11.5	83.5	0.94	0.80	0.94	11.7
5	T1	174	1.8	174	1.8	0.603	37.7	LOS C	11.5	83.5	0.95	0.81	0.95	15.0
6	R2	74	5.7	74	5.7	0.603	51.5	LOS D	4.3	31.3	0.99	0.83	1.05	16.9
Approach		347	4.2	347	4.2	0.603	41.4	LOS C	11.5	83.5	0.95	0.81	0.97	14.8
North: George St (N)														
7	L2	61	6.9	61	6.9	0.128	33.2	LOS C	2.3	16.7	0.79	0.71	0.79	16.4
8	T1	242	5.2	242	5.2	0.606	32.2	LOS C	12.8	93.1	0.86	0.75	0.86	16.4
9	R2	80	1.3	80	1.3	0.606	35.7	LOS C	12.8	93.1	0.86	0.75	0.86	19.3
Approach		383	4.7	383	4.7	0.606	33.1	LOS C	12.8	93.1	0.85	0.75	0.85	17.0
West: Elizabeth St (W)														
10	L2	201	2.1	201	2.1	0.440	13.9	LOS A	10.1	73.5	0.49	0.54	0.49	29.0
11	T1	412	6.9	412	6.9	0.440	11.3	LOS A	10.1	73.5	0.56	0.59	0.56	16.4
12	R2	162	1.9	162	1.9	0.440	16.2	LOS B	7.2	52.3	0.69	0.67	0.69	15.1
Approach		775	4.6	775	4.6	0.440	13.0	LOS A	10.1	73.5	0.57	0.59	0.57	21.2
All Vehicles		1505	4.5	1505	4.5	0.606	24.7	LOS B	12.8	93.1	0.73	0.68	0.73	17.6

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 ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
P2	East Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
P3	North Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
P4	West Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
All Pedestrians		421	44.4	LOS E			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.

MOVEMENT SUMMARY

Site: 102 [2. Elizabeth St / Bigge St - Future Base + Development AM Peak]

Network: N101 [Future Base + Development AM Peak]

Existing AM Peak
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Bigge St (S)														
1	L2	217	4.9	217	4.9	0.356	16.0	LOS B	10.8	78.4	0.53	0.59	0.53	24.6
2	T1	711	3.4	711	3.4	0.753	22.8	LOS B	29.1	209.1	0.77	0.73	0.77	26.2
3	R2	94	1.1	94	1.1	0.753	29.3	LOS C	29.1	209.1	0.84	0.78	0.84	22.3
Approach		1021	3.5	1021	3.5	0.753	21.9	LOS B	29.1	209.1	0.73	0.71	0.73	25.6
East: Elizabeth St (E)														
4	L2	49	4.3	49	4.3	0.212	40.2	LOS C	4.6	34.0	0.82	0.70	0.82	8.5
5	T1	97	8.7	97	8.7	0.212	39.2	LOS C	4.6	34.0	0.84	0.70	0.84	8.2
6	R2	23	27.3	23	27.3	0.212	45.6	LOS D	3.3	26.2	0.86	0.70	0.86	17.1
Approach		169	9.9	169	9.9	0.212	40.4	LOS C	4.6	34.0	0.83	0.70	0.83	10.0
North: Bigge St (N)														
7	L2	23	0.0	23	0.0	0.104	10.0	LOS A	1.7	12.0	0.26	0.28	0.26	32.9
8	T1	340	1.5	340	1.5	0.317	13.4	LOS A	6.9	48.8	0.42	0.39	0.42	25.0
9	R2	18	0.0	18	0.0	0.317	19.6	LOS B	6.9	48.8	0.49	0.44	0.49	23.4
Approach		381	1.4	381	1.4	0.317	13.5	LOS A	6.9	48.8	0.42	0.39	0.42	25.5
West: Elizabeth St (W)														
10	L2	144	3.6	144	3.6	0.324	43.1	LOS D	6.9	49.9	0.86	0.77	0.86	18.7
11	T1	195	14.1	195	14.1	0.757	47.9	LOS D	16.8	127.6	0.98	0.90	1.06	13.4
12	R2	99	2.1	99	2.1	0.757	51.4	LOS D	16.8	127.6	0.98	0.90	1.06	9.7
Approach		438	7.9	438	7.9	0.757	47.1	LOS D	16.8	127.6	0.94	0.85	0.99	14.5
All Vehicles		2009	4.6	2009	4.6	0.757	27.4	LOS B	29.1	209.1	0.72	0.68	0.74	21.3

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	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	105	54.4	LOS E	0.3	0.3	0.95	0.95
P2	East Full Crossing	105	54.4	LOS E	0.3	0.3	0.95	0.95
P3	North Full Crossing	105	54.4	LOS E	0.3	0.3	0.95	0.95
P4	West Full Crossing	105	54.4	LOS E	0.3	0.3	0.95	0.95
All Pedestrians		421	54.4	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.

MOVEMENT SUMMARY

Site: 103 [3. Moore St / Bigge St - Future Base + Development AM Peak]

Network: N101 [Future Base + Development AM Peak]

Existing AM Peak
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Bigge St (S)														
1	L2	95	1.1	95	1.1	0.459	8.6	LOS A	6.9	49.0	0.22	0.27	0.22	34.5
2	T1	1101	2.2	1101	2.2	0.459	3.4	LOS A	6.9	49.0	0.19	0.20	0.19	36.8
3	R2	274	1.9	274	1.9	0.452	18.3	LOS B	8.7	61.7	0.58	0.74	0.58	29.5
Approach		1469	2.1	1469	2.1	0.459	6.5	LOS A	8.7	61.7	0.26	0.31	0.26	33.1
East: Moore St (E)														
4	L2	71	4.5	71	4.5	0.214	48.7	LOS D	3.5	25.8	0.89	0.74	0.89	19.4
5	T1	87	61.4	87	61.4	0.449	48.4	LOS D	5.8	59.7	0.94	0.76	0.94	16.0
6	R2	20	31.6	20	31.6	0.449	52.0	LOS D	5.8	59.7	0.94	0.76	0.94	16.0
Approach		178	35.5	178	35.5	0.449	48.9	LOS D	5.8	59.7	0.92	0.75	0.92	17.4
North: Bigge St (N)														
7	L2	12	0.0	12	0.0	0.283	12.4	LOS A	8.2	59.4	0.42	0.38	0.42	37.9
8	T1	355	3.9	355	3.9	0.283	7.8	LOS A	8.2	59.4	0.42	0.38	0.42	38.8
9	R2	59	0.0	59	0.0	0.236	14.7	LOS B	1.5	10.2	0.43	0.66	0.43	27.8
Approach		425	3.2	425	3.2	0.283	8.9	LOS A	8.2	59.4	0.42	0.42	0.42	37.4
West: Moore St (W)														
10	L2	147	2.1	147	2.1	0.439	51.0	LOS D	7.8	55.5	0.94	0.79	0.94	9.5
11	T1	84	47.5	84	47.5	0.367	44.8	LOS D	5.5	50.8	0.90	0.74	0.90	20.3
12	R2	22	4.8	22	4.8	0.367	48.1	LOS D	5.5	50.8	0.90	0.74	0.90	15.4
Approach		254	17.4	254	17.4	0.439	48.7	LOS D	7.8	55.5	0.92	0.77	0.92	14.4
All Vehicles		2326	6.5	2326	6.5	0.459	14.8	LOS B	8.7	61.7	0.41	0.41	0.41	26.7

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	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	105	54.4	LOS E	0.3	0.3	0.95	0.95
P2	East Full Crossing	105	54.4	LOS E	0.3	0.3	0.95	0.95
P3	North Full Crossing	105	54.4	LOS E	0.3	0.3	0.95	0.95
P4	West Full Crossing	105	54.4	LOS E	0.3	0.3	0.95	0.95
All Pedestrians		421	54.4	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.

MOVEMENT SUMMARY

Site: 104 [4. Moore St / George St - Future Base + Development AM Peak]

Network: N101 [Future Base + Development AM Peak]

Existing AM Peak
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Moore Street (E)														
4	L2	49	29.8	49	29.8	0.327	45.0	LOS D	3.7	32.3	0.93	0.75	0.93	15.8
5	T1	117	29.7	117	29.7	0.327	41.4	LOS C	3.8	33.0	0.93	0.73	0.93	14.2
Approach		166	29.7	166	29.7	0.327	42.5	LOS C	3.8	33.0	0.93	0.74	0.93	14.7
North: George Street (N)														
7	L2	88	13.1	88	13.1	0.203	34.9	LOS C	3.4	26.5	0.82	0.73	0.82	15.9
8	T1	301	2.4	301	2.4	0.338	32.3	LOS C	6.6	47.3	0.85	0.69	0.85	21.0
9	R2	53	4.0	53	4.0	0.112	34.0	LOS C	2.0	14.2	0.80	0.71	0.80	18.6
Approach		442	4.8	442	4.8	0.338	33.0	LOS C	6.6	47.3	0.84	0.70	0.84	19.8
West: Moore Street (W)														
11	T1	238	12.4	238	12.4	0.254	6.7	LOS A	4.3	32.4	0.33	0.34	0.33	21.1
12	R2	82	1.3	82	1.3	0.254	11.3	LOS A	4.3	32.4	0.38	0.41	0.38	27.7
Approach		320	9.5	320	9.5	0.254	7.9	LOS A	4.3	32.4	0.34	0.35	0.34	23.7
All Vehicles		928	10.9	928	10.9	0.338	26.0	LOS B	6.6	47.3	0.68	0.59	0.68	19.1

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	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P2	East Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P3	North Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
All Pedestrians		211	44.3	LOS E			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.

