LDA2023/0323
Proposed Mixed-Use Development

691-695 Victoria Road, Ryde

REVISED TRAFFIC AND PARKING ASSESSMENT REPORT

15 May 2025

Ref 25123

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1. INTRODUCTION

This revised report has been prepared to accompany an amended application to City of Ryde Council for a proposed mixed-use development to be located at 691-695 Victoria Road, Ryde (Figures 1 and 2).

In July 2024, Council refused LDA2023/0323 for the demolition of the existing car dealerships on the site to facilitate the construction of a new mixed-use development, comprising 3 residential flat buildings containing 194 units, a childcare centre accommodating for up to 120 children with 18 staff, and basement car parking.

Following discussions with Council, the design has been amended to address a number of issues.

The report provides details of the amended scheme as well as addresses the traffic & parking matters raised by Council and TfNSW to date. In particular, the proposed design now incorporates the following design changes:

- a new public laneway that is more centrally located, between Building A and Buildings B & C of the site, extending from Blaxland Road, and ultimately providing future vehicular access to the adjoining sites located at 2-8 Hatton Street when/if it is eventually redeveloped

- the new laneway will include a carriageway width of approximately 8.1m, with a pedestrian pathway provided on both sides of the laneway, in accordance with Council's requirements

- a new pedestrian through site link, providing connection between the new laneway and Victoria Road

- *retaining* of the Tallowwood Trees within the site, fronting the Blaxland Road site frontage, in the vicinity of the new public laneway

- access to the subject site's loading and off-street parking area has been redesigned to ensure sufficient queuing space, with roller shutters located *beyond* the childcare centre, visitor and commercial parking areas to provide separation from residential parking areas, as well as a roller shutter door on the ground floor which will remain open *during* business hours, and

- a dedicated loading dock and turntable, located on the ground floor level adjacent to the respective garbage holding areas for residential and commercial components, capable of accommodating Council's 12.5m long waste trucks.

Council have also requested traffic counts be undertaken in Blaxland Road where it intersects with Victoria Road and with Princes Street, with before/after SIDRA modelling undertaken to determine the impact of the development on the classified road network.

The results of the SIDRA analysis confirm that *both* intersections will continue to operate at the same *Levels of Service* under the projected future traffic demands expected to be generated by the development proposal, with *negligible* increases in total average vehicle delays, as discussed later in Chapter 3 of this report.

The proposed development involves the demolition of the existing car dealerships on the site to facilitate the construction of a new mixed-use development, comprising 3 residential flat buildings containing 155 units, 655m^2 of commercial floor space, and a childcare centre accommodating for up to 108 children with 18 staff.

Off-street parking is proposed for a total of 260 cars across four levels, including a new three-level basement car parking area, in accordance with Council's requirements. Vehicular access to the parking facilities is to be provided via a new entry/exit driveway located off the new public laneway extending off Blaxland Road.

The purpose of this revised report is to assess the traffic and parking implications of the development proposal and to that end this report:

- describes the site and provides details of the development proposal

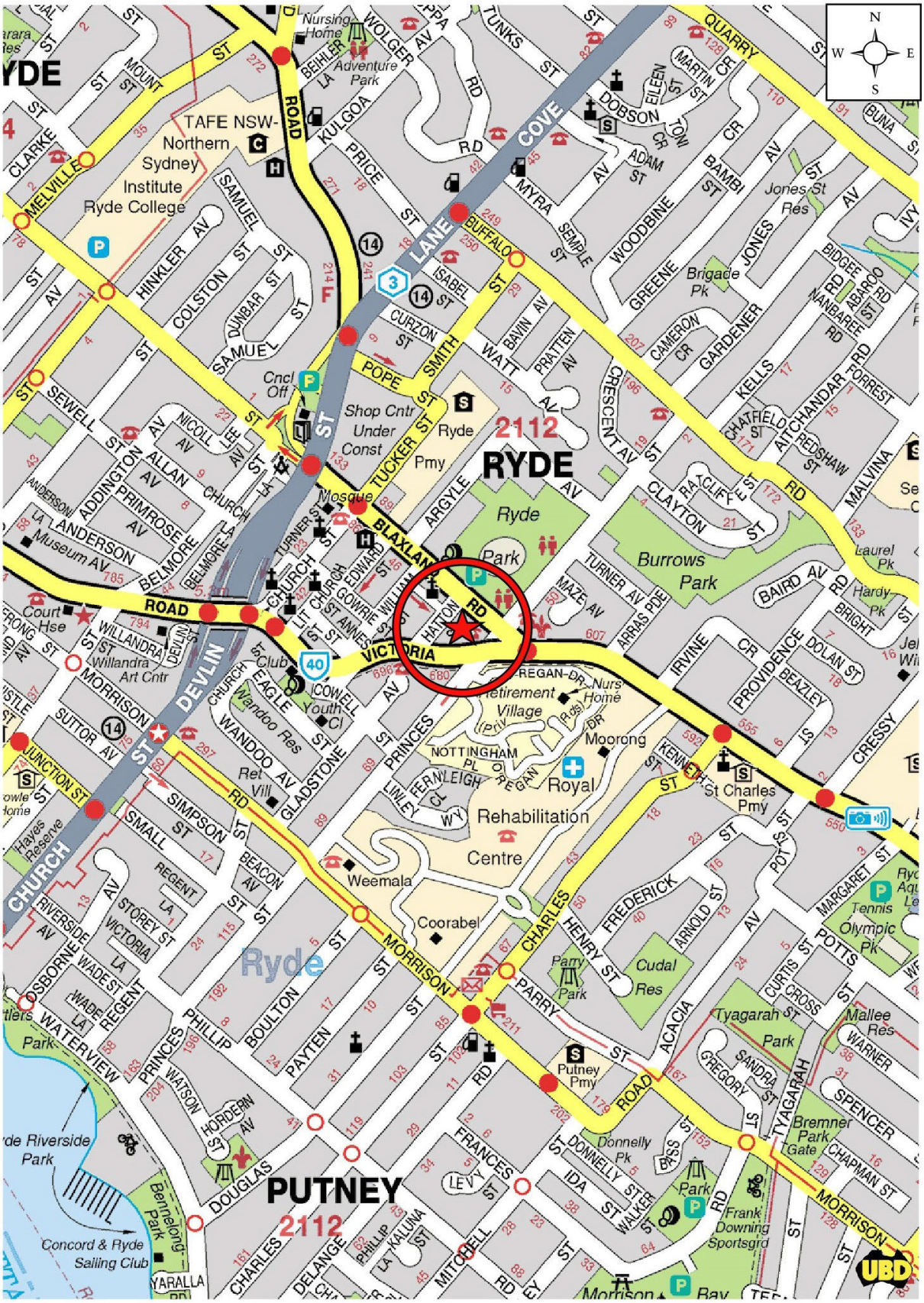
- reviews the road network in the vicinity of the site, and the traffic conditions on that road network

- estimates the traffic generation potential of the development proposal, and assigns that traffic generation to the road network serving the site

- assesses the traffic implications of the development proposal in terms of road network capacity

- reviews the geometric design features of the proposed car parking and loading facilities for compliance with the relevant codes and standards

- assesses the adequacy and suitability of the quantum of off-street car parking and loading provided on the site.



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LOCATION
FIGURE 1

Road Closure / Unformed Road

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SITE
FIGURE 2

2. PROPOSED DEVELOPMENT

Site

The subject site is located on the western corner of the Victoria Road and Blaxland Road intersection. The site is irregular in shape and has street frontages of approximately 101m in length to Victoria Road, and 87m to Blaxland Road, and occupies an area of approximately 6,296.8m^2.

The site is zoned *MU1 Mixed Use* under the *Ryde Local Environmental Plan 2014* and is currently occupied by a number of 1 to 2-storey commercial buildings operating as a car sales and service dealership with associated outdoor car parking spaces and display area. Vehicular access to the site is provided via several entry/exit driveways located off both the Victoria Road and Blaxland Road site frontages.

A recent aerial image of the site and its surroundings is reproduced below.

Source: Nearmap (Dated Thu Apr 3 2025)

The site lies within the "Commercial Edge East Precinct" within Ryde Town Centre, as identified in Council's *City of Ryde Development Control Plan 2014 Part: 4.4 Ryde Town Centre* document, reproduced below.

Figure 4.4.38

Commercial Edge East

Source: City of Ryde Development Control Plan 2014

Proposed Development

The proposed development involves the demolition of the existing car dealerships on the site to facilitate the construction of a new mixed-use development, comprising 3 buildings.

A total of 155 residential units are proposed in the new buildings as follows:

Development Breakdown	
1-bedroom apartments:	51
2-bedroom apartments:	70
3-bedroom apartments:	34
TOTAL APARTMENTS:	**155**

A number of commercial tenancies are proposed on the podium levels of Building A & B, with a cumulative floor area of approximately 643m^2. In addition, a childcare centre is proposed on the podium level of Building B, and seeks to cater for 108 children with 18 staff.

Off-street parking is proposed for a total of 260 cars across four levels, including a new three-level basement car parking area, comprising 190 residential spaces, 31 visitor spaces, 14 childcare visitor spaces, 9 childcare staff spaces, and 16 commercial spaces, as well as an *additional* car wash bay, in accordance with Council's requirements.

Vehicular access to the parking facilities is to be provided via a new entry/exit driveway located off the proposed new public laneway, extending off Blaxland Road, between Buildings A and Buildings B & C on the site. All redundant driveway crossovers will be closed and restored to kerb and gutter.

The new public laneway has been amended and is more centrally located off Blaxland Road, in accordance with Council's recommendations. The new laneway will include a carriageway width of 8.1m and a dedicated pedestrian footpath area of 2m wide along the both sides of the lane.

Loading/servicing for the commercial and childcare tenancies is expected to be undertaken by a variety of light commercial vehicles such as the *Hyundai iLoad* and similar "white vans". These vehicles can be accommodated within a conventional parking space. Deliveries to the childcare centre will be scheduled to arrive *outside* of the peak drop off & pick up periods when the childcare centre visitor car parking spaces are mostly empty.

Garbage collection for the proposed development is expected to be undertaken by a variety of commercial vehicles up to and including Council's 12.5m long garbage trucks. In this regard, a dedicated loading bay is proposed on the ground floor adjacent to the bin holding rooms, configured with a truck turntable, thereby allowing all service vehicles to enter and exit the site in a forward direction at all times.

Vehicular access to the loading bay is to be provided via the abovementioned proposed new public laneway off Blaxland Road.

Plans of the proposed development have been prepared by *CDArchitects* and are reproduced in **Appendix A**.

Proposed Future Public Laneway

Following the recent discussions with Council, a future public laneway is to be located more centrally located off Blaxland Road, between Building A and Buildings B & C.

The proposed laneway will ultimately provide future vehicular access to the adjoining sites located at 2-8 Hatton Street when/if it is eventually redeveloped, in accordance with Council's recommendations.

A continuous pedestrian footpath will be provided on both sides of the future public laneway, ensuring safe pedestrian access from the Blaxland Road site frontage to the proposed development. These footpaths also provide connection to the through site link connecting onto the existing footpaths along Victoria Road and has been designed with appropriate width and surface treatments to ensure accessibility for all users, including those with mobility impairments.

It is also important to note that the city-bound bus stop on Blaxland Road, positioned directly opposite the proposed 'Public Laneway', can be conveniently accessed by pedestrians within a short 160-metre walk via the signalised pedestrian crossings at the Victoria Road/Blaxland Road intersection. Given the proximity and safety of this route, *no* additional pedestrian control measures, such as mid-block crossings or additional signals, are required at this location.

The proposed public laneway has been designed to accommodate the simultaneous passing of B85 and B99 design vehicles, as demonstrated on the attached *swept turning path* diagrams reproduced in **Appendix D**. In addition, the laneway has also been designed to accommodate the simultaneous passing of two 12.5m HRV trucks along the entrance to Blaxland Road.

A roller shutter will be installed at the entrance to the parking area. Given the operational characteristics of the childcare centre and commercial premises, the roller shutter door will *remain* open during business hours to ensure no queuing out onto the future public laneway would arise from vehicles waiting for the control point.

Additional roller shutters will be located *beyond* the childcare centre, commercial and visitor car parking areas to secure the residential car parking areas.

3. TRAFFIC ASSESSMENT

Road Hierarchy

The road hierarchy allocated to the road network in the vicinity of the site by Transport for New South Wales (TfNSW) is illustrated on Figure 3.