MOVEMENT SUMMARY

Site: 101 [1. Elizabeth St / George St - Future Base + Development PM Peak]

Network: N102 [Future Base + Development PM Peak]

Existing PM Peak
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Elizabeth St (E)														
4	L2	143	5.1	143	5.1	0.697	41.3	LOS C	14.3	102.6	0.97	0.85	0.99	11.5
5	T1	374	0.8	374	0.8	0.697	37.8	LOS C	14.3	102.6	0.96	0.85	1.00	15.0
6	R2	71	6.0	71	6.0	0.697	41.3	LOS C	12.6	89.9	0.96	0.85	1.00	19.7
Approach		587	2.5	587	2.5	0.697	39.1	LOS C	14.3	102.6	0.96	0.85	1.00	14.9
North: George St (N)														
7	L2	27	7.7	27	7.7	0.139	23.8	LOS B	2.7	19.7	0.59	0.53	0.59	20.8
8	T1	460	3.7	460	3.7	0.695	24.7	LOS B	18.5	132.6	0.79	0.71	0.79	19.0
9	R2	102	0.0	102	0.0	0.695	28.9	LOS C	18.5	132.6	0.83	0.75	0.83	21.6
Approach		589	3.2	589	3.2	0.695	25.4	LOS B	18.5	132.6	0.79	0.71	0.79	19.6
West: Elizabeth St (W)														
10	L2	179	1.2	179	1.2	0.455	19.9	LOS B	11.0	82.1	0.62	0.62	0.62	25.3
11	T1	214	12.3	214	12.3	0.455	16.5	LOS B	11.0	82.1	0.62	0.62	0.62	13.4
12	R2	218	1.0	218	1.0	0.499	23.4	LOS B	6.4	44.9	0.89	0.79	0.89	10.7
Approach		611	5.0	611	5.0	0.499	19.9	LOS B	11.0	82.1	0.72	0.68	0.72	17.3
All Vehicles		1787	3.6	1787	3.6	0.697	28.0	LOS B	18.5	132.6	0.82	0.75	0.83	17.1

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	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
P2	East Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
P3	North Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
P4	West Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
All Pedestrians		421	44.4	LOS E			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.

MOVEMENT SUMMARY

Site: 102 [2. Elizabeth St / Bigge St - Future Base + Development PM Peak]

Network: N102 [Future Base + Development PM Peak]

Existing PM Peak
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Bigge St (S)														
1	L2	366	2.3	366	2.3	0.322	12.6	LOS A	9.0	63.9	0.54	0.68	0.54	25.8
2	T1	585	2.2	585	2.2	0.532	9.5	LOS A	15.7	112.0	0.57	0.52	0.57	32.9
3	R2	37	2.9	37	2.9	0.532	12.9	LOS A	15.7	112.0	0.57	0.52	0.57	31.4
Approach		988	2.2	988	2.2	0.532	10.8	LOS A	15.7	112.0	0.56	0.58	0.56	30.9
East: Elizabeth St (E)														
4	L2	87	1.2	87	1.2	0.401	42.4	LOS C	6.2	43.9	0.92	0.77	0.92	8.1
5	T1	163	3.9	163	3.9	0.401	39.1	LOS C	6.2	43.9	0.92	0.75	0.92	8.3
6	R2	20	52.6	20	52.6	0.401	42.9	LOS D	5.7	43.6	0.92	0.75	0.92	17.9
Approach		271	6.6	271	6.6	0.401	40.5	LOS C	6.2	43.9	0.92	0.76	0.92	9.2
North: Bigge St (N)														
7	L2	31	0.0	31	0.0	0.114	6.5	LOS A	1.2	8.3	0.18	0.23	0.18	36.0
8	T1	392	2.4	392	2.4	0.349	5.3	LOS A	4.4	31.6	0.27	0.29	0.27	31.9
9	R2	38	0.0	38	0.0	0.349	9.7	LOS A	4.4	31.6	0.31	0.31	0.31	31.0
Approach		460	2.1	460	2.1	0.349	5.8	LOS A	4.4	31.6	0.27	0.29	0.27	32.2
West: Elizabeth St (W)														
10	L2	74	0.0	74	0.0	0.224	41.8	LOS C	3.1	21.9	0.89	0.74	0.89	19.0
11	T1	131	22.6	131	22.6	0.528	39.7	LOS C	7.2	58.7	0.94	0.78	0.94	15.2
12	R2	31	0.0	31	0.0	0.528	43.1	LOS D	7.2	58.7	0.94	0.78	0.94	11.2
Approach		235	12.6	235	12.6	0.528	40.8	LOS C	7.2	58.7	0.93	0.77	0.93	16.1
All Vehicles		1954	4.0	1954	4.0	0.532	17.3	LOS B	15.7	112.0	0.58	0.56	0.58	25.0

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.
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	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
P2	East Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
P3	North Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
P4	West Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
All Pedestrians		421	44.4	LOS E			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.

MOVEMENT SUMMARY

Site: 103 [3. Moore St / Bigge St - Future Base + Development PM Peak]

Network: N102 [Future Base + Development PM Peak]

Existing PM Peak
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Bigge St (S)														
1	L2	100	3.2	100	3.2	0.384	11.5	LOS A	6.8	49.3	0.35	0.39	0.35	28.5
2	T1	780	3.9	780	3.9	0.384	6.3	LOS A	6.8	49.3	0.32	0.32	0.32	30.5
3	R2	174	6.7	174	6.7	0.503	27.0	LOS B	6.3	46.6	0.77	0.79	0.77	25.8
Approach		1054	4.3	1054	4.3	0.503	10.2	LOS A	6.8	49.3	0.39	0.40	0.39	28.3
East: Moore St (E)														
4	L2	224	0.0	224	0.0	0.503	39.3	LOS C	9.6	67.2	0.92	0.80	0.92	21.7
5	T1	79	66.7	79	66.7	0.255	32.2	LOS C	3.5	36.9	0.83	0.68	0.83	19.9
6	R2	9	0.0	9	0.0	0.255	35.6	LOS C	3.5	36.9	0.83	0.68	0.83	19.9
Approach		313	16.8	313	16.8	0.503	37.4	LOS C	9.6	67.2	0.89	0.77	0.89	21.3
North: Bigge St (N)														
7	L2	12	0.0	12	0.0	0.501	16.2	LOS B	15.9	113.0	0.61	0.55	0.61	35.6
8	T1	578	1.5	578	1.5	0.501	11.6	LOS A	15.9	113.0	0.61	0.55	0.61	35.2
9	R2	60	1.8	60	1.8	0.184	17.6	LOS B	1.4	10.2	0.51	0.68	0.51	25.6
Approach		649	1.5	649	1.5	0.501	12.3	LOS A	15.9	113.0	0.60	0.56	0.60	34.4
West: Moore St (W)														
10	L2	118	4.5	118	4.5	0.278	36.3	LOS C	4.8	34.9	0.85	0.75	0.85	12.1
11	T1	60	63.2	60	63.2	0.278	36.6	LOS C	4.8	34.9	0.88	0.71	0.88	22.1
12	R2	19	0.0	19	0.0	0.278	40.1	LOS C	3.2	32.0	0.88	0.71	0.88	17.3
Approach		197	21.9	197	21.9	0.278	36.8	LOS C	4.8	34.9	0.86	0.73	0.86	16.8
All Vehicles		2213	6.8	2213	6.8	0.503	17.0	LOS B	15.9	113.0	0.57	0.53	0.57	26.5

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.
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	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
P2	East Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
P3	North Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
P4	West Full Crossing	105	44.4	LOS E	0.3	0.3	0.94	0.94
All Pedestrians		421	44.4	LOS E			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.

MOVEMENT SUMMARY

Site: 104 [4. Moore St / George St - Future Base + Development PM Peak]

Network: N102 [Future Base + Development PM Peak]

Existing PM Peak
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Moore Street (E)														
4	L2	57	11.1	57	11.1	0.397	44.4	LOS D	5.0	41.8	0.93	0.76	0.93	16.0
5	T1	162	33.1	162	33.1	0.397	41.0	LOS C	5.0	41.8	0.93	0.75	0.93	14.2
Approach		219	27.4	219	27.4	0.397	41.9	LOS C	5.0	43.0	0.93	0.75	0.93	14.7
North: George Street (N)														
7	L2	104	8.1	104	8.1	0.126	18.7	LOS B	2.8	20.8	0.58	0.66	0.58	22.1
8	T1	623	2.9	623	2.9	0.381	17.3	LOS B	10.6	76.0	0.67	0.57	0.67	26.9
9	R2	161	1.3	161	1.3	0.182	19.3	LOS B	4.4	31.3	0.60	0.70	0.60	24.1
Approach		888	3.2	888	3.2	0.381	17.8	LOS B	10.6	76.0	0.65	0.61	0.65	25.9
West: Moore Street (W)														
11	T1	118	27.7	118	27.7	0.246	21.9	LOS B	4.2	33.8	0.63	0.54	0.63	10.8
12	R2	52	0.0	52	0.0	0.246	27.6	LOS B	4.2	33.8	0.70	0.61	0.70	17.8
Approach		169	19.3	169	19.3	0.246	23.6	LOS B	4.2	33.8	0.65	0.56	0.65	13.6
All Vehicles		1277	9.5	1277	9.5	0.397	22.7	LOS B	10.6	76.0	0.70	0.63	0.70	22.3

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.

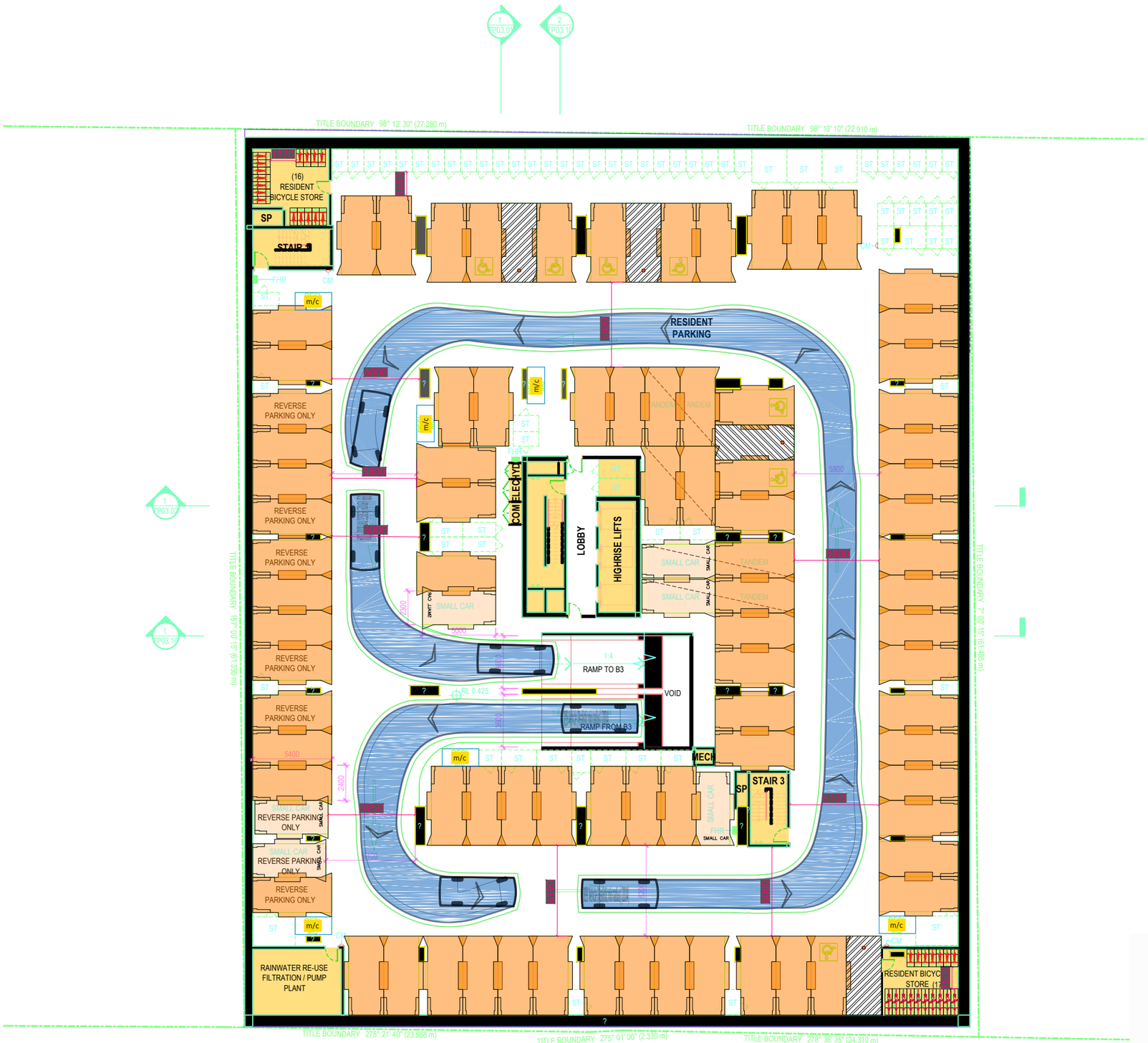
Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P2	East Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P3	North Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
All Pedestrians		211	44.3	LOS E			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.

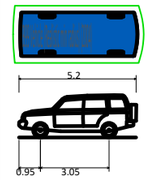
Attachment 3 Car Park Review

191119 - ptc.- 26 Elizabeth Street, Liverpool - Car Park Review.dwg



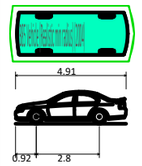
COMMENTS

A3



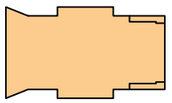
B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.878m
Min Body Ground Clearance	0.272m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m

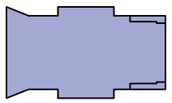


B85 Vehicle (Realistic min radius) (2004)

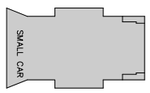
Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.421m
Min Body Ground Clearance	0.159m
Track Width	1.770m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	5.750m



2.4mx 5.4m car space



2.5m x 5.4m car space



2.3m x 5.0m car space

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Suite 102, 506 Miller Street, Cammeray NSW 2062
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REV	DATE	COMMENT	DRAWN	REVIEWED	REV	DATE	COMMENT	DRAWN	REVIEWED
7	08/08/19	FOR INFORMATION	EL	AU					
6	09/11/18	FOR INFORMATION	HL	AU					
5	06/11/18	FOR INFORMATION	HL	AU	12	20/11/19	FOR INFORMATION	EL	SW
4	14/09/18	FOR INFORMATION	SC	AU	11	17/10/19	FOR INFORMATION	JJ	AU
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2	-	NOT ISSUED	-	-	9	-	NOT ISSUED	-	-
1	-	NOT ISSUED	-	-	8	22/08/19	FOR INFORMATION	EL	AU

PROJECT:
26 ELIZABETH STREET, LIVERPOOL

DRAWING TITLE:
CAR PARK REVIEW

BASEMENT 4

CLIENT: **BINAH GROUP**

DRG. #: **B4-001**

PROJECT #: **2436A**

SCALE: **1:300**

REV: **12**

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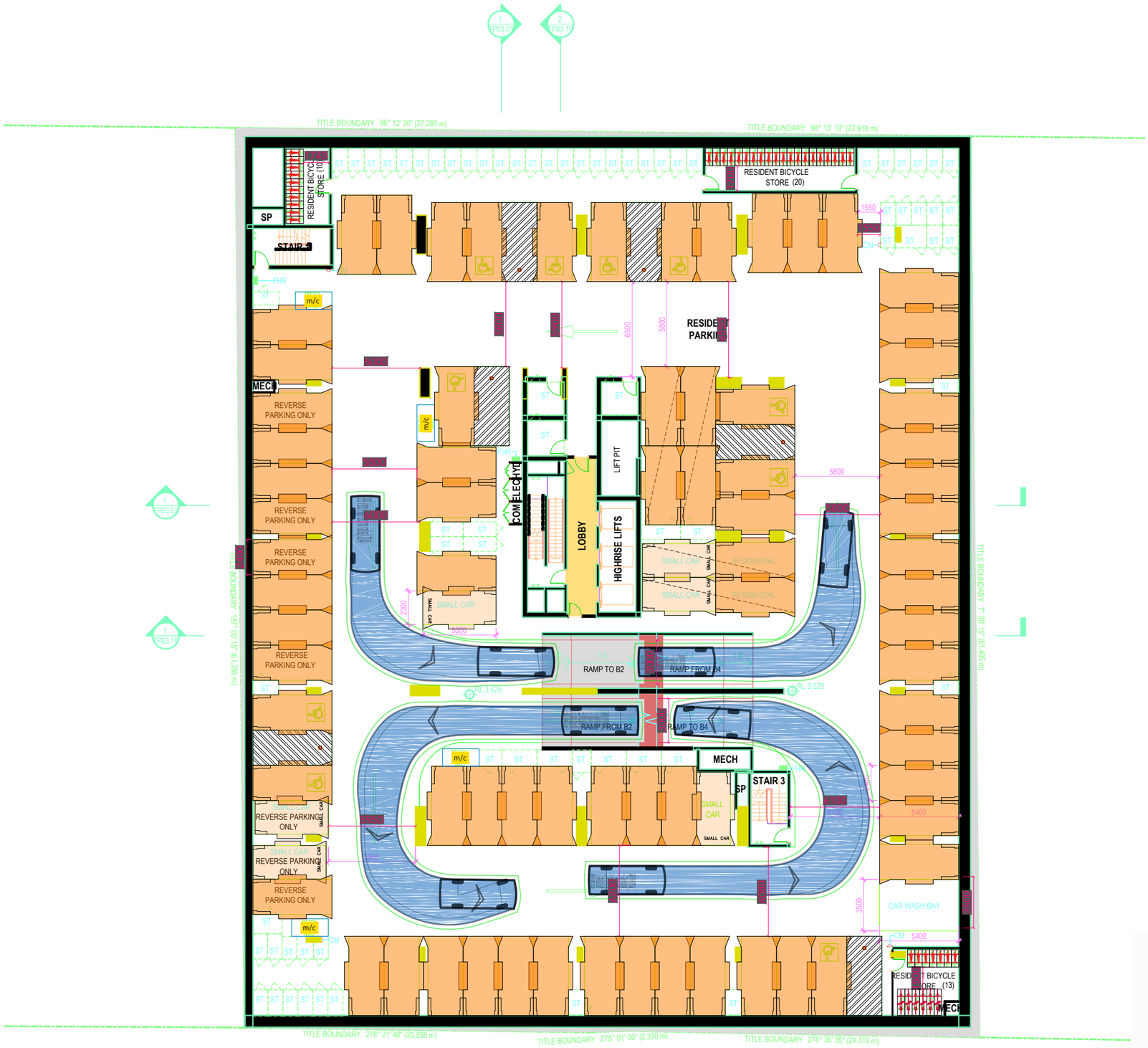

COMMENTS

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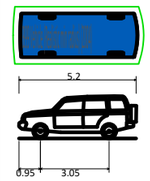
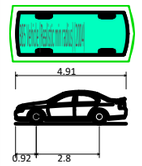


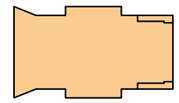
B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.878m
Min Body Ground Clearance	0.272m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m

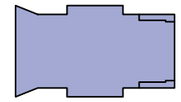


B85 Vehicle (Realistic min radius) (2004)

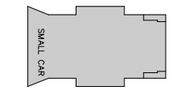
Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.421m
Min Body Ground Clearance	0.159m
Track Width	1.770m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	5.750m



2.4mx 5.4m car space



2.5m x 5.4m car space



2.3m x 5.0m car space

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REV	DATE	COMMENT	DRAWN	REVIEWED	REV	DATE	COMMENT	DRAWN	REVIEWED
7	08/08/19	FOR INFORMATION	EL	AU					
6	09/11/18	FOR INFORMATION	HL	AU					
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4	14/09/18	FOR INFORMATION	SC	AU	11	17/10/19	FOR INFORMATION	JJ	AU
3	30/08/18	FOR INFORMATION	SH/HL	AU	10	15/10/19	FOR INFORMATION	SC/HL	AU
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1	25/07/18	FOR INFORMATION	HL	AU	8	22/08/19	FOR INFORMATION	EL	AU