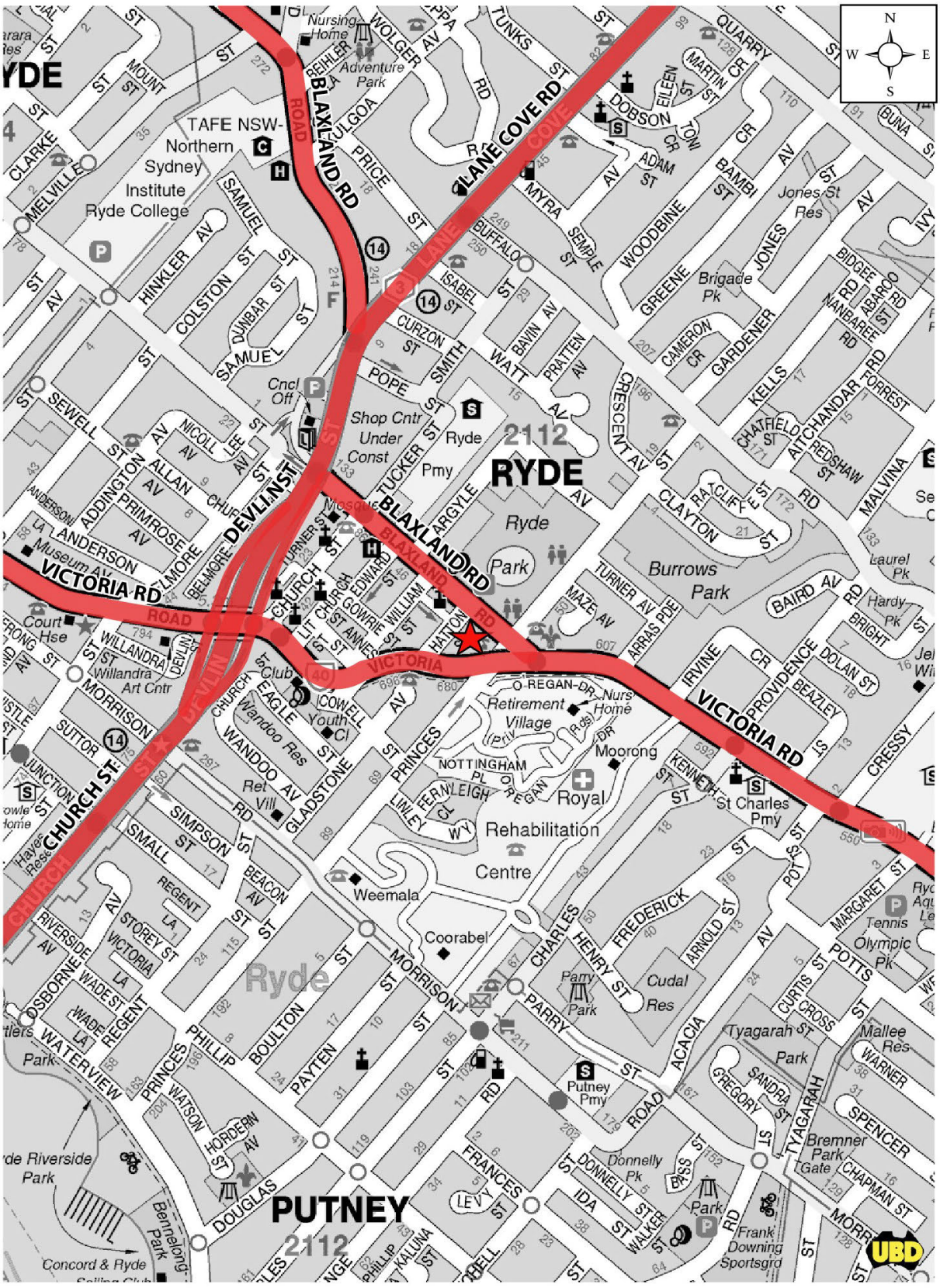
Victoria Road is classified by TfNSW as a *State Road* and provides the key east-west road link in the area, linking the Anzac Bridge in Rozelle in the east to Church Street in Parramatta in the west. It typically carries two to three traffic lanes in each direction separated by a central median island, with turning bays provided at key locations. Clearway restrictions apply to both sides of the road during commuter peak periods.

Blaxland Road is classified by TfNSW as a *State Road* and provides the key north-south road link in the area, linking Epping Road in the north at Epping to Victoria Road in the south at Ryde. It typically carries two traffic lanes in each direction, with additional lanes provided at key locations. Kerbside parking is generally not permitted on both sides of the road during commuter peak periods.

Lane Cove Road / Devlin Street / Church Street is classified by TfNSW as a *State Road* and forms part of the A3 road corridor, linking the A8 Pittwater Road in the north at Mona Vale to the A1 Princes Highway in the south at Blakehurst. It typically carries three traffic lane in each direction separated by a central median island, with turning bays provided at key locations. Clearway restrictions apply to both sides of the road during commuter peak periods.

Princes Street is a local, unclassified road which is primarily used to provide vehicular and pedestrian access to frontage properties. It typically carries one traffic lane in each direction, separated by a central landscaped median island. Kerbside parking is generally permitted on both sides of the road

Hatton Street is local, unclassified road which links Blaxland Road and Victoria Road, and is primarily used to provide vehicular and pedestrian access to frontage properties. Kerbside parking is generally permitted on both sides of the road, subject to signposted restrictions.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E
S
RYDE
2112
PUTNEY
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BLAXLAND RD
VICTORIA RD
LANE COVE RD
CHURCH ST
DEVLIN ST
TAFE NSW-
Northern
Sydney
Institute
Ryde College
Ryde
Park
Burrows
Park
Brigade
Pk
Jones St
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Adventure
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Nursing
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Moorong
Royal
Rehabilitation
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St Charles
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Coorabel
Parry
Park
Cudal
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Putney
Pmy
Tyagarah St
Park
Mallee
Res
Olympic
Pk
Tennis
Bremner
Park
Gate
Donnelly
Pk
Frank
Downing
Sportsgrd
de Riverside
Park
Concord & Ryde
Sailing Club
Bennelong
Park
Key:
State Road
Regional Road
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ROAD HIERARCHY
FIGURE 3

Existing Traffic Controls

The existing traffic controls which apply to the road network in the vicinity of the site are illustrated on Figure 4. Key features of those traffic controls are:

- a 60 km/h SPEED LIMIT which applies to Victoria Road, Blaxland Road, and Devlin Street

- a 50 km/h SPEED LIMIT which applies to Hatton Street, Princes Street and all other local roads in the area

- a 40 km/h SCHOOL ZONE SPEED LIMIT which applies to all roads in the vicinity of Ryde Public School

- TRAFFIC SIGNALS in Blaxland Road where it intersects with Victoria Road, Church Street/Tucker Street, and Devlin Street

- a CENTRALISED MEDIAN ISLAND in Victoria Road which precludes right turn movements to/from side streets/driveways, including Hatton Street

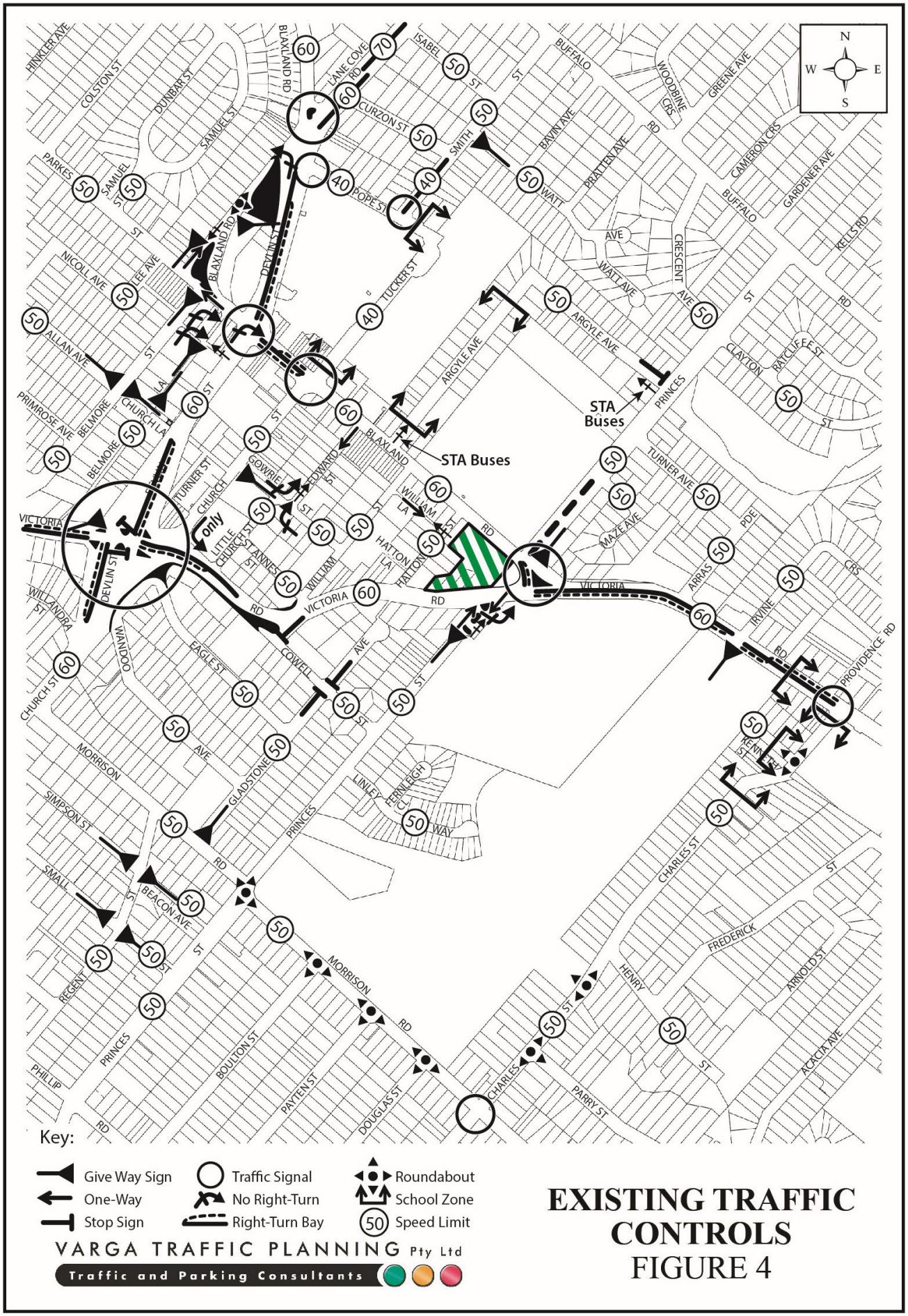
- a ONE WAY eastbound restriction in William Lane

- a GIVE WAY restriction where Princes Street intersects with Blaxland Road

- a 3 TONNE LOAD LIMIT on Hatton Street

- a GRADE SEPARATED SIGNALISED INTERCHANGE at the intersection of Victoria Road and Devlin Street

- RIGHT TURN holding bays at the intersection of Victoria Road and Blaxland Road.


N
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STA Buses
STA Buses
Only
Key:
Give Way Sign
One-Way
Stop Sign
Traffic Signal
No Right-Turn
Right-Turn Bay
Roundabout
School Zone
Speed Limit
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Traffic and Parking Consultants
EXISTING TRAFFIC CONTROLS
FIGURE 4

Existing Public Transport Services

The existing public transport services available in the vicinity of the site are illustrated on Figure 5. There are currently 4 bus routes which operate along Blaxland Road, the 287, 500X, 500N, and 501 bus routes, with the closest bus stops located directly in front of the subject site. In addition, 8 bus routes operate from/through Ryde Town Centre, the 410, 458, 515, 516, 517, 518, 524, and 533 bus routes, with the nearest bus stops located 500m northwest from the subject site.

A summary of those bus services is provided in the table below, revealing that there are approximately 1,092 bus services per day traversing the road network within the vicinity of the site on weekdays, reducing to approximately 804 bus services per day on Saturdays and approximately 716 bus services per day on Sundays and Public Holidays.

Bus Routes and Frequencies							
Route No.	**Route**	**Weekdays**		**Saturday**		**Sunday**	
		IN	**OUT**	**IN**	**OUT**	**IN**	**OUT**
287	Ryde to Milsons Point via St Leonards & North Sydney	3	3	0	0	0	0
410	Macquarie Park to Hurstville	82	75	49	47	48	47
458	Burwood to Ryde	34	33	31	32	16	17
500X	West Ryde to City Hyde Park via Victoria Road (Express Service)	122	129	103	103	101	100
500N	Parramatta to City Hyde Park via Victoria Road (Night Service)	6	7	7	7	5	4
501	Parramatta to Central Pitt St via Victoria Road & Pyrmont	91	87	71	66	63	60
515	Eastwood to Ryde	42	42	29	29	26	26
516	Top Ryde City to Chatswood via North Ryde	44	42	29	29	26	26
517	Macquarie Centre to Ryde via Bridge Rd	19	19	13	13	12	12
518	Macquarie University to Meadowbank Wharf via Ryde	47	47	36	36	34	34
524	Ryde & West Ryde to Parramatta via Melrose Park	3	3	0	0	0	0
533	Sydney Olympic Park to Chatswood via Rhodes & North Ryde	55	57	37	37	30	29
TOTAL		**548**	**544**	**405**	**399**	**361**	**355**

EXISTING PUBLIC TRANSPORT
FIGURE 5

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The abovementioned bus services connect to several key locations including Sydney CBD, Macquarie Shopping Centre, Sydney Olympic Park, Ryde TAFE, as well as several suburban railway stations such as Macquarie Park, Rhodes, Hurstville, Burwood, Eastwood, Meadowbank, West Ryde, and Chatswood Station.

In addition, the site is located within Ryde Town Centre, and is within 400m walking distance to Top Ryde Shopping Centre and Top Ryde Shops, which includes a wide variety of shops and services including licensed clubs, banks, supermarkets, gymnasiums, restaurants, and specialty stores.

The site is therefore considered to be readily accessible to essential services and public transport options, and is therefore ideally located to reduce reliance on private car usage and to encourage increased usage of public transport services.