PROJECT:
26 ELIZABETH STREET, LIVERPOOL

DRAWING TITLE:
CAR PARK REVIEW

BASEMENT 3

CLIENT: **BINAH GROUP**

DRG. #: **B3-001**

PROJECT #: **2436A**

SCALE: **1:300**

REV: **12**

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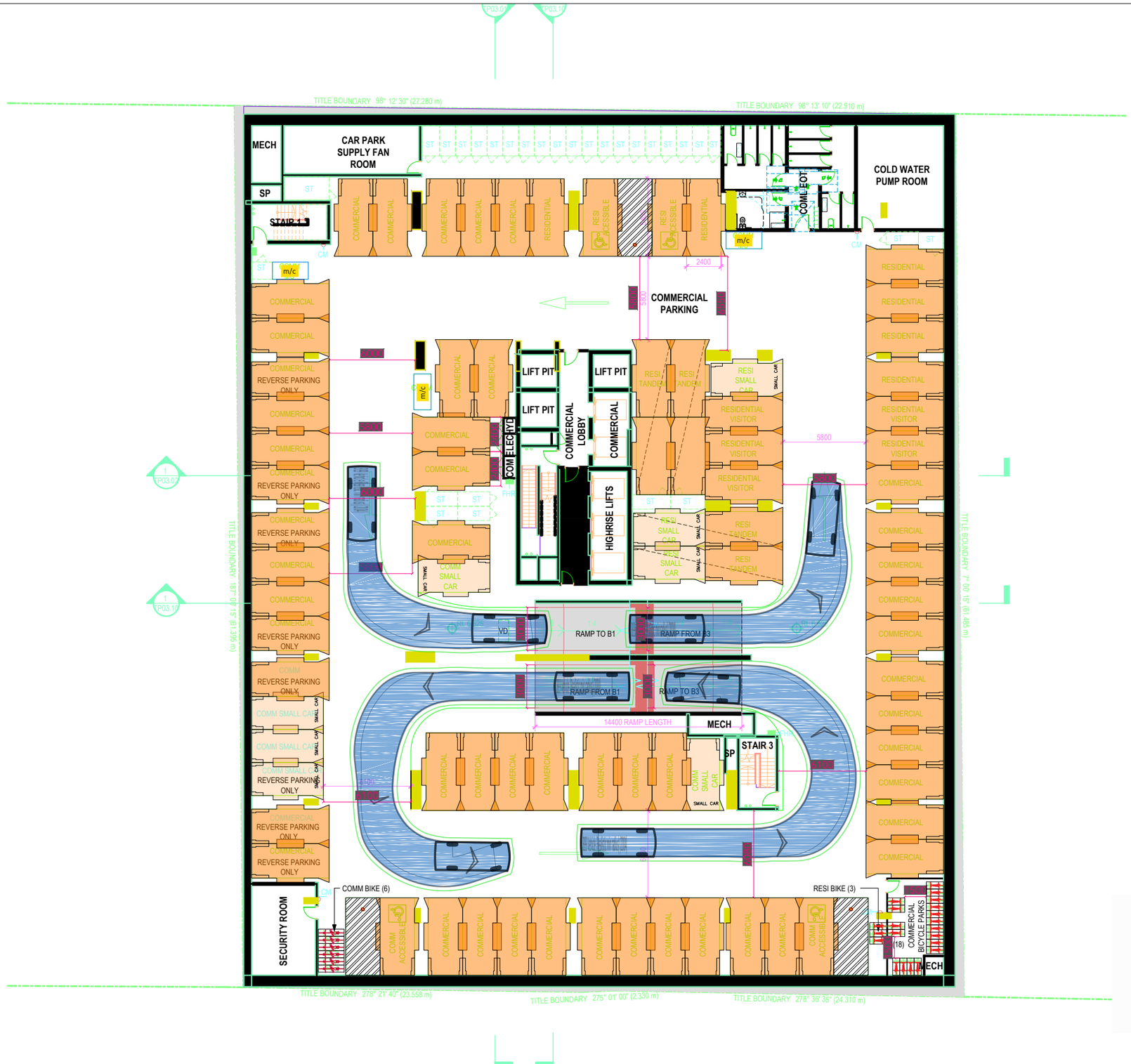

COMMENTS

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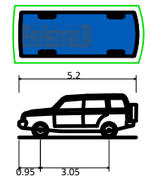
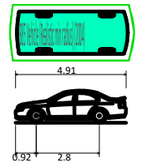


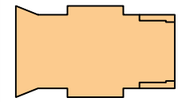
B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.878m
Min Body Ground Clearance	0.272m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m

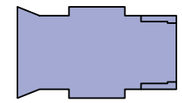


B85 Vehicle (Realistic min radius) (2004)

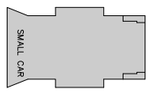
Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.421m
Min Body Ground Clearance	0.159m
Track Width	1.770m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	5.750m



2.4mx 5.4m car space



2.5m x 5.4m car space



2.3m x 5.0m car space

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REV	DATE	COMMENT	DRAWN	REVIEWED	REV	DATE	COMMENT	DRAWN	REVIEWED
7	08/08/19	FOR INFORMATION	EL	AU					
6	09/11/18	FOR INFORMATION	HL	AU					
5	06/11/18	FOR INFORMATION	HL	AU	12	20/11/19	FOR INFORMATION	EL	SW
4	14/09/18	FOR INFORMATION	SC	AU	11	17/10/19	FOR INFORMATION	JJ	AU
3	30/08/18	FOR INFORMATION	SH/HL	AU	10	15/10/19	FOR INFORMATION	SC/HL	AU
2	06/08/18	FOR INFORMATION	HL	AU	9	-	NOT ISSUED	-	-
1	25/07/18	FOR INFORMATION	HL	AU	8	22/08/19	FOR INFORMATION	EL	AU

PROJECT:
26 ELIZABETH STREET, LIVERPOOL

DRAWING TITLE:
CAR PARK REVIEW
BASEMENT 2

CLIENT: **BINAH GROUP**
DRG. #: **B2-001**
PROJECT #: **2436A**
SCALE: **1:300**
REV: **12**

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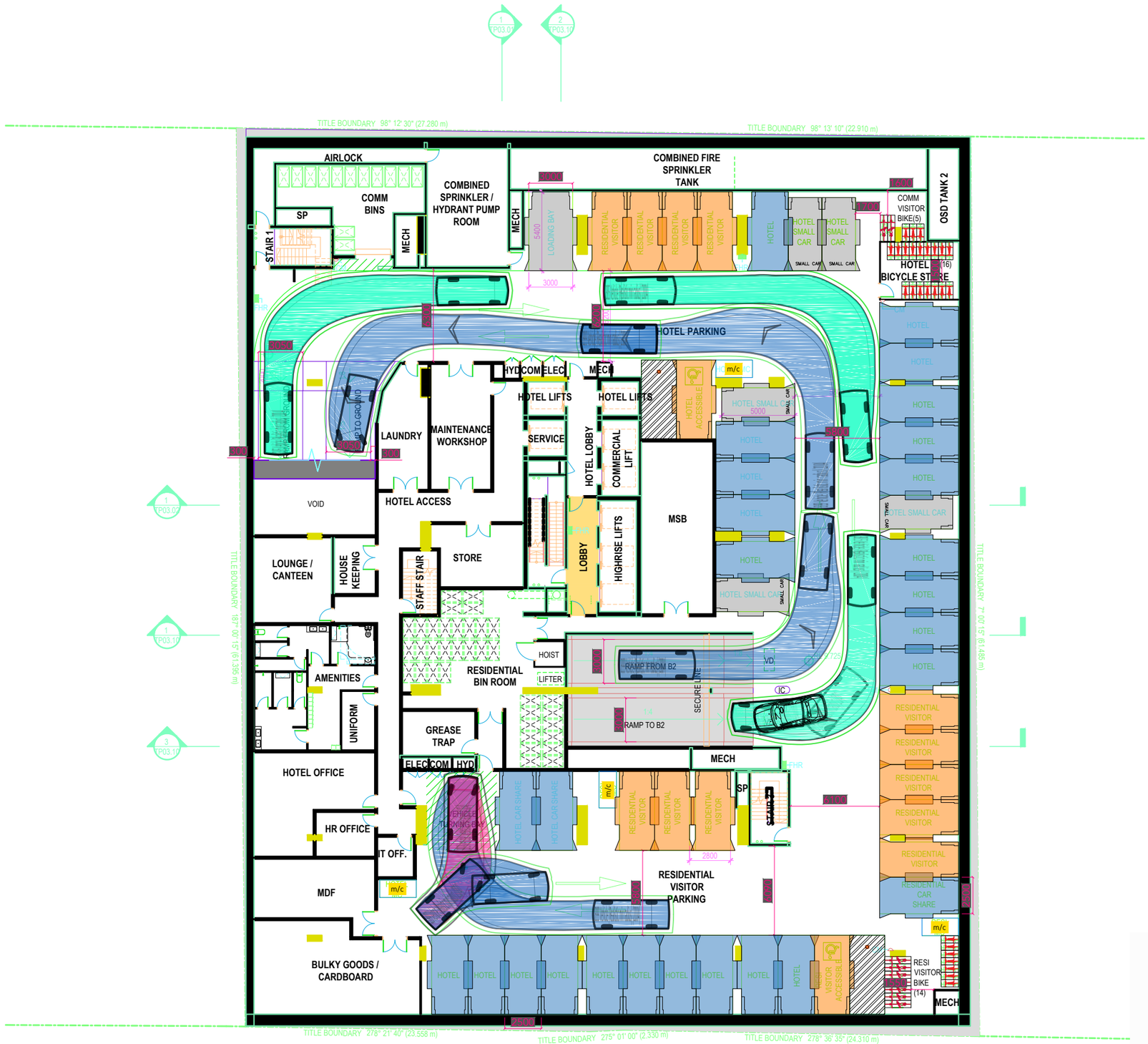
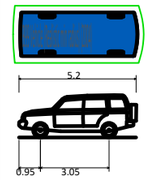


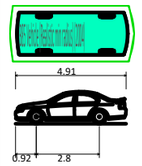
COMMENTS

A3



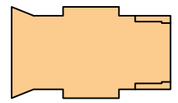
B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.878m
Min Body Ground Clearance	0.272m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m

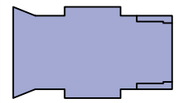


B85 Vehicle (Realistic min radius) (2004)

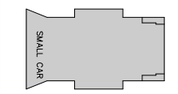
Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.421m
Min Body Ground Clearance	0.159m
Track Width	1.770m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	5.750m



2.4mx 5.4m car space



2.5m x 5.4m car space



2.3m x 5.0m car space

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ptcconsultants.co

REV	DATE	COMMENT	DRAWN	REVIEWED	REV	DATE	COMMENT	DRAWN	REVIEWED
7	09/11/18	FOR INFORMATION	SC/HL	AU					
6	06/11/18	FOR INFORMATION	SC/HL	AU					
5	14/09/18	FOR INFORMATION	SC/HL	AU	12	20/11/19	FOR INFORMATION	EL	SW
4	30/08/18	FOR INFORMATION	SH/HL	AU	11	17/10/19	FOR INFORMATION	JJ	AU
3	08/08/18	FOR INFORMATION	HL	AU	10	15/10/19	FOR INFORMATION	SC/HL	AU
2	25/07/18	FOR INFORMATION	HL	AU	9	22/08/19	FOR INFORMATION	EL	AU
1	12/07/18	FOR INFORMATION	HL	AU	8	08/08/19	FOR INFORMATION	EL	AU

PROJECT:
26 ELIZABETH STREET, LIVERPOOL

DRAWING TITLE:
CAR PARK REVIEW
BASEMENT 1

CLIENT: **BINAH GROUP**
DRG. #: **B1-003**
PROJECT #: **2436A**
SCALE: **1:300**
REV: **12**

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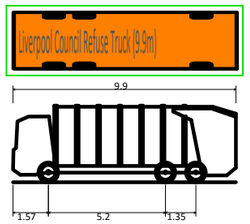
COMMENTS

A3



Liverpool Council Refuse Truck (9.9m)	
Overall Length	9.900m
Overall Width	2.500m
Overall Body Height	3.400m
Min Body Ground Clearance	0.304m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	10.500m

TYPICAL

Please note the following compliance requirements:

Height Clearance: **2.2m** (min) throughout all areas of the car park accessible to vehicles and bicycles.
2.5m above accessible and shared bays
4.5m wherever access is required for 10.54m substation service vehicle (and safety clearance envelope)

Sight Splays: Visibility splays in the form of a **2.5m x 2m** right-angled triangle to be provided (AS2890.1). Ensure design avoids visual obstructions in sight splay (i.e. dense landscaping, tall fencing/walls etc.)

Parking Spaces: The parking envelopes shown, must be kept clear of all physical obstructions, including height clearance reductions. Ensure that grades within the parking module do not exceed 1:20 (1:40 for accessible bays).

Accessible Spaces: To be designed in accordance with AS2890.6. i.e, standard parking space with adjacent shared bay (2.4m x 5.4m), to be installed as per AS2890.6 requirements (bollard and markings).

Motorcycle Parking: Motorcycle bays to be designed as a 2.5m x 1.2m envelope (AS2890.1).

Bicycle Parking: Bicycle spaces are to allow for a envelope of 500mm by 1800mm, with an aisle width of 2000mm for locker storage, or 1500mm for racks.

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7	09/11/18	FOR INFORMATION	SC/HL	AU					
6	06/11/18	FOR INFORMATION	SC/HL	AU					
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4	11/09/18	FOR INFORMATION	HL	AU	11	17/10/19	FOR INFORMATION	JJ	AU
3	30/08/18	FOR INFORMATION	SH/HL	AU	10	15/10/19	FOR INFORMATION	SC/HL	AU
2	23/08/18	FOR INFORMATION	HL	AU	9	22/08/19	FOR INFORMATION	EL	AU
1	08/08/18	FOR INFORMATION	HL	AU	8	08/08/19	FOR INFORMATION	EL	AU

PROJECT:
26 ELIZABETH STREET, LIVERPOOL

DRAWING TITLE:
CAR PARK REVIEW

GROUND FLOOR LOADING DOCK 9.9M COUNCIL REFUSE VEHICLE

CLIENT: **BINAH GROUP**
DRG. #: **GF-101**
PROJECT #: **2436A**
SCALE: **1:300**
REV: **12**

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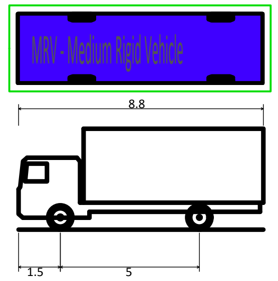
COMMENTS

A3



MRV - Medium Rigid Vehicle	
Overall Length	8.800m
Overall Width	2.500m
Overall Body Height	3.633m
Min Body Ground Clearance	0.428m
Track Width	2.500m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	10.000m

TYPICAL

Please note the following compliance requirements:

Height Clearance: **2.2m** (min) throughout all areas of the car park accessible to vehicles and bicycles. **2.5m** above accessible and shared bays **4.5m** wherever access is required for 10.54m substation service vehicle (and safety clearance envelope)

Sight Splays: Visibility splays in the form of a **2.5m x 2m** right-angled triangle to be provided (AS2890.1). Ensure design avoids visual obstructions in sight splay (i.e. dense landscaping, tall fencing/walls etc.)

Parking Spaces: The parking envelopes shown, must be kept clear of all physical obstructions, including height clearance reductions. Ensure that grades within the parking module do not exceed 1:20 (1:40 for accessible bays).

Accessible Spaces: To be designed in accordance with AS2890.6. i.e, standard parking space with adjacent shared bay (2.4m x 5.4m), to be installed as per AS2890.6 requirements (bollard and markings).

Motorcycle Parking: Motorcycle bays to be designed as a 2.5m x 1.2m envelope (AS2890.1).

Bicycle Parking: Bicycle spaces are to allow for a envelope of 500mm by 1800mm, with an aisle width of 2000mm for locker storage, or 1500mm for racks.

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5	14/09/18	FOR INFORMATION	HL	AU	12	20/11/19	FOR INFORMATION	EL	SW
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1	08/08/18	FOR INFORMATION	HL	AU	8	08/08/19	FOR INFORMATION	EL	AU

PROJECT:
26 ELIZABETH STREET, LIVERPOOL

DRAWING TITLE:
CAR PARK REVIEW

GROUND FLOOR LOADING DOCK 8.8M MRV ACCESS

CLIENT: **BINAH GROUP**

DRG. #: **GF-102**

PROJECT #: **2436A**

SCALE: **1:300**

REV: **12**

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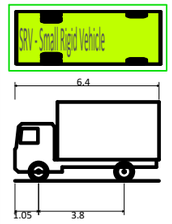
COMMENTS

A3



SRV - Small Rigid Vehicle	
Overall Length	6.400m
Overall Width	2.330m
Overall Body Height	3.500m
Min Body Ground Clearance	0.398m
Track Width	2.330m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	7.100m

TYPICAL

Please note the following compliance requirements:

Height Clearance: **2.2m** (min) throughout all areas of the car park accessible to vehicles and bicycles.
2.5m above accessible and shared bays
4.5m wherever access is required for 10.54m substation service vehicle (and safety clearance envelope)

Sight Splays: Visibility splays in the form of a **2.5m x 2m** right-angled triangle to be provided (AS2890.1). Ensure design avoids visual obstructions in sight splay (i.e. dense landscaping, tall fencing/walls etc.)

Parking Spaces: The parking envelopes shown, must be kept clear of all physical obstructions, including height clearance reductions. Ensure that grades within the parking module do not exceed 1:20 (1:40 for accessible bays).

Accessible Spaces: To be designed in accordance with AS2890.6. i.e, standard parking space with adjacent shared bay (2.4m x 5.4m), to be installed as per AS2890.6 requirements (bollard and markings).

Motorcycle Parking: Motorcycle bays to be designed as a 2.5m x 1.2m envelope (AS2890.1).

Bicycle Parking: Bicycle spaces are to allow for a envelope of 500mm by 1800mm, with an aisle width of 2000mm for locker storage, or 1500mm for racks.

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PROJECT:
26 ELIZABETH STREET, LIVERPOOL

DRAWING TITLE:
CAR PARK REVIEW

GROUND FLOOR LOADING DOCK 6.4M SRV ACCESS

CLIENT: **BINAH GROUP**
DRG. #: **GF-103**
PROJECT #: **2436A**
SCALE: **1:300**
REV: **12**

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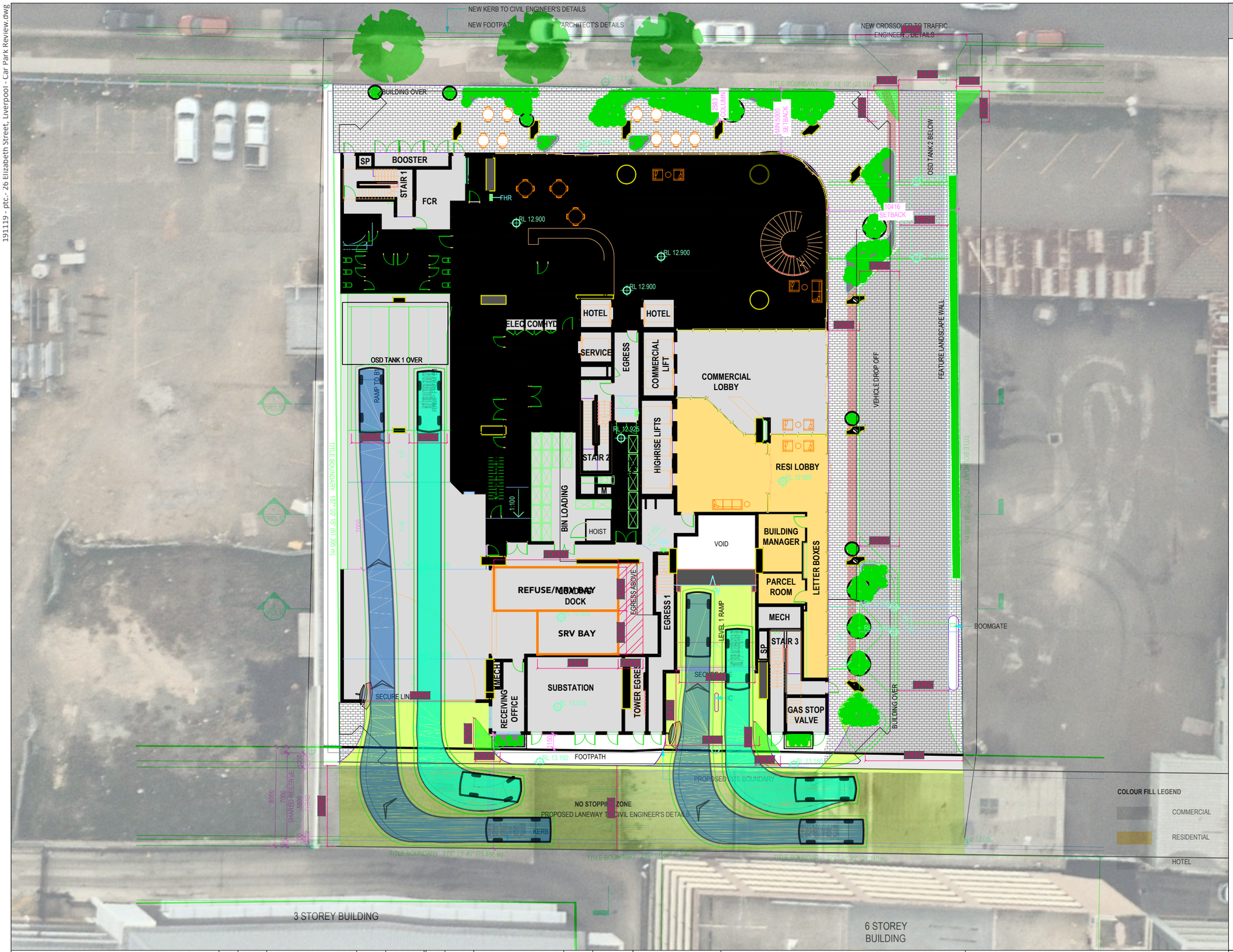