Existing Traffic Conditions

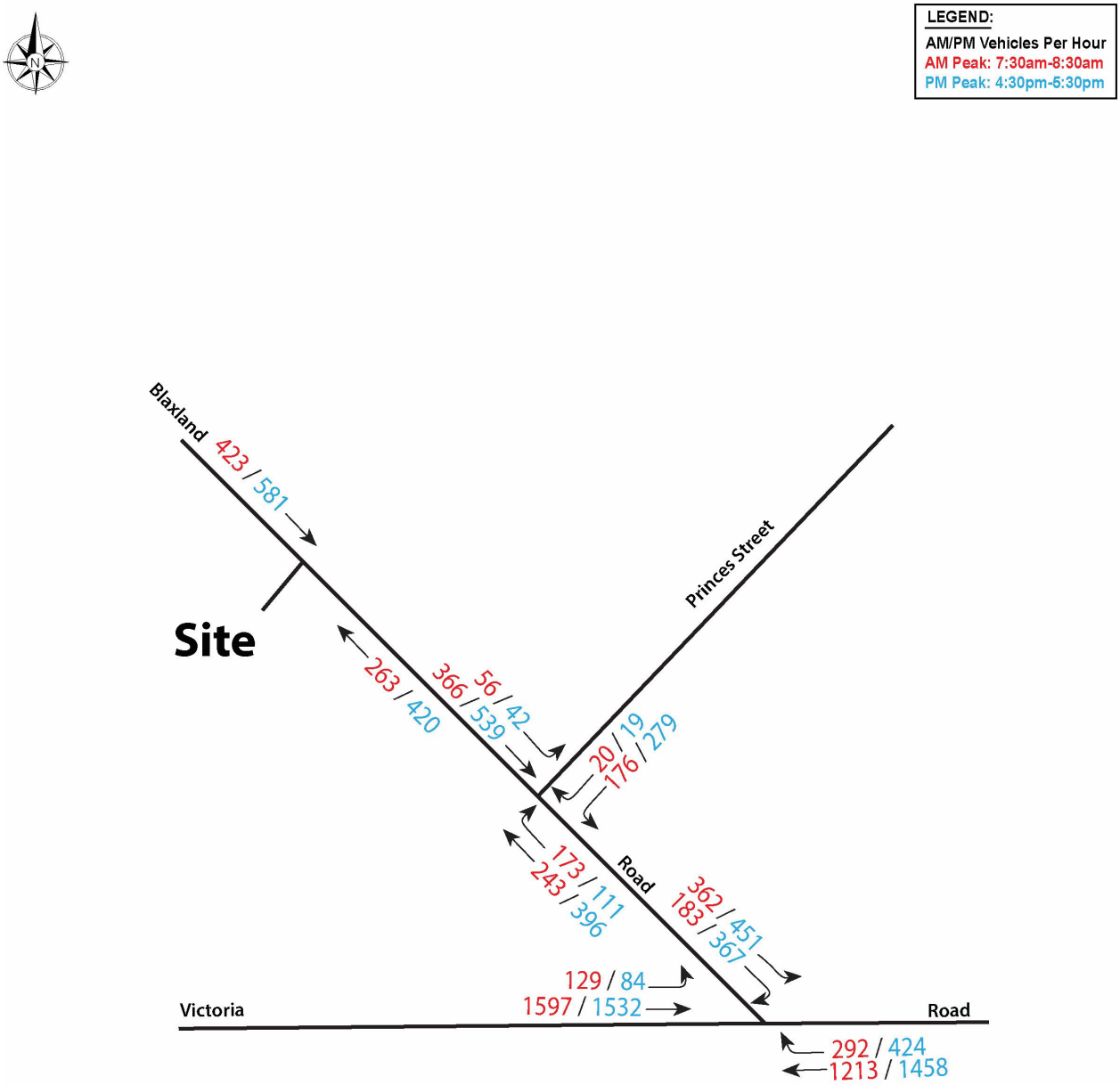
An indication of the existing traffic conditions on the road network in the vicinity of the site is provided by peak period traffic surveys and queue length surveys undertaken as part of this traffic study.

The traffic surveys and queue length surveys were undertaken on Tuesday 21st May 2024 between 7:00am-10:00am and 3:00pm-6:00pm at the following intersections:

- Victoria Road and Blaxland Road
- Blaxland Road and Princes Road

The results of the traffic surveys are reproduced in full in **Appendix B** and are summarised on Figure 6, revealing that:

- the weekday AM network peak period occurred between 7:30am and 8:30am whilst the weekday PM network peak period occurred between 4:30pm and 5:30pm



EXISTING TRAFFIC FLOWS
FIGURE 6

- westbound traffic flows in Victoria Road past the site frontage are typically in the order of 1396 vph during the AM peak period, *increasing* to 1825 vph during the PM peak period

- eastbound traffic flows in Victoria Road past the site frontage are typically in the order of 1726 vph during the AM peak period, *decreasing* to 1616 vph during the PM peak period

- southbound traffic flows in Blaxland Road past the site frontage are typically in the order of 422 vph during the AM peak period, *increasing* to 581 vph during the PM peak period

- northbound traffic flows in Blaxland Road past the site frontage are typically in the order of 263 vph during the AM peak period, *increasing* to 415 vph during the PM peak period

- northbound traffic flows in Princes Street are typically in the order of 229 vph during the AM peak period, *decreasing* to 153 vph during the PM peak period

- southbound traffic flows in Princes Street are typically in the order of 196 vph during the AM peak period, *increasing* to 298 vph during the PM peak period

The results of the queue length surveys are reproduced in full in **Appendix B**.

Of critical importance are the queue length surveys along Blaxland Road from Princes Street, with the longest queues being 7 cars recorded at 8:40AM in the *morning* peak and 5 cars recorded at 5:15PM & 5:30PM in the *afternoon* peak. The longest queue of 7 cars equates to approximately 42m west of Princes Street.

By way of comparison, the proposed future public laneway connecting off Blaxland Road is located 63m west of Princes Street, which is well clear of the longest queue length recorded in the traffic surveys.

Projected Traffic Generation

The traffic implications of a development proposal primarily concern the effects of the *additional* traffic flows generated as a result of a development and its impact on the operational performance of the adjacent road network.

An indication of the traffic generation potential of the development proposal is provided by reference to the Transport for NSWs' publication *Guide to Traffic Generating Developments, Section 3 – Land Use Traffic Generation (October 2002)* and the updated traffic generation rates in the TfNSW *Technical Direction TDT 2013/04a (August 2013)* document.

The *TDT 2013/04a* document notes that it replaces those sections of the TfNSW *Guidelines* indicated, and states that is must be followed when TfNSW is undertaking trip generation and/or parking demand assessments.

The TfNSW *Guidelines* & the updated *TDT 2013/04a* document are based on extensive surveys of a wide range of land uses and nominates the following traffic generation rates which are applicable to the development proposal:

High Density Residential Flat Dwellings

AM: 0.19 peak hour vehicle trips per unit

PM: 0.15 peak hour vehicle trips per unit

Childcare Centres

AM: 0.8 peak hour vehicle trips per child

PM: 0.7 peak hour vehicle trips per child

Office Blocks

AM: 1.6 peak hour vehicle trips per 100m^2 GFA

PM: 1.2 peak hour vehicle trips per 100m^2 GFA

The TfNSW *Guidelines* also make the following observation in respect of high density residential flat buildings:

Definition

A *high density residential flat building* refers to a building containing 20 or more dwellings. This does not include aged or disabled persons housing. *High density residential flat buildings* are usually more than 5 levels, have basement level car parking and are located in close proximity to public transport services. The building may contain a component of commercial use.

Factors

The above rates include visitors, staff, service/delivery and on-street movements such as taxis and pick-up/set-down activities.

Application of the above traffic generation rates to the development proposal yields a traffic generation potential of approximately 126 vehicle trips per hour (vph) during the weekday AM peak period and approximately 107 vph during the weekday PM peak period, as set out below:

Projected Future Traffic Generation Potential

	AM	**PM**
Residential (155 units):	29.5 vph	23.3 vph
Childcare Centre (108 children):	86.4 vph	75.6 vph
Commercial (643m^2):	10.3 vph	7.7 vph
TOTAL TRAFFIC GENERATION POTENTIAL:	**126.2 vph**	**106.6 vph**

That projected future level of traffic generation potential should however, be offset or *discounted* by the volume of traffic which could reasonably be expected to be generated by the existing uses of the site, in order to determine the *nett increase (or decrease)* in traffic generation potential of the site expected to occur as a consequence of the development proposal when compared with the existing development on the site.

The TfNSW *Guidelines* document nominates the following traffic generation rates which are applicable to the existing development on the site:

Motor Showrooms

Peak Hour: 0.7 peak hour vehicle trips per 100m^2 site area

The TfNSW *Guidelines* also make the following observation in respect of motor showrooms:

Definition

A *motor showroom* is a building or place used for the display and sale of motor vehicles, caravans or boats, and where accessories for these items are sold or displayed. Vehicle servicing facilities may be included as part of the development.

Factors

Trip generation rates for motor showrooms vary widely. The above rate is based generally on showrooms with both new and used car sales as well as servicing facilities.

Application of the above traffic generation rates to the 6,296.8m^2 site area yields a traffic generation potential of approximately 44 vph during the weekday AM and PM peak periods.

Accordingly, it is likely that the proposed development will result in a *nett increase* in the traffic generation potential of approximately 82 vph during the weekday AM peak period, and approximately 63 vph during the PM peak period, as set out below:

Projected Nett Increase in Peak Hour Traffic Generation Potential of the site as a consequence of the Development Proposal

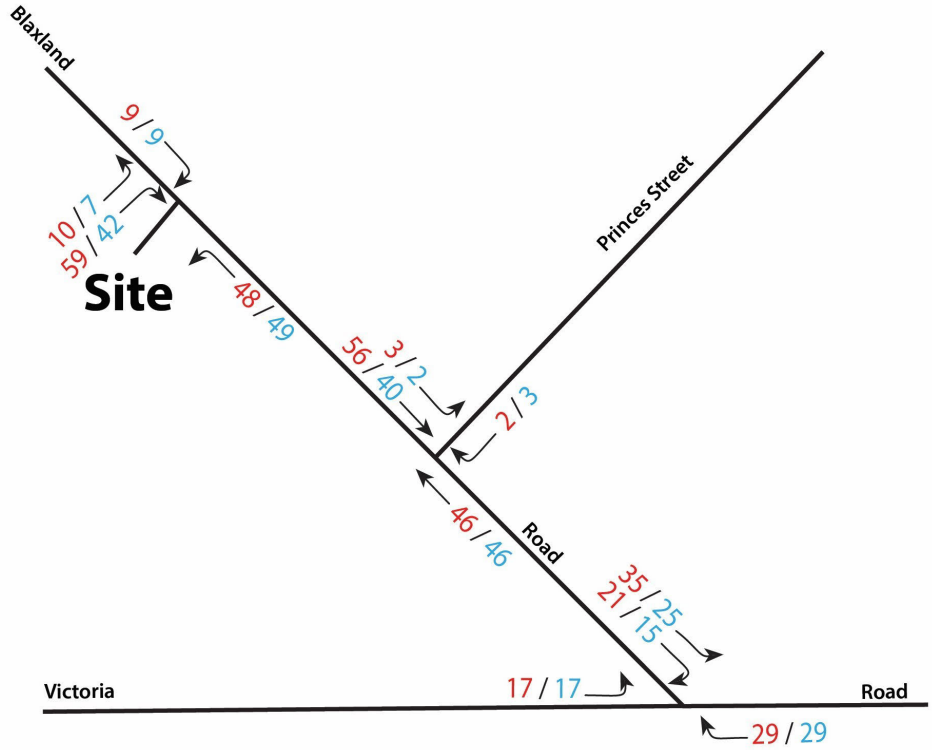
	AM	**PM**
Projected Future Traffic Generation Potential:	126.2 vph	106.6 vph
Less Existing Traffic Generation Potential:	-44.1 vph	-44.1 vph
NETT INCREASE IN TRAFFIC GENERATION POTENTIAL:	**82.1 vph**	**62.5 vph**

However, for the purposes of this assessment, it has been assumed that *all* of the projected future traffic flows of 126 vph during the AM peak period, and 106 vph during the PM peak period will be new or *additional* to the existing traffic flows currently using the adjacent road network.

The distribution of those volumes onto the surrounding road network is shown on Figure 7.

That projected *change* in the traffic generation potential of the site as a consequence of the development proposal is *minimal*, and will clearly not have any unacceptable traffic implications in terms of road network capacity, as is demonstrated in the following section of this report.

LEGEND: AM/PM Vehicles Per Hour



Commercial (643m²)

	AM	PM
IN	8 vph	2 vph
OUT	2 vph	6 vph
TOTAL	10 vph	8 vph

Residential (155 units)

	AM	PM
IN	6 vph	18 vph
OUT	24 vph	5 vph
TOTAL	30 vph	23 vph

Child Care (108 children)

	AM	PM
IN	43 vph	38 vph
OUT	43 vph	38 vph
TOTAL	86 vph	76 vph

Total

	AM	PM
IN	57 vph	58 vph
OUT	69 vph	49 vph
TOTAL	126 vph	107 vph

PROJECTED ADDITIONAL TRAFFIC FLOWS
FIGURE 7

Traffic Implications – Road Network Capacity

The traffic implications of development proposals primarily concern the effects that any *additional* traffic flows may have on the operational performance of the nearby road network. Those effects can be assessed using the SIDRA program which is widely used by TfNSW and many LGA's for this purpose. The SIDRA capacity analysis results revealed that:

Victoria Road / Blaxland Road Intersection

- the intersection currently operates at *Level of Service "B"* during the AM peak period, and at *Level of Service "C"* during the PM peak period under the existing traffic demands with total average vehicle delays in the order of 23-33 seconds/vehicle

- under the projected future traffic demands expected to be generated by the proposed development, the intersection will continue to operate at *Level of Service "B"* during the AM peak period, and at *Level of Service "C"* during the PM peak period, with increases in average vehicle delays of *less than* 1 second/vehicle

Blaxland Road / Princes Street Intersection

- the intersection currently operates at *Level of Service "A"* under the existing traffic demands with total average vehicle delays in the order of 4 seconds/vehicle

- under the projected future traffic demands expected to be generated by the proposed development, the intersection will continue to operate at *Level of Service "A"* during the AM and PM peak period, with increases in average vehicle delays of *less than* 2 seconds/vehicle

The results of the SIDRA analysis at the surrounding intersections are summarised on the table on the following page.

The detailed SIDRA *movements summaries* are reproduced in full in **Appendix C**, with criteria for evaluating the results of the analysis reproduced in the following pages.

SIDRA Modelling Results

Intersection	Key Indicators	Existing Traffic Demand		Projected Additional Traffic Demand	
		AM	PM	AM	PM
Victoria Road & Blaxland Road	LOS	B	C	B	C
	DS	0.669	0.835	0.694	0.868
	AVD	22.6	32.5	24.4	34.9
Blaxland Road & Princes Street	LOS	A	A	A	A
	DS	0.332	0.458	0.400	0.531
	AVD	4.0	4.1	4.1	4.5
Blaxland Road & Proposed Laneway	LOS	-	-	A	A
	DS	-	-	0.242	0.287
	AVD	-	-	1.7	1.5

LOS – Level of Service; DS – Degree of Saturation; AVD – Average Vehicle Delays (secs/veh)

In summary, the SIDRA capacity analysis of the development proposal demonstrates that:

- the development proposal will not have any unacceptable traffic implications in terms of road network capacity

- all intersections will continue to operate at current/satisfactory *Levels of Service*, and

- no road improvements or intersection upgrades are required as a consequence of the development proposal

Criteria for Interpreting Results of Sidra Analysis

1. Level of Service (LOS)

LOS	Traffic Signals and Roundabouts	Give Way and Stop Signs
'A'	Good operation.	Good operation.
'B'	Good with acceptable delays and spare capacity.	Acceptable delays and spare capacity.
'C'	Satisfactory.	Satisfactory but accident study required.
'D'	Operating near capacity.	Near capacity and accident study required.
'E'	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode.	At capacity and requires other control mode.
'F'	Unsatisfactory and requires additional capacity.	Unsatisfactory and requires other control mode.

2. Average Vehicle Delay (AVD)

The AVD provides a measure of the operational performance of an intersection as indicated on the table below which relates AVD to LOS. The AVD's listed in the table should be taken as a guide only as longer delays could be tolerated in some locations (i.e., inner city conditions) and on some roads (i.e., minor side street intersecting with a major arterial route).

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way and Stop Signs
A	less than 14	Good operation.	Good operation.
B	15 to 28	Good with acceptable delays and spare capacity.	Acceptable delays and spare capacity.
C	29 to 42	Satisfactory.	Satisfactory but accident study required.
D	43 to 56	Operating near capacity.	Near capacity and accident study required.
E	57 to 70	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode.	At capacity and requires other control mode.

3. Degree of Saturation (DS)

The DS is another measure of the operational performance of individual intersections.

For intersections controlled by traffic signals[1] both queue length and delay increase rapidly as DS approaches 1, and it is usual to attempt to keep DS to less than 0.9. Values of DS in the order of 0.7 generally represent satisfactory intersection operation. When DS exceeds 0.9 queues can be anticipated.

For intersections controlled by a roundabout or GIVE WAY or STOP signs, satisfactory intersection operation is indicated by a DS of 0.8 or less.

1 *The values of DS for intersections under traffic signal control are only valid for cycle length of 120 secs.*

4. PARKING IMPLICATIONS

Existing Kerbside Parking Restrictions

The existing kerbside parking restrictions which apply to the road network in the vicinity of the site are illustrated on Figure 8 and comprise:

- NO STOPPING and NO PARKING restrictions on both sides of Victoria Road in the vicinity of the site

- CLEARWAY restrictions along both sides of Victoria Road in the vicinity of the site, including along the site frontage

- BUS ZONE on the northern side of Victoria Road in the vicinity of the site

- BUS LANE restrictions along the north side of Victoria Road, east of Blaxland Road, and on the north side of Blaxland Road, east of Hatton Street

- NO STOPPING restrictions on Blaxland Road where it intersects with Victoria Road, Princes Street, Hatton Street, and William Street

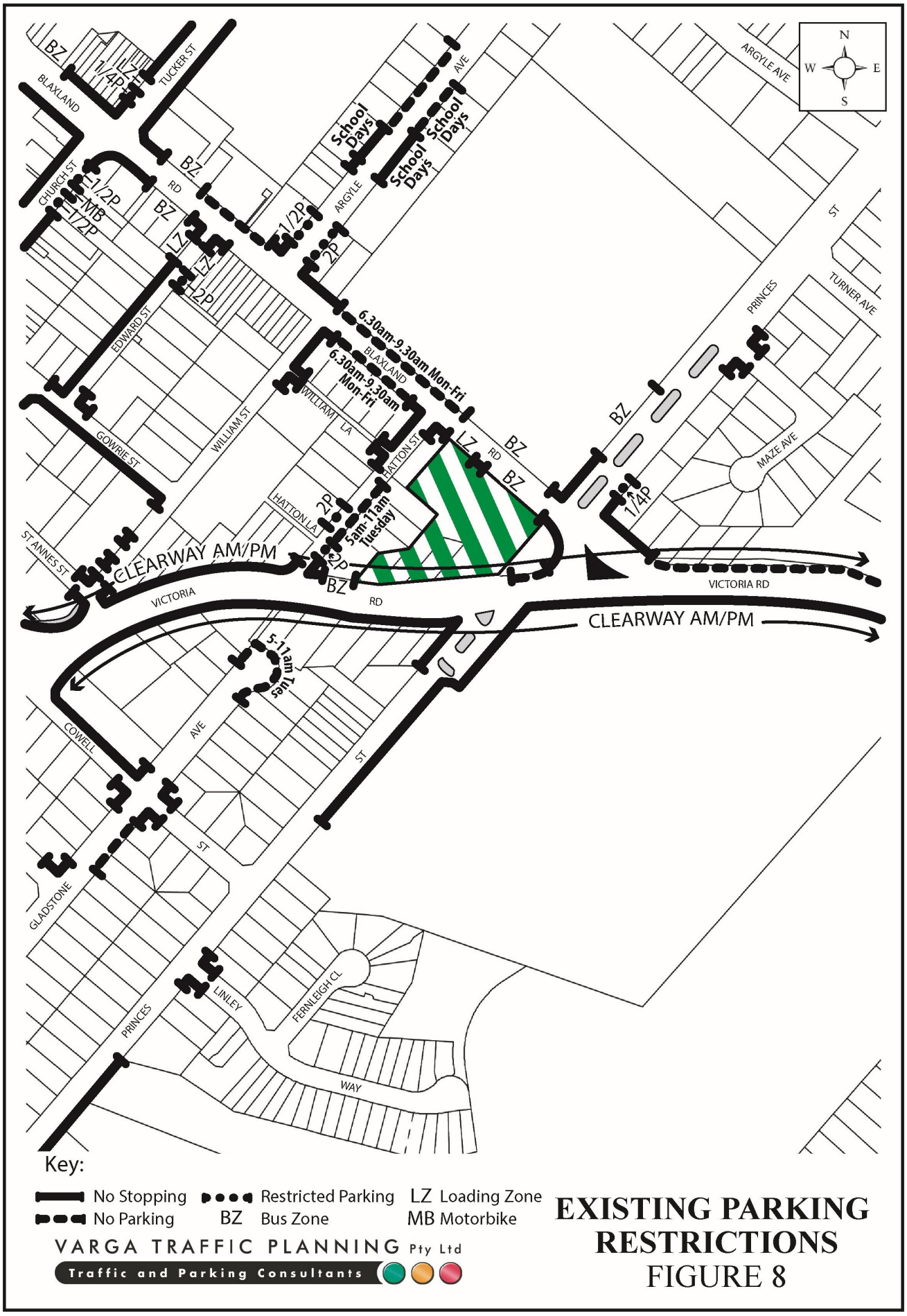
- NO PARKING ($6:30^{AM}$-$9:30^{AM}$) restrictions on both sides of Blaxland Road between Hatton Street and William Street

- BUS ZONES at regular intervals along both sides of Blaxland Road, including along the site frontage

- a LOADING ZONE on the southern side of Blaxland Road in the immediate vicinity of the site

- a BUS ZONE on the western side of Princes Street in close proximity to Blaxland Road

- NO PARKING (5^{AM} – 11^{AM} on Tuesday) restrictions on southern side of Hatton Street.


N
W
E
S
BLAXLAND
TUCKER ST
CHURCH ST
EDWARD ST
GOWRIE ST
WILLIAM ST
WILLIAM LA
HATTON LA
HATTON ST
ARGYLE
ARGYLE AVE
School Days
6.30am-9.30am Mon-Fri
5am-11am Tuesday
5-11am Tues
PRINCES
TURNER AVE
MAZE AVE
ST ANNES ST
VICTORIA
VICTORIA RD
CLEARWAY AM/PM
COWELL
GLADSTONE
LINLEY
FERNLEIGH CL
WAY
BZ
LZ
MB
1/4P
1/2P
2P
Key:
No Stopping
No Parking
Restricted Parking
Bus Zone
LZ Loading Zone
MB Motorbike
VARGA TRAFFIC PLANNING Pty Ltd
Traffic and Parking Consultants
EXISTING PARKING RESTRICTIONS
FIGURE 8

Off-Street Parking Provisions

The off-street car parking requirements applicable to the proposed development are specified in Council's *City of Ryde Council Development Control Plan 2014, Part 9.3 – Parking Controls* document in the following terms:

Residential Development – High Density (Residential Flat Buildings)
0.6 to 1 space / one bedroom dwelling
0.9 to 1.2 spaces / two bedroom dwelling
1.4 to 1.6 spaces / three bedroom dwelling
1 visitor space / five dwellings

Child Care Centres
1 space / 8 children AND
1 space / 2 employees

Office and Business Premises (other than within the Macquarie Park Corridor)
1 space / 40m^2 GFA

Application of the above parking requirements to the various components outlined in the development proposal yields an off-street car parking requirement of 259 spaces, comprising 189 residential spaces, 31 visitor spaces, 14 childcare visitor spaces, 9 childcare staff spaces, and 16 commercial spaces, as set out in the table below:

CUMULATIVE PARKING REQUIREMENTS

Residential (DCP 2014)	**Required**
1-bedroom (51 dwellings):	51.0 spaces
2-bedroom (70 dwellings):	84.0 spaces
3-bedroom (34 dwellings):	54.4 spaces
Visitor (155 dwellings):	31.0 spaces
Sub-Total:	**220.4 spaces**
Non-Residential (DCP 2014)	**Required**
Childcare Centre (108 children):	13.5 spaces
Childcare Centre (18 staff):	9.0 spaces
Commercial (643m^2):	16.1 spaces
Sub-Total	**38.6 spaces**
TOTAL PARKING REQUIRED:	**259.0 spaces**

The proposed development makes provision for a total of 260 cars, comprising 190 residential spaces (including 16 disabled spaces), 31 visitor spaces (including 1 disabled space), 14 childcare visitor spaces (including 1 disabled space), 9 childcare staff spaces, and 16 commercial spaces (including 2 disabled spaces), as well as an *additional* car wash bay, in accordance with Council's *DCP* requirements.

The geometric design layout of the proposed car parking facilities has been designed to comply with the relevant requirements specified in the Standards Australia publication *Parking Facilities Part 1 - Off-Street Car Parking AS2890.1* and *Parking Facilities Part 6 - Off-Street Parking for People with Disabilities AS2890.6* in respect of parking bay dimensions, ramp grades, and aisle widths.

In this regard, a 1.0m wide pathway is also provided at the rear of the childcare drop-off/pick-up spaces, which lead to the childcare centre lift entrance, thereby providing additional safety for pedestrians.

The proposed public laneway has been designed to accommodate the simultaneous passing of B85 and B99 design vehicles, as demonstrated on the attached *swept turning path* diagrams reproduced in **Appendix D**. In addition, the laneway has also been designed to accommodate the simultaneous passing of two 12.5m HRV trucks along the entrance to Blaxland Road.

A roller shutter will be installed at the entrance to the parking area. Given the operational characteristics of the childcare centre and commercial premises, the roller shutter door will *remain* open during business hours to ensure no queuing out onto the future public laneway would arise from vehicles waiting for the control point.

Additional roller shutters will be located *beyond* the childcare centre, commercial and visitor car parking areas to secure the residential car parking areas.

Off-Street Bicycle Parking Provisions

The off-street bicycle parking requirements applicable to the development proposal are also specified in Council's *City of Ryde Council Development Control Plan 2014, Part 9.3 – Parking Controls* document in the following terms:

Bicycle Parking

a. In every new building, where the floor space exceeds 600m^2 GFA (except for dwelling houses and multi unit housing) provide bicycle parking equivalent to 10% of the required car spaces or part thereof.

h. Provide secure bicycle storage in all residential developments where the floor space exceeds 600m^2 GFA except for dwelling houses and multi-unit housing.

Application of the above bicycle parking requirements to the 259 required car spaces in the development proposal yields a bicycle parking requirement of 26 bicycle spaces.

The proposed development makes provision for a total of 30 off-street bicycle spaces, thereby satisfying Council's *DCP* bicycle parking requirements.

The geometric design layout of the proposed bicycle parking facilities has been designed to comply with the relevant requirements specified in the Standards Australia publication *Parking Facilities Part 3 - Bicycle Parking AS2890.3* in respect of bicycle bay dimensions, and aisle widths.

Loading/Servicing Provisions

Loading/servicing for the proposed development is expected to be undertaken by a variety of commercial vehicles such as the *Hyundai iLoad* and similar "white vans", up to and including Council's 12.5m long garbage trucks. In this regard, a dedicated loading bay is proposed on the ground floor, configured with a turntable, adjacent to the bin holding rooms.

The geometric design layout of the proposed loading facilities has been designed to comply with the relevant requirements specified in the Standards Australia publication *Parking Facilities Part 2 - Off-Street Commercial Vehicle Facilities AS2890.2* in respect of loading bay dimensions, garage door opening widths, and service area requirements.

The proposed access driveway and manoeuvring area has been designed to accommodate the swept turning path requirements of these trucks, allowing them to enter and exit the loading dock satisfactorily, as shown in the attached *swept turning path* diagrams in **Appendix D**. Importantly, all vehicles, including trucks, can enter and exit the site in a forward direction.

In addition, *swept turning path* diagrams have also been provided, which are reproduced in **Appendix D**, demonstrating that two 12.5m HRV trucks are able to pass each other along the proposed future public laneway located off Blaxland Road.