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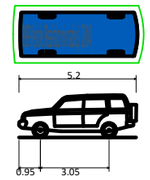
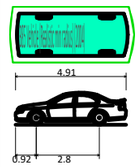


B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.878m
Min Body Ground Clearance	0.272m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m



B85 Vehicle (Realistic min radius) (2004)

Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.421m
Min Body Ground Clearance	0.159m
Track Width	1.770m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	5.750m

TYPICAL

Please note the following compliance requirements:

Height Clearance: **2.2m** (min) throughout all areas of the car park accessible to vehicles and bicycles.
2.5m above accessible and shared bays
4.5m wherever access is required for 10.54m substation service vehicle (and safety clearance envelope)

Sight Splays: Visibility splays in the form of a **2.5m x 2m** right-angled triangle to be provided (AS2890.1). Ensure design avoids visual obstructions in sight splay (i.e. dense landscaping, tall fencing/walls etc.)

Parking Spaces: The parking envelopes shown, must be kept clear of all physical obstructions, including height clearance reductions. Ensure that grades within the parking module do not exceed 1:20 (1:40 for accessible bays).

Accessible Spaces: To be designed in accordance with AS2890.6. i.e, standard parking space with adjacent shared bay (2.4m x 5.4m), to be installed as per AS2890.6 requirements (bollard and markings).

Motorcycle Parking: Motorcycle bays to be designed as a 2.5m x 1.2m envelope (AS2890.1).

Bicycle Parking: Bicycle spaces are to allow for a envelope of 500mm by 1800mm, with an aisle width of 2000mm for locker storage, or 1500mm for racks.

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PROJECT:
26 ELIZABETH STREET, LIVERPOOL

DRAWING TITLE:
CAR PARK REVIEW
GROUND FLOOR

CLIENT: **BINAH GROUP**
DRG. #: **GF-105**
PROJECT #: **2436A**
SCALE: **1:300**
REV: **12**

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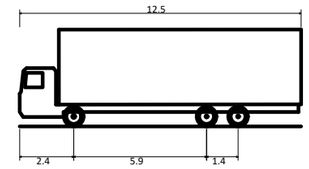
COMMENTS

A3



HRV - Heavy Rigid Vehicle	
Overall Length	12.500m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.417m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.500m

NOTE:
The 10.54m substation service vehicle has been modelled using a standard 12.5m HRV. Additional manoeuvres are required for vehicle access and egress for an HRV (5 point turn) as shown.

A HRV has been used to demonstrate manoeuvring only. Largest vehicle permitted to access the loading dock under general operation is a 9.9m Council refuse truck.

TYPICAL

Please note the following compliance requirements:

Height Clearance: **2.2m** (min) throughout all areas of the car park accessible to vehicles and bicycles.
2.5m above accessible and shared bays
4.5m wherever access is required for 10.54m substation service vehicle (and safety clearance envelope)

Sight Splays: Visibility splays in the form of a **2.5m x 2m** right-angled triangle to be provided (AS2890.1). Ensure design avoids visual obstructions in sight splay (i.e. dense landscaping, tall fencing/walls etc.)

Parking Spaces: The parking envelopes shown, must be kept clear of all physical obstructions, including height clearance reductions. Ensure that grades within the parking module do not exceed 1:20 (1:40 for accessible bays).

Accessible Spaces: To be designed in accordance with AS2890.6. i.e, standard parking space with adjacent shared bay (2.4m x 5.4m), to be installed as per AS2890.6 requirements (bollard and markings).

Motorcycle Parking: Motorcycle bays to be designed as a 2.5m x 1.2m envelope (AS2890.1).

Bicycle Parking: Bicycle spaces are to allow for a envelope of 500mm by 1800mm, with an aisle width of 2000mm for locker storage, or 1500mm for racks.

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PROJECT:
26 ELIZABETH STREET, LIVERPOOL

DRAWING TITLE:
SWEPT PATH ASSESSMENT

GROUND FLOOR
10.54M SUBSTATION VEHICLE ACCESS

CLIENT: **BINAH GROUP**
DRG. #: **GF-106**
PROJECT #: **2436A**
SCALE: **1:300**
REV: **12**

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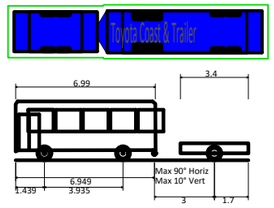
COMMENTS

A3



Toyota Coast & Trailer	
Overall Length	11.649m
Overall Width	2.095m
Overall Body Height	2.945m
Min Body Ground Clearance	0.350m
Max Track Width	1.993m
Lock-to-lock time	5.00s
Wall to Wall Turning Radius	7.200m

TYPICAL

Please note the following compliance requirements:

Height Clearance: **2.2m** (min) throughout all areas of the car park accessible to vehicles and bicycles.
2.5m above accessible and shared bays
4.5m wherever access is required for 10.54m substation service vehicle (and safety clearance envelope)

Sight Splays: Visibility splays in the form of a **2.5m x 2m** right-angled triangle to be provided (AS2890.1). Ensure design avoids visual obstructions in sight splay (i.e. dense landscaping, tall fencing/walls etc.)

Parking Spaces: The parking envelopes shown, must be kept clear of all physical obstructions, including height clearance reductions. Ensure that grades within the parking module do not exceed 1:20 (1:40 for accessible bays).

Accessible Spaces: To be designed in accordance with AS2890.6. i.e, standard parking space with adjacent shared bay (2.4m x 5.4m), to be installed as per AS2890.6 requirements (bollard and markings).

Motorcycle Parking: Motorcycle bays to be designed as a 2.5m x 1.2m envelope (AS2890.1).

Bicycle Parking: Bicycle spaces are to allow for a envelope of 500mm by 1800mm, with an aisle width of 2000mm for locker storage, or 1500mm for racks.

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PROJECT:
26 ELIZABETH STREET, LIVERPOOL

DRAWING TITLE:
CAR PARK REVIEW

GROUND FLOOR
TOYOTA COASTER MINIBUS ACCESS

CLIENT:	**BINAH GROUP**
DRG. #:	**GF-107**
PROJECT #:	**2436A**
SCALE:	**1:300**

REV: **12**

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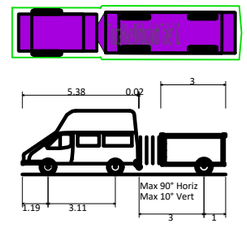
COMMENTS

A3



Toyota HiAce Minibus (with Trailer) V2

Overall Length	9.400m
Overall Width	1.880m
Overall Body Height	2.945m
Min Body Ground Clearance	0.400m
Max Track Width	2.100m
Lock-to-lock time	5.00s
Curb to Curb Turning Radius	6.200m

TYPICAL

Please note the following compliance requirements:

Height Clearance: **2.2m** (min) throughout all areas of the car park accessible to vehicles and bicycles.
2.5m above accessible and shared bays
4.5m wherever access is required for 10.54m substation service vehicle (and safety clearance envelope)

Sight Splays: Visibility splays in the form of a **2.5m x 2m** right-angled triangle to be provided (AS2890.1). Ensure design avoids visual obstructions in sight splay (i.e. dense landscaping, tall fencing/walls etc.)

Parking Spaces: The parking envelopes shown, must be kept clear of all physical obstructions, including height clearance reductions. Ensure that grades within the parking module do not exceed 1:20 (1:40 for accessible bays).

Accessible Spaces: To be designed in accordance with AS2890.6. i.e, standard parking space with adjacent shared bay (2.4m x 5.4m), to be installed as per AS2890.6 requirements (bollard and markings).

Motorcycle Parking: Motorcycle bays to be designed as a 2.5m x 1.2m envelope (AS2890.1).

Bicycle Parking: Bicycle spaces are to allow for a envelope of 500mm by 1800mm, with an aisle width of 2000mm for locker storage, or 1500mm for racks.