5. CONCLUSION

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

- the proposed development will involve the demolition of the existing car dealerships on the site to facilitate the construction of new mixed-use development, comprising 155 residential units, approximately 643m^2 of commercial floor space, and a childcare accommodating for up to 108 kids with 18 staff

- the traffic generation potential of the development will result in a *nett increase* of approximately 82 vph and 63 vph during the AM and PM peak periods respectively based on the rates published in the TfNSW *Guidelines*. This change in traffic generation is consistent with the zoning objectives of the site and will not have any unacceptable traffic implications in terms of road network capacity

- the SIDRA capacity analysis of the nearby intersections located around the perimeter of the site indicate that all intersections will continue to operate satisfactorily at current levels of service under the projected additional traffic demands

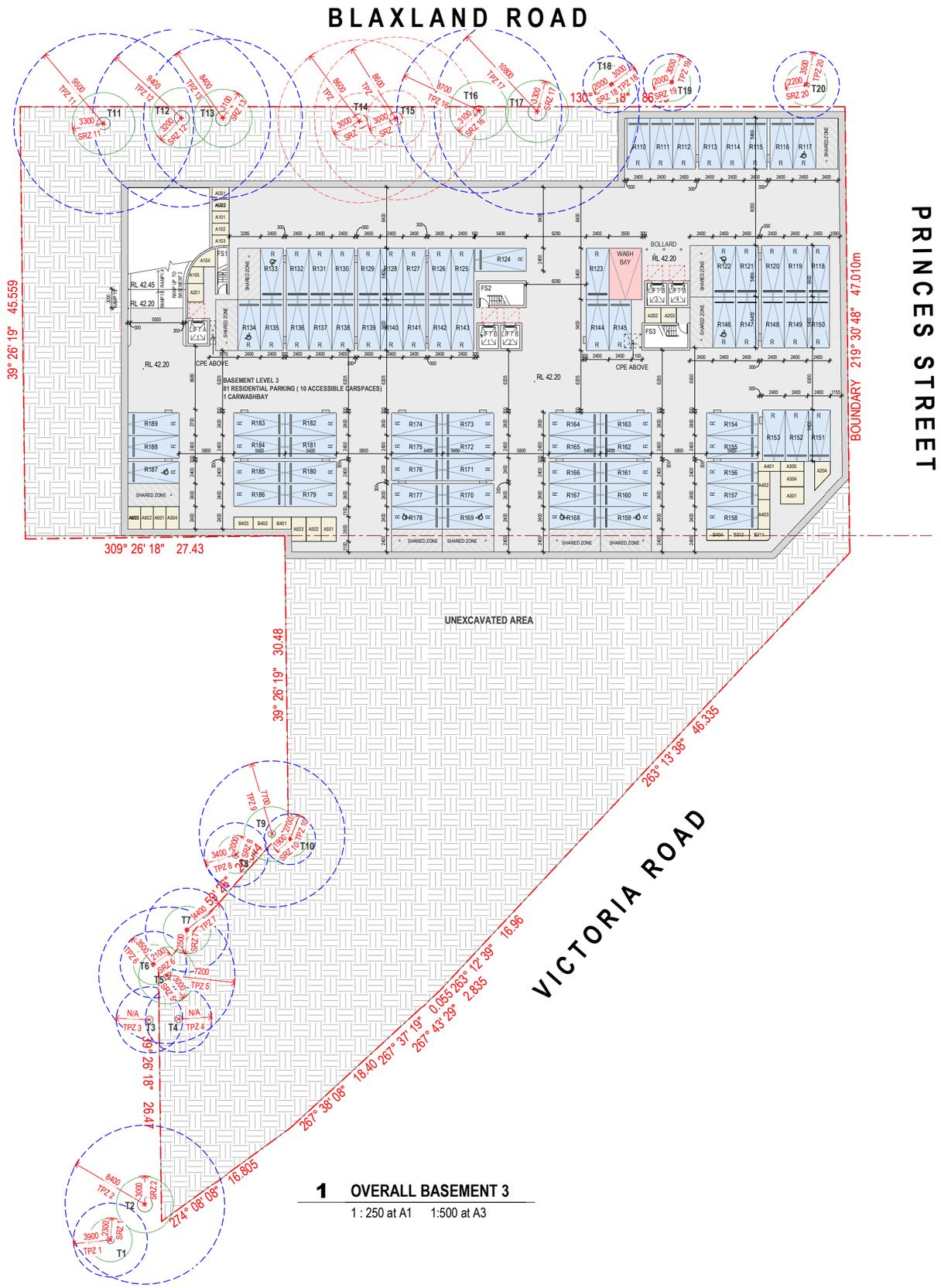
- the parking requirement of the site has been assessed with regards to Council's *DCP*, resulting in a requirement of 259 parking spaces. In response the development provides 260 car parking spaces, comprising 190 residential spaces, 31 visitor spaces, 14 childcare visitor spaces, 9 childcare staff spaces, and 16 commercial spaces, as well as an *additional* car wash bay, thereby satisfying Council *DCP* car parking requirements

- the proposed access and internal design arrangements comply with the relevant requirements specified in the Standards Australia *AS2890* series. In addition, the proposed loading and manoeuvring area will satisfactorily allow Council's 12.5m long waste collection vehicle to enter and exit the site whilst travelling in a forward direction at all times, as demonstrated by the attached *swept turning path* diagrams

It is therefore reasonable to conclude that the proposed development will not have any unacceptable implications in terms of road network capacity, vehicular access or off-street parking/loading requirements.

APPENDIX A

ARCHITECTURAL PLANS



1 OVERALL BASEMENT 3

1 : 250 at A1 1:500 at A3

REFERENCES

ANY VARIATIONS OR DEVIATIONS FROM APPROVED CONSTRUCTION DRAWINGS MUST BE REVIEWED AND APPROVED BY PCA OR NOMINATED CERTIFYING AUTHORITY.

DRAWINGS TO BE READ IN CONJUNCTION WITH BUT NOT LIMITED TO ALL STRUCTURAL ENGINEERS, STORMWATER ENGINEERS, LANDSCAPE ARCHITECTS, FIRE PROTECTION, ESSENTIAL ELECTRICAL SERVICES AND MECHANICAL SERVICES PLANS & OTHER ASSOCIATED PLANS & REPORTS

REFER TO CURRENT BASIX REPORT FOR ADDITIONAL REQUIREMENTS TO ONES NOTED ON PLANS

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TREE LEGEND

- TPZ - TREES TO BE RETAINED
- TPZ - TREES TO BE REMOVED
- SRZ - TREES TO BE RETAINED

PARKING LEGEND

- BICYCLE
- CARWASH
- CHILDCARE
- CHILDCARE STAFF
- COMMERCIAL
- RESIDENTIAL
- VISITOR

CAR PARKING SCHEDULE BY THE RYDE CITY COUNCIL DCP 2014

UNITS (155)	RATE	REQUIRED	PROPOSED
1 BED (51)	1 SPACE / 1 UNIT	51	51
2 BED (70)	1.2 SPACE / 1 UNIT	84	84
3 BED (34)	1.6 SPACE / 1 UNIT	54.4	54
VISITOR (155 UNITS)	1 SPACE / 5 UNITS	31	31
CARWASH BAY	1 SPACE	1	1
TOTAL		221.4	221
CHILDCARE (108 KIDS)			
108 CHILDREN	1 SPACE / 8 CHILDREN	13.5	14
18 STAFFS	1 SPACE / 2 STAFFS	9	9
TOTAL		23	23
COMMERCIAL			
643m²	1 SPACE / 40 m²	16.1	16
GRAND TOTAL		260	260
EV CHARGING	1 SPACE PER 50 CAR SPACES	5.2	6

BICYCLE SCHEDULE FOR MU1 ZONE THE RYDE CITY COUNCIL

UNITS (155)	RATE	REQUIRED	PROPOSED
RESIDENTIAL	10% OF REQUIRED CAR SPACES	26	30
TOTAL		26	30

Rev.	Date	Description
D	22.05.2025	S34 SUBMISSION
C	27.09.2024	GENERAL AMENDMENTS
B	02.09.2024	WP S34 DISCUSSION
A	27.11.2023	DA SUBMISSION

Scale m 0 2.5 5 10 15 20

1:250 at A1 1:500 at A3

Project Architect

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W: www.cdarchitects.com.au

TRUE NORTH

Nominated Architect: Liljana Ermilova 7887, ABN 24 243 205 327

Member Australian Institute of Architects

Project

PROPOSED MIXED USE DEVELOPMENT

691- 695 Victoria Road, Ryde

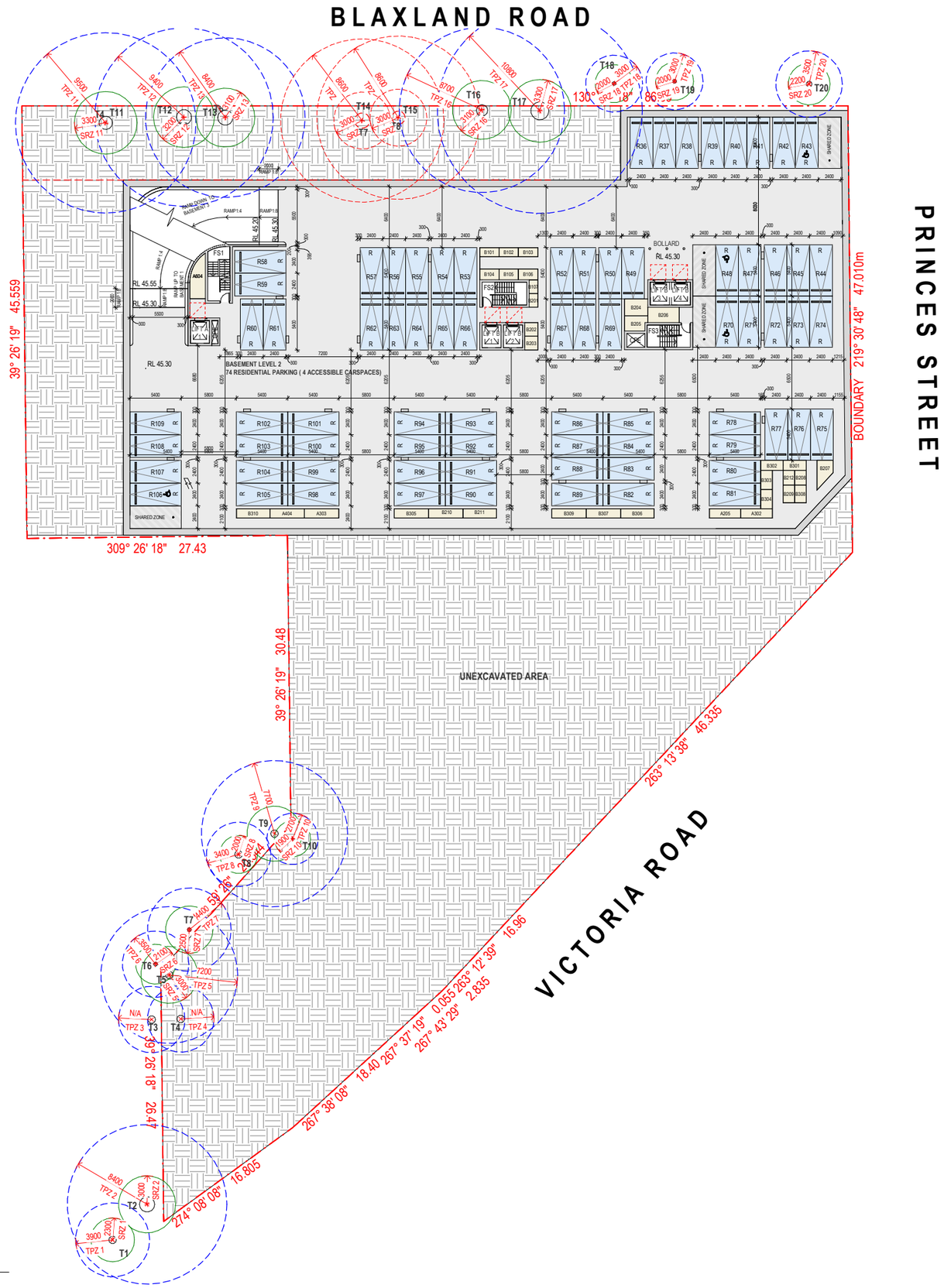
Drawing Title

BASEMENT LEVEL 3 FLOOR PLAN

DA SUBMISSION

Job no.	Drawing no.	Rev.
J23589D	DA 1100	D

Drawn by	Checked by	Approved by	Date
SP	RJ	ZC	AUG. 2024



1 OVERALL BASEMENT 2

1 : 250 at A1 1:500 at A3

REFERENCES

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TREE LEGEND

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- TPZ - TREES TO BE REMOVED
- SRZ - TREES TO BE RETAINED

PARKING LEGEND

- BICYCLE
- CARWASH
- CHILDCARE
- CHILDCARE STAFF
- COMMERCIAL
- RESIDENTIAL
- VISITOR

Rev.	Date	Description
D	22.05.2025	S34 SUBMISSION
C	27.09.2024	GENERAL AMENDMENTS
B	02.09.2024	WP S34 DISCUSSION
A	27.11.2023	DA SUBMISSION

Scale m 0 2.5 5 10 15 20

1:250 at A1 1:500 at A3

CAR PARKING SCHEDULE BY THE RYDE CITY COUNCIL DCP 2014

UNITS (155)	RATE	REQUIRED	PROPOSED
1 BED (51)	1 SPACE / 1 UNIT	51	51
2 BED (70)	1.2 SPACE / 1 UNIT	84	84
3 BED (34)	1.6 SPACE / 1 UNIT	54.4	54
VISITOR (155 UNITS)	1 SPACE / 5 UNITS	31	31
CARWASH BAY	1 SPACE	1	1
TOTAL		221.4	221
CHILDCARE (108 KIDS)			
108 CHILDREN	1 SPACE / 8 CHILDREN	13.5	14
18 STAFFS	1 SPACE / 2 STAFFS	9	9
TOTAL		23	23
COMMERCIAL			
643m²	1 SPACE / 40 m²	16.1	16
GRAND TOTAL		260	260
EV CHARGING	1 SPACE PER 50 CAR SPACES	5.2	6

BICYCLE SCHEDULE FOR MU1 ZONE THE RYDE CITY COUNCIL

UNITS (155)	RATE	REQUIRED	PROPOSED
RESIDENTIAL	10% OF REQUIRED CAR SPACES	26	30
TOTAL		26	30

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TRUE NORTH

Project
PROPOSED MIXED USE DEVELOPMENT

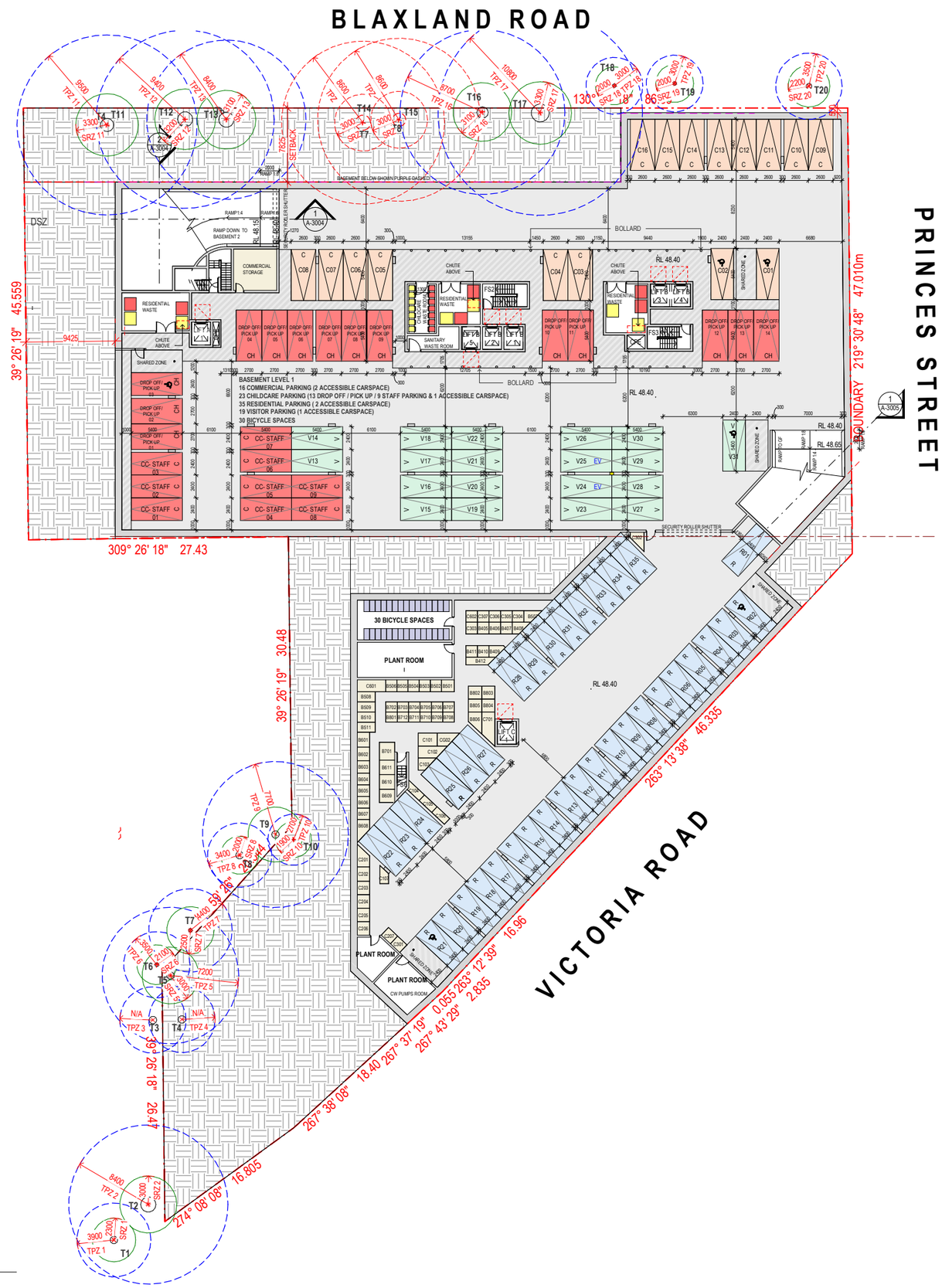
691- 695 Victoria Road, Ryde

Drawing Title
BASEMENT LEVEL 2 FLOOR PLAN

DA SUBMISSION

Job no.	Drawing no.	Rev.
J23589D	DA 1101	D

Drawn by	Checked by	Approved by	Date
SP	RJ	ZC	AUG. 2024



1 OVERALL BASEMENT 1 / BLGC - B2

1 : 250 at A1 1:500 at A3

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- SRZ - TREES TO BE RETAINED

PARKING LEGEND

- BICYCLE
- CARWASH
- CHILDCARE
- CHILDCARE STAFF
- COMMERCIAL
- RESIDENTIAL
- VISITOR

CAR PARKING SCHEDULE BY THE RYDE CITY COUNCIL DCP 2014

UNITS (155)	RATE	REQUIRED	PROPOSED
1 BED (51)	1 SPACE / 1 UNIT	51	51
2 BED (70)	1.2 SPACE / 1 UNIT	84	84
3 BED (34)	1.6 SPACE / 1 UNIT	54.4	54
VISITOR (155 UNITS)	1 SPACE / 5 UNITS	31	31
CARWASH BAY	1 SPACE	1	1
TOTAL		221.4	221
CHILDCARE (108 KIDS)			
108 CHILDREN	1 SPACE / 8 CHILDREN	13.5	14
18 STAFFS	1 SPACE / 2 STAFFS	9	9
TOTAL		23	23
COMMERCIAL			
643m²	1 SPACE / 40 m²	16.1	16
GRAND TOTAL		260	260
EV CHARGING	1 SPACE PER 50 CAR SPACES	5.2	6

BICYCLE SCHEDULE FOR MU1 ZONE THE RYDE CITY COUNCIL

UNITS (155)	RATE	REQUIRED	PROPOSED
RESIDENTIAL	10% OF REQUIRED CAR SPACES	26	30
TOTAL		26	30

Rev.	Date	Description
D	22.05.2025	S34 SUBMISSION
C	27.09.2024	GENERAL AMENDMENTS
B	02.09.2024	WP S34 DISCUSSION
A	27.11.2023	DA SUBMISSION

Scale m 0 2.5 5 10 15 20
1:250 at A1 1:500 at A3

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Member Australian Institute of Architects

Project
PROPOSED MIXED USE DEVELOPMENT

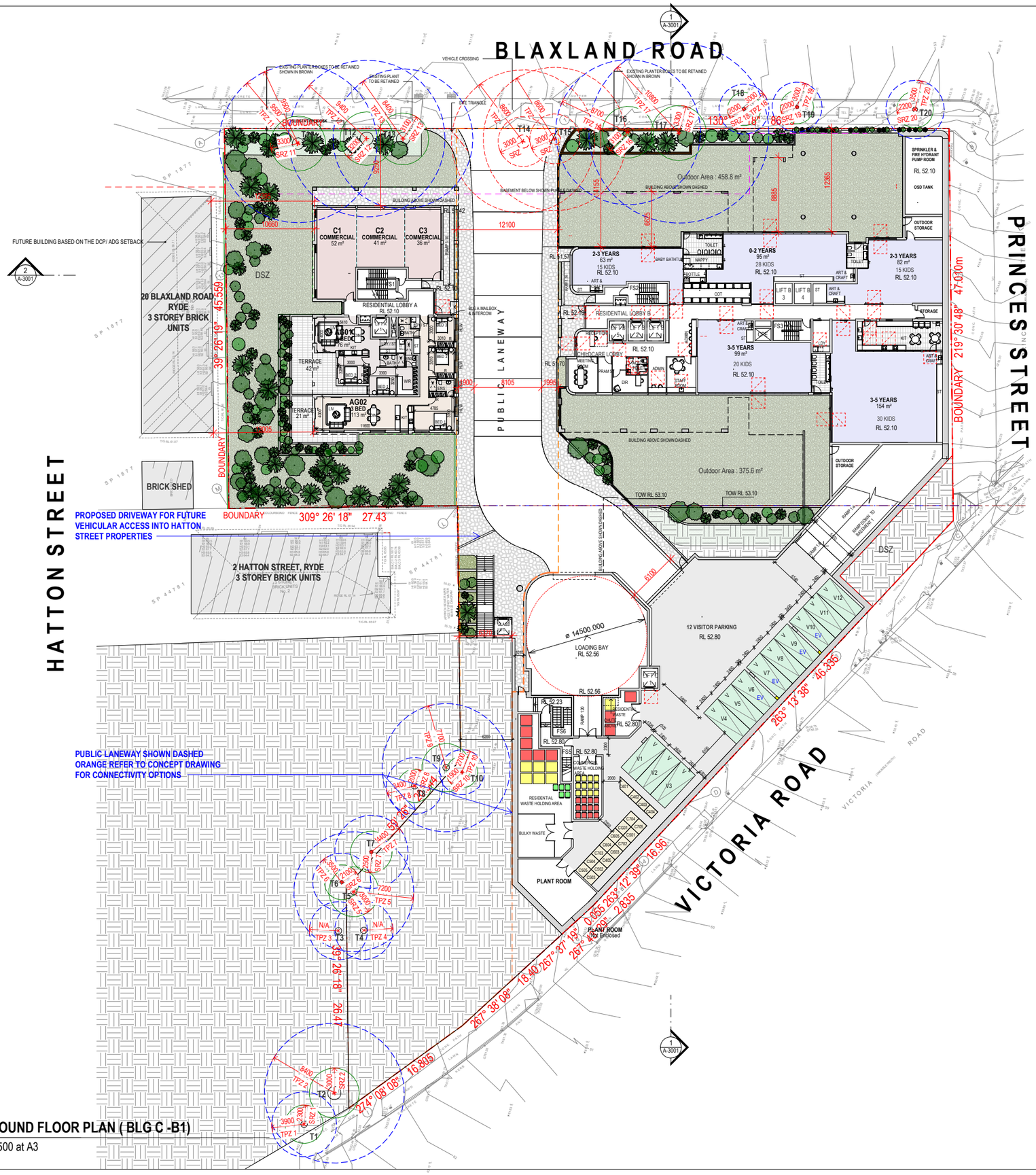
691- 695 Victoria Road, Ryde

Drawing Title
BASEMENT LEVEL 1 FLOOR PLAN

DA SUBMISSION

Job no.	Drawing no.	Rev.
J23589D	DA 1102	D

Drawn by	Checked by	Approved by	Date
SP	RJ	ZC	AUG. 2024



1 OVERALL GROUND FLOOR PLAN (BLG C -B1)

1 : 250 at A1 1:500 at A3

REFERENCES

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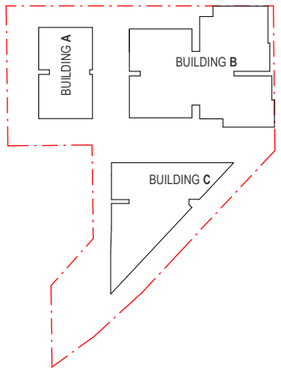

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- SRZ - TREES TO BE RETAINED

PARKING LEGEND

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- CARWASH
- CHILDCARE
- CHILDCARE STAFF
- COMMERCIAL
- RESIDENTIAL
- VISITOR

CAR PARKING SCHEDULE BY THE RYDE CITY COUNCIL DCP 2014

UNITS (155)	RATE	REQUIRED	PROPOSED
1 BED (51)	1 SPACE / 1 UNIT	51	51
2 BED (70)	1.2 SPACE / 1 UNIT	84	84
3 BED (34)	1.6 SPACE / 1 UNIT	54.4	54
VISITOR (155 UNITS)	1 SPACE / 5 UNITS	31	31
CARWASH BAY	1 SPACE	1	1
TOTAL		221.4	221
CHILDCARE (108 KIDS)			
108 CHILDREN	1 SPACE / 8 CHILDREN	13.5	14
18 STAFFS	1 SPACE / 2 STAFFS	9	9
TOTAL		23	23
COMMERCIAL			
643m²	1 SPACE / 40 m²	16.1	16
GRAND TOTAL		260	260
EV CHARGING	1 SPACE PER 50 CAR SPACES	5.2	6

BICYCLE SCHEDULE FOR MU1 ZONE THE RYDE CITY COUNCIL

UNITS (155)	RATE	REQUIRED	PROPOSED
RESIDENTIAL	10% OF REQUIRED CAR SPACES	26	30
TOTAL		26	30

Rev.	Date	Description
D	22.05.2025	S34 SUBMISSION
C	27.09.2024	GENERAL AMENDMENTS
B	02.09.2024	WP S34 DISCUSSION
A	27.11.2023	DA SUBMISSION

Scale m 0 2.5 5 10 15 20

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Member Australian Institute of Architects

Project

PROPOSED MIXED USE DEVELOPMENT

691- 695 Victoria Road, Ryde

Drawing Title

OVERALL GROUND FLOOR PLAN

DA SUBMISSION

Job no.	Drawing no.	Rev.
J23589D	DA 1103	D

Drawn by	Checked by	Approved by	Date
SP	RJ	ZC	AUG. 2024

APPENDIX B

TRAFFIC SURVEY DATA / QUEUE LENGTH SURVEY

TRANS TRAFFIC SURVEY

trafficsurvey.com.au

TURNING MOVEMENT SURVEY

Intersection of Victoria Rd and Blaxland Rd, Ryde

GPS *-33.816541, 151.109430*

Date:	Tue 21/05/24
Weather:	Fine
Suburban:	Ryde
Customer:	N/A

North:	Blaxland Rd
East:	Victoria Rd
South:	N/A
West:	Victoria Rd

Survey Period	AM:	7:00 AM-10:00 AM
	PM:	3:00 PM-6:00 PM
Traffic Peak	AM:	7:30 AM-8:30 AM
	PM:	4:45 PM-5:45 PM