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PROJECT:
26 ELIZABETH STREET, LIVERPOOL

DRAWING TITLE:
CAR PARK REVIEW

GROUND FLOOR
TOYOTA HIACE ACCESS

CLIENT:	**BINAH GROUP**
DRG. #:	**GF-108**
PROJECT #:	**2436A**
SCALE:	**1:300**

REV: **12**

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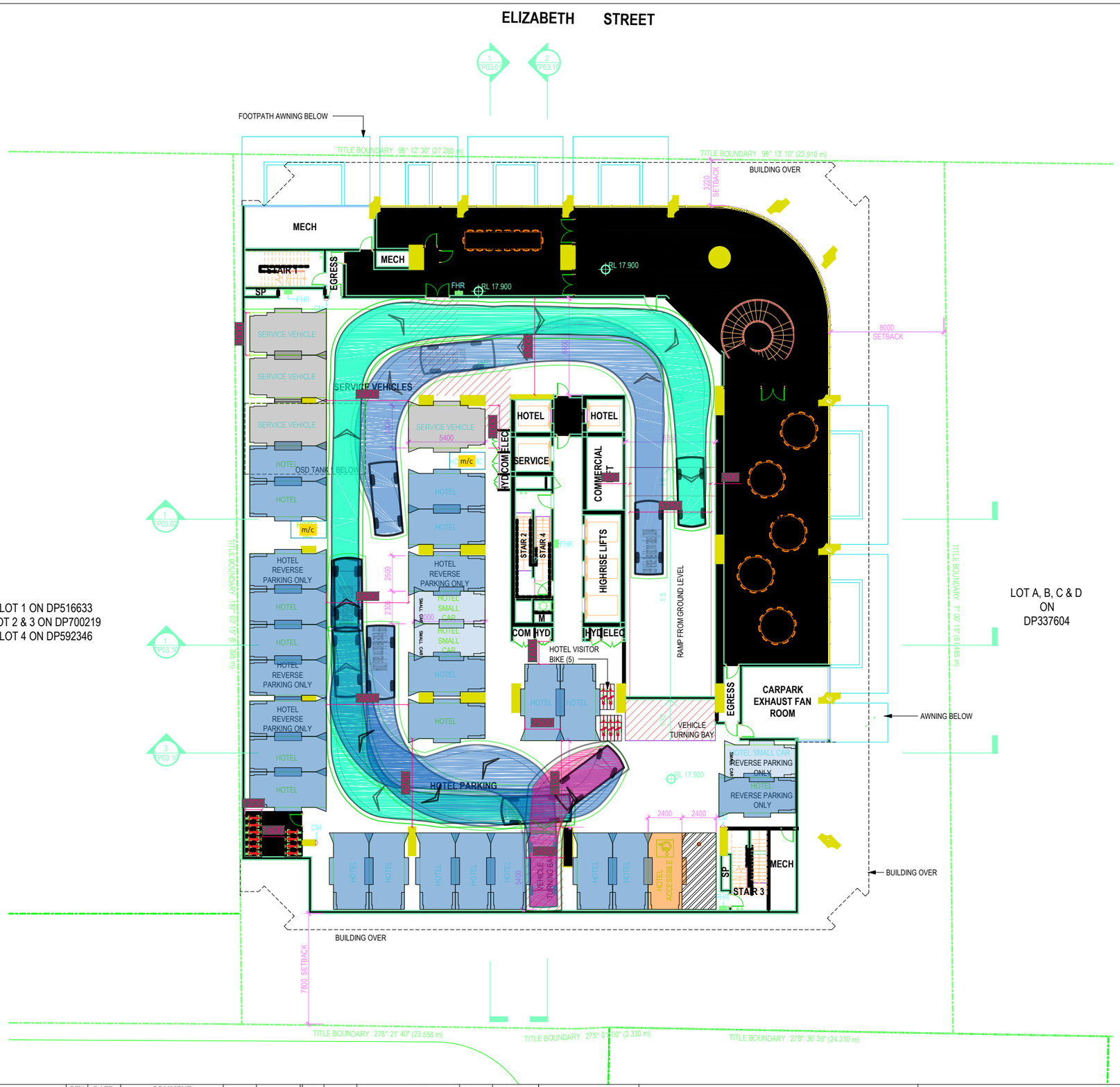

COMMENTS

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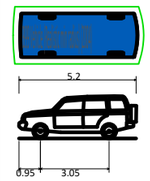
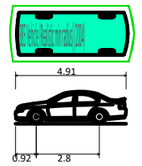


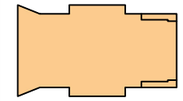
B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.878m
Min Body Ground Clearance	0.272m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m

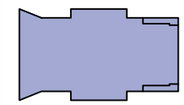


B85 Vehicle (Realistic min radius) (2004)

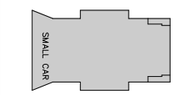
Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.421m
Min Body Ground Clearance	0.159m
Track Width	1.770m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	5.750m



2.4mx 5.4m car space



2.5m x 5.4m car space



2.3m x 5.0m car space

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PROJECT:
26 ELIZABETH STREET, LIVERPOOL

DRAWING TITLE:
CAR PARK REVIEW
LEVEL 1

CLIENT: **BINAH GROUP**
DRG. #: **L1-001**
PROJECT #: **2436A**
SCALE: **1:300**

REV: **12**

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COMMENTS

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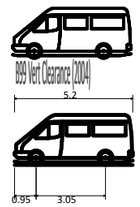
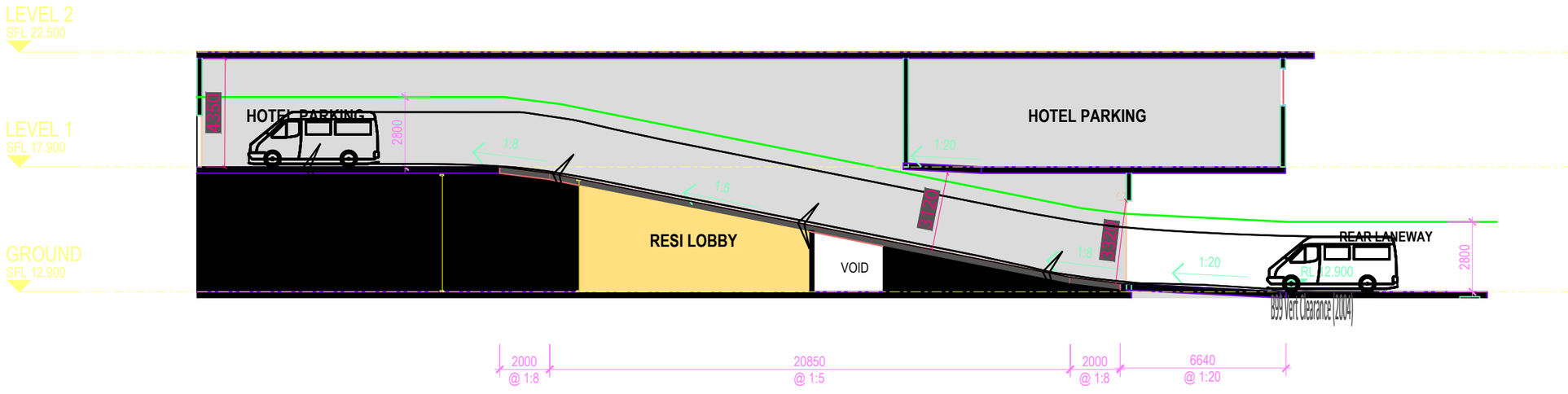


B99 Vert Clearance (2004)	
Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	2.200m
Min Body Ground Clearance	0.120m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	8.000m



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PROJECT:

26 ELIZABETH STREET, LIVERPOOL

DRAWING TITLE:

VERTICAL CLEARANCE ASSESSMENT

SECTION - PODIUM CAR PARK

CLIENT: **BINAH GROUP**

DRG. #: **S-102**

PROJECT #: **2436A**

SCALE: **1:200**

REV: **12**

191119 - ptc. - 26 Elizabeth Street, Liverpool - Car Park Review.dwg

COMMENTS

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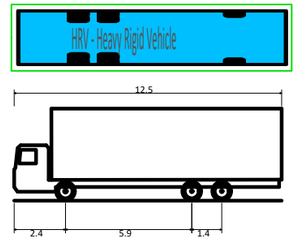

HRV - Heavy Rigid Vehicle	
Overall Length	12.500m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.417m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.500m

NOTE:
The 10.54m substation service vehicle has been modelled using a standard 12.5m HRV for a conservative assessment. It is noted that there is a minor conflict of 10mm at the entry to the loading dock; however, given that the substation service vehicle is a smaller truck, this is considered acceptable.

A HRV has been used to demonstrate manoeuvring only. Largest vehicle permitted to access the loading dock under general operation is a 9.9m Council refuse truck.

ptc.
Suite 102, 506 Miller Street, Cammeray NSW 2062
t +61 2 8920 0800
ptcconsultants.co

REV	DATE	COMMENT	DRAWN	REVIEWED	REV	DATE	COMMENT	DRAWN	REVIEWED
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6	-	NOT ISSUED	-	-					
5	22/08/19	FOR INFORMATION	EL	AU	12	20/11/19	FOR INFORMATION	EL	SW
4	06/08/19	FOR INFORMATION	EL	AU	11	17/10/19	FOR INFORMATION	JJ	AU
3	09/11/18	FOR INFORMATION	HL	AU	10	15/10/19	FOR INFORMATION	SC/HL	AU
2	06/11/18	FOR INFORMATION	HL	AU	9	-	NOT ISSUED	-	-
1	14/09/18	FOR INFORMATION	HL	AU	8	-	NOT ISSUED	-	-