All Vehicles

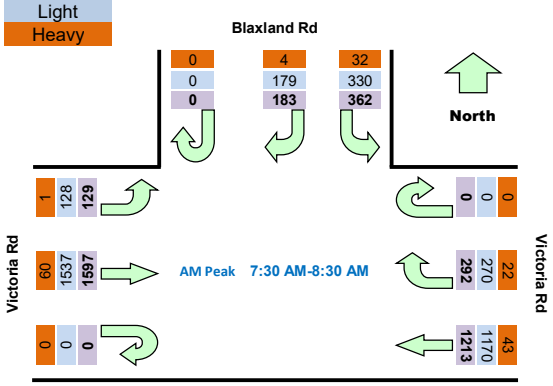
Time		North Approach Blaxland R			East Approach Victoria Rd			West Approach Victoria Rd			Hourly Total	
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	Hour	Peak
7:00	7:15	0	30	72	0	47	239	0	423	16	3622	
7:15	7:30	0	41	85	0	56	325	0	394	25	3676	
7:30	7:45	0	48	85	0	63	309	0	392	33	3776	Peak
7:45	8:00	0	44	95	0	70	310	0	399	21	3753	
8:00	8:15	0	46	80	0	71	282	0	375	27	3678	
8:15	8:30	0	45	102	0	88	312	0	431	48	3598	
8:30	8:45	0	70	92	0	98	279	0	327	41	3368	
8:45	9:00	0	44	95	0	90	272	0	340	23	3223	
9:00	9:15	0	40	79	0	91	250	0	321	20	3122	
9:15	9:30	0	26	77	0	77	223	0	377	16		
9:30	9:45	0	28	84	0	100	240	0	297	13		
9:45	10:00	0	26	90	0	96	228	0	301	22		
15:00	15:15	0	70	111	0	66	320	0	311	18	3640	
15:15	15:30	0	76	96	0	109	326	0	289	25	3715	
15:30	15:45	0	72	79	0	94	354	0	278	26	3846	
15:45	16:00	0	84	92	0	104	334	0	287	19	3960	
16:00	16:15	0	75	101	0	99	381	0	298	17	4106	
16:15	16:30	0	77	103	0	100	355	0	391	26	4193	
16:30	16:45	0	98	115	0	109	346	0	328	21	4316	
16:45	17:00	0	100	108	0	111	347	0	381	19	4367	Peak
17:00	17:15	0	88	109	0	102	371	0	368	20	4290	
17:15	17:30	0	81	119	0	102	394	0	455	24		
17:30	17:45	0	85	111	0	101	371	0	383	17		
17:45	18:00	0	70	108	0	113	304	0	373	21		

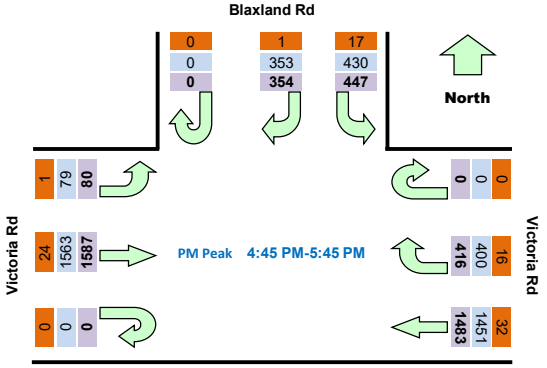
Peak Time		North Approach Blaxland R			East Approach Victoria Rd			West Approach Victoria Rd			Peak
Period Start	Period End	U	R	L	U	R	WB	U	EB	L	total
7:30	8:30	0	183	362	0	292	1213	0	1597	129	3776
16:45	17:45	0	354	447	0	416	1483	0	1587	80	4367

Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.

Graphic

Total
Light
Heavy





Queue

Time Per 5 Min		Queue Length on North Approach				
Period Start	**Period End**	Bus Lane	Left Lane	Extreme Left Lane	Right Lane	Extreme Right Lane
7:00	7:05	2	2	3	3	1
7:05	7:10	0	2	3	3	1
7:10	7:15	2	3	3	3	3
7:15	7:20	2	2	2	3	3
7:20	7:25	1	2	2	3	2
7:25	7:30	0	2	2	3	3
7:30	7:35	2	2	2	3	3
7:35	7:40	2	1	1	4	3
7:40	7:45	2	1	2	3	1
7:45	7:50	0	2	3	4	3
7:50	7:55	0	2	2	1	1
7:55	8:00	2	2	2	3	1
8:00	8:05	1	2	2	3	2
8:05	8:10	3	2	2	3	2
8:10	8:15	2	3	3	3	2
8:15	8:20	2	1	2	3	4
8:20	8:25	1	2	2	4	3
8:25	8:30	2	3	3	3	4
8:30	8:35	1	2	2	5	4
8:35	8:40	2	2	3	3	4
8:40	8:45	2	3	2	4	4
8:45	8:50	2	2	3	4	3
8:50	8:55	2	3	2	4	4
8:55	9:00	1	3	2	3	1
16:50	16:55	2	3	1	4	6
16:55	17:00	2	2	3	4	4
17:00	17:05	2	3	3	3	3
17:05	17:10	0	3	4	3	3
17:10	17:15	2	3	3	3	3
17:15	17:20	1	3	3	4	3
17:20	17:25	0	3	3	4	3
17:25	17:30	2	4	3	3	3
17:30	17:35	0	2	3	3	4
17:35	17:40	2	2	3	3	3
17:40	17:45	0	2	3	3	2
17:45	17:50	1	2	3	3	3
17:50	17:55	2	4	2	3	3
17:55	18:00	0	2	2	3	2

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

trafficsurvey.com.au

Intersection of Blaxland Rd and Princes St, Ryde

GPS	*-33.816158, 151.109287*
Date:	Tue 21/05/24
Weather:	Fine
Suburban:	Ryde
Customer:	N/A

North:	Princes St
East:	Blaxland Rd
South:	Access Driveway
West:	Blaxland Rd

Survey Period	AM:	7:00 AM-10:00 AM
	PM:	3:00 PM-6:00 PM
Traffic Peak	AM:	8:15 AM-9:15 AM
	PM:	4:30 PM-5:30 PM

All Vehicles

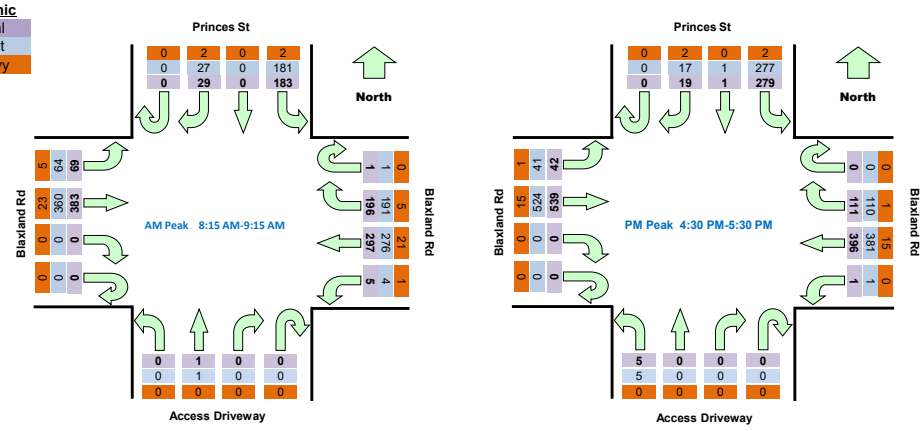
Time		North Approach Princes St				East Approach Blaxland Rd				South Approach Access Driveway				West Approach Blaxland Rd				Hourly Total	
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	Hour	Peak
7:00	7:15	0	10	0	25	0	17	46	0	0	0	0	0	0	0	77	14	906	
7:15	7:30	0	4	0	31	0	30	51	0	0	0	0	0	0	0	95	16	956	
7:30	7:45	0	6	0	43	0	36	60	0	0	0	0	0	1	0	90	11	1040	
7:45	8:00	0	4	0	41	1	31	59	0	0	0	0	0	0	0	97	10	1129	
8:00	8:15	0	5	0	42	2	39	56	1	0	0	0	0	0	0	82	12	1159	
8:15	8:30	0	5	0	50	0	67	68	1	0	0	0	0	0	0	97	23	1164	Peak
8:30	8:45	0	12	0	63	1	67	68	3	0	0	0	0	0	0	98	24	1066	
8:45	9:00	0	7	0	38	0	37	75	1	0	0	1	0	0	0	101	13	975	
9:00	9:15	0	5	0	32	0	25	86	0	0	0	0	0	0	0	87	9	961	
9:15	9:30	0	7	0	25	1	16	74	2	0	0	0	1	0	0	77	10		
9:30	9:45	0	9	0	27	0	23	90	0	0	0	0	0	0	0	85	11		
9:45	10:00	0	12	0	17	0	21	97	0	0	1	0	0	0	1	98	12		
15:00	15:15	0	13	1	49	0	15	69	0	0	0	0	2	0	0	132	20	1231	
15:15	15:30	0	7	0	67	0	33	100	1	0	0	0	0	0	0	105	10	1244	
15:30	15:45	0	7	0	66	0	26	92	2	0	0	0	2	0	0	85	12	1238	
15:45	16:00	0	7	0	69	1	21	101	0	0	2	0	2	0	0	104	8	1305	
16:00	16:15	0	11	0	54	0	21	93	2	0	0	0	0	0	0	122	11	1344	
16:15	16:30	0	3	0	58	0	31	93	2	0	0	0	1	0	0	122	7	1370	
16:30	16:45	0	1	0	72	0	31	99	0	0	0	0	1	0	0	141	14	1393	Peak
16:45	17:00	0	6	0	68	0	28	102	0	0	0	0	1	0	0	140	9	1363	
17:00	17:15	0	6	1	68	0	25	96	1	0	0	0	1	0	0	129	13	1337	
17:15	17:30	0	6	0	71	0	27	99	0	0	0	0	2	0	0	129	6		
17:30	17:45	0	3	0	61	0	24	94	0	0	1	0	1	0	0	134	11		
17:45	18:00	0	6	0	52	0	34	100	0	0	1	0	0	0	1	125	9		

Peak Time		North Approach Princes St				East Approach Blaxland Rd				South Approach Access Driveway				West Approach Blaxland Rd				Peak
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	total
8:15	9:15	0	29	0	183	1	196	297	5	0	0	1	0	0	0	383	69	1164
16:30	17:30	0	19	1	279	0	111	396	1	0	0	0	5	0	0	539	42	1393

Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.

Graphic

Total
Light
Heavy



Queue

Time Per 5 Min		Queue Length on West Approach		
Period Start	**Period End**	Bus Lane	Middle Lane	Right Lane
7:00	7:05	2	0	1
7:05	7:10	0	0	3
7:10	7:15	2	0	3
7:15	7:20	2	0	3
7:20	7:25	0	0	0
7:25	7:30	2	1	4
7:30	7:35	3	0	2
7:35	7:40	6	0	0
7:40	7:45	4	0	2
7:45	7:50	2	4	4
7:50	7:55	2	2	5
7:55	8:00	2	2	3
8:00	8:05	2	0	4
8:05	8:10	2	0	0
8:10	8:15	2	4	2
8:15	8:20	2	0	0
8:20	8:25	2	1	1
8:25	8:30	3	1	4
8:30	8:35	2	2	2
8:35	8:40	2	6	5
8:40	8:45	2	7	5
8:45	8:50	2	0	0
8:50	8:55	2	0	1
8:55	9:00	2	2	2
16:50	16:55	0	0	3
16:55	17:00	0	0	3
17:00	17:05	2	2	2
17:05	17:10	0	3	1
17:10	17:15	0	1	4
17:15	17:20	0	5	3
17:20	17:25	2	2	1
17:25	17:30	2	1	0
17:30	17:35	2	5	4
17:35	17:40	2	2	4
17:40	17:45	2	3	2
17:45	17:50	2	2	3
17:50	17:55	0	1	3
17:55	18:00	0	7	1

APPENDIX C

SIDRA MOVEMENT SUMMARIES

MOVEMENT SUMMARY

Site: 101 [Victoria Rd/Blaxland Rd AM (Site Folder: General)]

Network: N101 [Existing Network AM (Network Folder: General)]

Victoria Rd/Blaxland Rd Intersection
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 130 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Victoria Road														
5	T1	1277	3.5	1277	3.5	0.430	3.6	LOS A	6.9	49.6	0.31	0.28	0.31	56.7
6	R2	307	7.5	307	7.5	* 0.550	41.8	LOS C	9.2	68.5	0.88	0.99	0.88	25.8
Approach		1584	4.3	1584	4.3	0.550	11.0	LOS A	9.2	68.5	0.42	0.42	0.42	50.1
North: Blaxland Road														
7	L2	381	8.8	381	8.8	0.263	29.8	LOS C	4.8	36.3	0.70	0.74	0.70	31.1
9	R2	193	2.2	193	2.2	* 0.669	67.6	LOS E	3.8	27.0	1.00	0.82	1.09	19.5
Approach		574	6.6	574	6.6	0.669	42.5	LOS C	4.8	36.3	0.80	0.77	0.83	25.9
West: Victoria Road														
10	L2	136	0.8	136	0.8	0.649	31.3	LOS C	17.1	122.8	0.79	0.74	0.79	32.2
11	T1	1681	3.8	1681	3.8	* 0.649	26.0	LOS B	17.3	125.0	0.80	0.73	0.80	42.0
Approach		1817	3.5	1817	3.5	0.649	26.4	LOS B	17.3	125.0	0.80	0.73	0.80	41.5
All Vehicles		3975	4.3	3975	4.3	0.669	22.6	LOS B	17.3	125.0	0.65	0.61	0.65	42.2