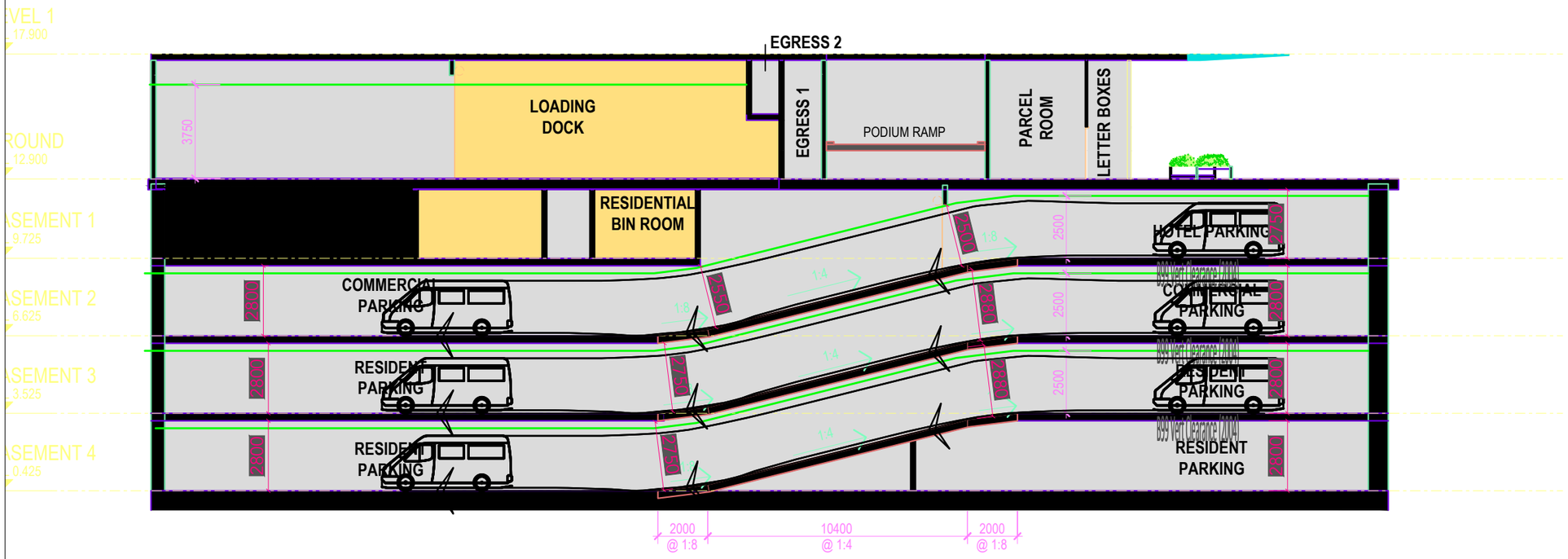
PROJECT:
26 ELIZABETH STREET, LIVERPOOL

DRAWING TITLE:
VERTICAL CLEARANCE ASSESSMENT

SECTION - GROUND FLOOR TO BASEMENT RAMP

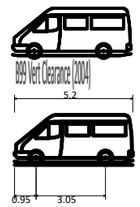
CLIENT: **BINAH GROUP**
DRG. #: **S-103**
PROJECT #: **2436A**
SCALE: **1:200**
REV: **12**

191119 - ptc. - 26 Elizabeth Street, Liverpool - Car Park Review.dwg



COMMENTS

A3



B99 Vert Clearance (2004)	
Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	2.200m
Min Body Ground Clearance	0.120m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	8.000m

ptc.
Suite 102, 506 Miller Street, Cammeray NSW 2062
t +61 2 8920 0800
ptcconsultants.co

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7	-	NOT ISSUED	-	-					
6	-	NOT ISSUED	-	-					
5	22/08/19	FOR INFORMATION	EL	AU	12	20/11/19	FOR INFORMATION	EL	SW
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2	06/11/18	FOR INFORMATION	HL	AU	9	-	NOT ISSUED	-	-
1	14/09/18	FOR INFORMATION	HL	AU	8	-	NOT ISSUED	-	-

PROJECT:
26 ELIZABETH STREET, LIVERPOOL

DRAWING TITLE:
VERTICAL CLEARANCE ASSESSMENT

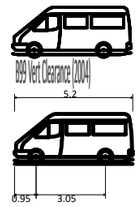
SECTION - BASEMENT CAR PARK

CLIENT: **BINAH GROUP**
DRG. #: **S-104**
PROJECT #: **2436A**
SCALE: **1:200**
REV: **12**

191119 - ptc. - 26 Elizabeth Street, Liverpool - Car Park Review.dwg

COMMENTS

A3



B99 Vert Clearance (2004)	
Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	2.200m
Min Body Ground Clearance	0.120m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	8.000m

ptc.

Suite 102, 506 Miller Street,
Cammeray NSW 2062

t +61 2 8920 0800

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REV	DATE	COMMENT	DRAWN	REVIEWED	REV	DATE	COMMENT	DRAWN	REVIEWED
7	-	NOT ISSUED	-	-					
6	-	NOT ISSUED	-	-					
5	-	NOT ISSUED	-	-	12	20/11/19	FOR INFORMATION	EL	SW
4	06/08/19	FOR INFORMATION	EL	AU	11	17/10/19	FOR INFORMATION	JJ	AU
3	09/11/18	FOR INFORMATION	HL	AU	10	15/10/19	FOR INFORMATION	SC/HL	AU
2	06/11/18	FOR INFORMATION	HL	AU	9	-	NOT ISSUED	-	-
1	-	NOT ISSUED	-	-	8	-	NOT ISSUED	-	-

PROJECT:

26 ELIZABETH STREET, LIVERPOOL

DRAWING TITLE:

VERTICAL CLEARANCE ASSESSMENT

SECTION - PICK-UP/DROP-OFF AREA AND BASEMENT CAR PARK

CLIENT: **BINAH GROUP**

DRG. #: **S-105**

PROJECT #: **2436A**

SCALE: **1:200**

REV: **12**

Attachment 4 Proposed On-street Parking Controls & Left-in/Left-out Access Arrangement

191011 - ptc. - 26 Elizabeth Street, Liverpool - Concept Plans.dwg

ELIZABETH STREET

ELIZABETH STREET

LOSS OF 3 METERED PARKING SPACES (GAIN 2 SPACES WITH THE REINSTATEMENT OF KERB & GUTTER FURTHER TO THE WEST)

(NET LOSS OF 1 METERED PARKING SPACE)

GAIN 2 PARKING SPACES WITH THE REINSTATEMENT OF KERB & GUTTER & REMOVAL OF 'NO STOPPING' ZONE

RECOMMEND INSTALLING ACCESS CONTROL 12M (TO ACCOMODATE BUS & TRAILER) INTO THE LANEWAY UPON ENTRY TO ELIMINATE RAT RUNNING FROM BIGGE STREET

RECOMMEND INSTALLING SIGNAGE ON BOTH SIDES INDICATING "HOTEL ACCESS ONLY"

RECOMMEND INSTALLING A SEPARATION KERB TO RESTRICT RIGHT-TURN MOVEMENTS IN/OUT OF THE PROPOSED LANEWAY

PROPOSED LANEWAY

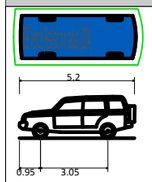
BIGGE STREET

3 STOREY BUILDING

6 STOREY BUILDING

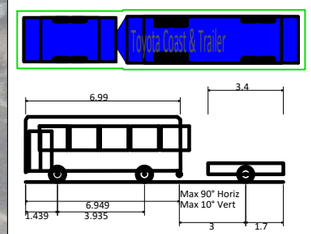
COMMENTS

A3



B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.878m
Min Body Ground Clearance	0.272m
Track Width	1.840m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	6.250m



Toyota Coast & Trailer

Overall Length	11.649m
Overall Width	2.095m
Overall Body Height	2.945m
Min Body Ground Clearance	0.350m
Max Track Width	1.993m
Lock to lock time	5.00s
Wall to Wall Turning Radius	7.200m

EXAMPLE OF A SEPARATION KERB:

REV	DATE	COMMENT	DRAWN	REVIEWED
1	11/10/19	FOR INFORMATION	SC	AU

ptc.
Suite 502, 1 James Place
North Sydney NSW 2060
t +61 2 8920 0800
ptcconsultants.co

PROJECT:
26 ELIZABETH STREET, LIVERPOOL

DRAWING TITLE:
CONCEPT PLAN

HOTEL PICK-UP/DROP-OFF LANEWAY

CLIENT: **BINAH GROUP**
DRG. #: **CP-001**
PROJECT #: **2436A**
SCALE: **1:500**

REV: 1

Attachment 5 Support Letter from Car Share Company

10/01/2020
Attention: Abdullah Uddin
Senior Traffic Engineer
PTC Consultants

Car Sharing for Liverpool

CarShare Australia would like to confirm our support for 3 GoGet carshare vehicles on site at 26 Elizabeth Street, Liverpool. Carsharing offers local residents and businesses access to a fleet of cars parked close to where they live and work for occasional use. The vehicles are parked in a dedicated location, called a pod, and are returned to that spot at the end of each trip.

Carsharing services operate to fill a mobility 'gap' that exists between private car ownership -which is inefficient, expensive and unsustainable- and public transport, walking and cycling - which can generally suit most local transport needs. A carsharing service in this development will increase transport efficiencies in the area and encourage public transport use by residents and the surrounding community.

Carshare pods located within close proximity of key bus corridors and/or train/light rail lines, such as the proposed pod, experience the strongest uptake of carshare users because members enjoy the added convenience of being able to access a carshare to undertake their short-distance errands once alighted from main transport nodes. This is further encouraged by the assurance of a reserved car space (our pods) to return the carshare vehicle before members continue their journeys via the main transport lines again.

For the Liverpool LGA we estimate that 1 carshare vehicle can comfortably replace 10 private vehicles. This is based on available statistical data[1], our membership data and our Annual membership survey data. This number is supported by the NSW land and environment court rulings[2].

With our commitment to subsidise membership for tenants/residents of this development scheme, we expect even higher adoption rates of the service, thus allowing residents to no longer need to own private cars, to by extension to relieve pressure on the limited on-street parking. With these factors we would be supportive of 3 GoGet vehicles on site accessible to all GoGet members, causing this new development to bring a service to the larger Liverpool Community.

[1] *2016 Bureau of Statistics HTS Data*
[2] *2016 Turner Architects v Botany Bay Council*
[2] *2019 Freedom Development Group Pty Ltd v Randwick City Council*
[2] *2019 Arkibis Pty Ltd t/a ARKHAUS v Randwick City Council*

1300 769 389 | 02 8211 5119 | info@goget.com.au | goget.com.au | PO Box 635, Glebe NSW 2037 | ABN: 39 102 892 679

Overall, a car sharing program provides a reliable, convenient and affordable alternative to private car ownership. It has the following advantages:

1. Allows people to live car-free, and businesses to reduce underutilized vehicles;
2. Promotes alternative transport options such as public transport, cycling or walking;
3. Decreases car usage which improves local air quality and promotes local businesses;
4. Removes private cars from local streets and car parks freeing up parking.

Should you require further information please don't hesitate to contact me directly.

Yours sincerely,

Christopher Vanneste PhD
Head of Locations and Partnerships
GoGet CarShare
Chris@goget.com.au
0404 863 228

1300 769 389 | 02 8211 5119 | info@goget.com.au | goget.com.au | PO Box 635, Glebe NSW 2037 | ABN: 39 102 892 679