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Victoria Road											
P2	Full	25	60.2	LOS F	0.0	0.2	0.96	0.96	107.7	61.8	0.57
North: Blaxland Road											
P3	Full	5	60.1	LOS F	0.0	0.0	0.96	0.96	104.5	57.7	0.55
P3B	Slip/ Bypass	25	60.2	LOS F	0.0	0.2	0.96	0.96	85.4	32.8	0.38
All Pedestrians		55	60.2	LOS F	0.0	0.2	0.96	0.96	97.3	48.2	0.50

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 [Blaxland Rd/Princes St AM (Site Folder: General)]

Network: N101 [Existing Network AM (Network Folder: General)]

Blaxland Road/Princes Street intersection
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Blaxland Road														
1a	L1	256	8.6	256	8.6	0.238	2.3	LOS A	0.4	2.8	0.10	0.45	0.10	30.0
3a	R1	182	0.0	182	0.0	0.238	2.4	LOS A	0.4	2.8	0.10	0.45	0.10	53.1
Approach		438	5.0	438	5.0	0.238	2.3	NA	0.4	2.8	0.10	0.45	0.10	49.5
NorthEast: Princes Street														
24a	L1	185	2.8	185	2.8	0.332	4.1	LOS A	0.4	2.8	0.28	0.51	0.28	43.5
26	R2	21	25.0	21	25.0	0.332	19.2	LOS B	0.4	2.8	0.28	0.51	0.28	43.5
Approach		206	5.1	206	5.1	0.332	5.6	LOS A	0.4	2.8	0.28	0.51	0.28	43.5
NorthWest: Blaxland Road														
27	L2	59	5.4	59	5.4	0.144	5.8	LOS A	0.3	2.0	0.30	0.47	0.30	49.5
29a	R1	385	8.2	385	8.2	0.144	4.7	LOS A	0.3	2.0	0.31	0.50	0.31	30.7
Approach		444	7.8	444	7.8	0.144	4.8	NA	0.3	2.0	0.31	0.49	0.31	37.8
All Vehicles		1088	6.2	1088	6.2	0.332	4.0	NA	0.4	2.8	0.22	0.48	0.22	43.9

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

MOVEMENT SUMMARY

Site: 101 [Victoria Rd/Blaxland Rd PM (Site Folder: General)]

Network: N101 [Existing Network PM (Network Folder: General)]

Victoria Rd/Blaxland Rd Intersection
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 130 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Victoria Road														
5	T1	1535	2.9	1535	2.9	0.593	10.1	LOS A	14.7	105.4	0.55	0.50	0.55	51.5
6	R2	446	3.5	446	3.5	* 0.734	48.3	LOS D	12.9	92.9	0.94	1.03	0.94	23.7
Approach		1981	3.0	1981	3.0	0.734	18.7	LOS B	14.7	105.4	0.64	0.62	0.64	44.7
North: Blaxland Road														
7	L2	475	3.5	475	3.5	0.237	19.0	LOS B	4.7	33.6	0.55	0.70	0.55	37.5
9	R2	386	0.3	386	0.3	* 0.824	61.6	LOS E	4.1	29.0	0.95	0.91	1.17	20.7
Approach		861	2.1	861	2.1	0.824	38.1	LOS C	4.7	33.6	0.73	0.79	0.83	27.5
West: Victoria Road														
10	L2	88	1.2	88	1.2	0.835	50.7	LOS D	21.3	151.1	0.98	0.93	1.05	24.3
11	T1	1613	1.8	1613	1.8	* 0.835	45.4	LOS D	21.4	152.0	0.98	0.93	1.05	34.4
Approach		1701	1.8	1701	1.8	0.835	45.7	LOS D	21.4	152.0	0.98	0.93	1.05	34.0
All Vehicles		4543	2.4	4543	2.4	0.835	32.5	LOS C	21.4	152.0	0.78	0.77	0.83	37.0

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Victoria Road											
P2	Full	35	59.2	LOS E	0.0	0.2	0.96	0.96	106.8	61.8	0.58
North: Blaxland Road											
P3	Full	8	59.2	LOS E	0.0	0.1	0.95	0.95	103.5	57.7	0.56
P3B	Slip/ Bypass	35	59.2	LOS E	0.0	0.2	0.96	0.96	84.5	32.8	0.39
All Pedestrians		78	59.2	LOS E	0.0	0.2	0.96	0.96	96.4	48.4	0.50

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 [Blaxland Rd/Princes St PM (Site Folder: General)]

Network: N101 [Existing Network PM (Network Folder: General)]

Blaxland Road/Princes Street intersection
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Blaxland Road														
1a	L1	417	3.8	417	3.8	0.272	2.2	LOS A	0.3	2.1	0.05	0.46	0.05	30.8
3a	R1	117	0.9	117	0.9	0.272	2.3	LOS A	0.3	2.1	0.05	0.46	0.05	53.2
Approach		534	3.2	534	3.2	0.272	2.3	NA	0.3	2.1	0.05	0.46	0.05	46.2
NorthEast: Princes Street														
24a	L1	294	0.7	294	0.7	0.458	4.9	LOS A	0.8	5.6	0.34	0.56	0.39	42.6
26	R2	20	10.5	20	10.5	0.458	28.1	LOS B	0.8	5.6	0.34	0.56	0.39	42.6
Approach		314	1.3	314	1.3	0.458	6.4	LOS A	0.8	5.6	0.34	0.56	0.39	42.6
NorthWest: Blaxland Road														
27	L2	44	2.4	44	2.4	0.146	5.5	LOS A	0.3	2.1	0.24	0.48	0.24	50.1
29a	R1	567	2.8	567	2.8	0.146	4.5	LOS A	3.3	23.9	0.24	0.49	0.24	31.5
Approach		612	2.8	612	2.8	0.146	4.5	NA	3.3	23.9	0.24	0.48	0.24	36.0
All Vehicles		1459	2.6	1459	2.6	0.458	4.1	NA	3.3	23.9	0.19	0.49	0.20	41.5

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

MOVEMENT SUMMARY

Site: 101 [Victoria Rd/Blaxland Rd AM (Site Folder: General)]

Network: N101 [Proposed Network AM (Network Folder: General)]

Victoria Rd/Blaxland Rd Intersection
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 130 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Victoria Road														
5	T1	1276	3.5	1276	3.5	0.438	4.2	LOS A	7.4	53.7	0.33	0.31	0.33	56.2
6	R2	340	6.8	340	6.8	* 0.597	43.9	LOS D	10.1	74.9	0.89	1.00	0.89	25.1
Approach		1616	4.2	1616	4.2	0.597	12.6	LOS A	10.1	74.9	0.45	0.45	0.45	48.9
North: Blaxland Road														
7	L2	422	8.0	422	8.0	0.274	28.0	LOS B	5.2	38.8	0.68	0.74	0.68	32.0
9	R2	217	1.9	217	1.9	* 0.694	65.9	LOS E	4.1	29.0	0.99	0.83	1.10	19.8
Approach		639	5.9	639	5.9	0.694	40.9	LOS C	5.2	38.8	0.79	0.77	0.82	26.5
West: Victoria Road														
10	L2	155	0.7	155	0.7	0.688	33.8	LOS C	18.2	130.3	0.83	0.78	0.83	30.8
11	T1	1681	3.8	1681	3.8	* 0.688	28.6	LOS C	18.4	132.9	0.84	0.77	0.84	40.7
Approach		1836	3.5	1836	3.5	0.688	29.1	LOS C	18.4	132.9	0.84	0.77	0.84	40.2
All Vehicles		4091	4.2	4091	4.2	0.694	24.4	LOS B	18.4	132.9	0.68	0.64	0.68	41.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Victoria Road											
P2	Full	25	60.2	LOS F	0.0	0.2	0.96	0.96	107.7	61.8	0.57
North: Blaxland Road											
P3	Full	5	60.1	LOS F	0.0	0.0	0.96	0.96	104.5	57.7	0.55
P3B	Slip/ Bypass	25	60.2	LOS F	0.0	0.2	0.96	0.96	85.4	32.8	0.38
All Pedestrians		55	60.2	LOS F	0.0	0.2	0.96	0.96	97.3	48.2	0.50

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 [Blaxland Rd/Princes St AM (Site Folder: General)]

Network: N101 [Proposed Network AM (Network Folder: General)]

Blaxland Road/Princes Street intersection
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Blaxland Road														
1a	L1	307	7.2	307	7.2	0.264	2.3	LOS A	0.4	3.0	0.09	0.45	0.09	30.1
3a	R1	182	0.0	182	0.0	0.264	2.4	LOS A	0.4	3.0	0.09	0.45	0.09	53.1
Approach		489	4.5	489	4.5	0.264	2.3	NA	0.4	3.0	0.09	0.45	0.09	48.9
NorthEast: Princes Street														
24a	L1	185	2.8	185	2.8	0.400	4.1	LOS A	0.4	3.1	0.27	0.50	0.27	42.9
26	R2	24	21.7	24	21.7	0.400	23.0	LOS B	0.4	3.1	0.27	0.50	0.27	42.9
Approach		209	5.0	209	5.0	0.400	6.3	LOS A	0.4	3.1	0.27	0.50	0.27	42.9
NorthWest: Blaxland Road														
27	L2	63	5.0	63	5.0	0.142	5.7	LOS A	0.2	1.8	0.30	0.47	0.30	49.5
29a	R1	449	7.0	449	7.0	0.142	4.7	LOS A	0.3	2.6	0.31	0.50	0.31	30.7
Approach		513	6.8	513	6.8	0.142	4.8	NA	0.3	2.6	0.31	0.49	0.31	37.5
All Vehicles		1212	5.6	1212	5.6	0.400	4.1	NA	0.4	3.1	0.21	0.48	0.22	43.2

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.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Site/Blaxland Rd AM (Site Folder: General)]

Network: N101 [Proposed Network AM (Network Folder: General)]

Site/Blaxland Road Intersection
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Blaxland Road														
21	L2	56	0.0	56	0.0	0.093	5.2	LOS A	0.0	0.0	0.00	0.20	0.00	12.0
22	T1	277	9.9	277	9.9	0.093	0.0	LOS A	0.0	0.0	0.00	0.08	0.00	58.7
Approach		333	8.2	333	8.2	0.093	0.9	NA	0.0	0.0	0.00	0.10	0.00	49.8
NorthWest: Blaxland Road														
28	T1	445	7.8	445	7.8	0.083	0.1	LOS A	0.0	0.3	0.02	0.01	0.02	59.5
29	R2	11	0.0	11	0.0	0.083	7.1	LOS A	0.0	0.3	0.08	0.04	0.08	48.4
Approach		456	7.6	456	7.6	0.083	0.2	NA	0.0	0.3	0.02	0.01	0.02	59.2
SouthWest: Site														
30	L2	13	0.0	13	0.0	0.242	4.9	LOS A	0.4	2.5	0.59	0.79	0.64	40.9
32	R2	69	0.0	69	0.0	0.242	15.4	LOS B	0.4	2.5	0.59	0.79	0.64	13.1
Approach		82	0.0	82	0.0	0.242	13.7	LOS A	0.4	2.5	0.59	0.79	0.64	22.5
All Vehicles		871	7.1	871	7.1	0.242	1.7	NA	0.4	2.5	0.07	0.12	0.07	52.7

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.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Victoria Rd/Blaxland Rd PM (Site Folder: General)]

Network: N101 [Proposed Network PM (Network Folder: General)]

Victoria Rd/Blaxland Rd Intersection
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 130 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Victoria Road														
5	T1	1535	2.9	1535	2.9	0.593	10.1	LOS A	14.7	105.4	0.55	0.50	0.55	51.5
6	R2	480	3.3	480	3.3	* 0.774	50.2	LOS D	14.4	103.4	0.95	1.05	0.98	23.2
Approach		2015	3.0	2015	3.0	0.774	19.6	LOS B	14.7	105.4	0.64	0.63	0.65	44.1
North: Blaxland Road														
7	L2	502	3.4	502	3.4	0.246	18.6	LOS B	4.9	35.2	0.54	0.70	0.54	37.8
9	R2	402	0.3	402	0.3	* 0.869	67.0	LOS E	4.1	29.0	0.95	0.95	1.27	19.6
Approach		904	2.0	904	2.0	0.869	40.1	LOS C	4.9	35.2	0.72	0.81	0.86	26.8
West: Victoria Road														
10	L2	108	1.0	108	1.0	0.864	55.0	LOS D	22.7	160.9	0.99	0.97	1.11	23.0
11	T1	1613	1.8	1613	1.8	* 0.864	49.7	LOS D	22.8	162.2	1.00	0.98	1.11	33.1
Approach		1721	1.8	1721	1.8	0.864	50.0	LOS D	22.8	162.2	1.00	0.98	1.11	32.6
All Vehicles		4640	2.3	4640	2.3	0.869	34.9	LOS C	22.8	162.2	0.79	0.80	0.86	35.9

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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Victoria Road											
P2	Full	35	59.2	LOS E	0.0	0.2	0.96	0.96	106.8	61.8	0.58
North: Blaxland Road											
P3	Full	8	59.2	LOS E	0.0	0.1	0.95	0.95	103.5	57.7	0.56
P3B	Slip/ Bypass	35	59.2	LOS E	0.0	0.2	0.96	0.96	84.5	32.8	0.39
All Pedestrians		78	59.2	LOS E	0.0	0.2	0.96	0.96	96.4	48.4	0.50

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 [Blaxland Rd/Princes St PM (Site Folder: General)]

Network: N101 [Proposed Network PM (Network Folder: General)]

Blaxland Road/Princes Street intersection
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Blaxland Road														
1a	L1	471	3.4	471	3.4	0.299	2.2	LOS A	0.3	2.2	0.05	0.46	0.05	30.9
3a	R1	117	0.9	117	0.9	0.299	2.4	LOS A	0.3	2.2	0.05	0.46	0.05	53.2
Approach		587	2.9	587	2.9	0.299	2.3	NA	0.3	2.2	0.05	0.46	0.05	45.6
NorthEast: Princes Street														
24a	L1	294	0.7	294	0.7	0.531	6.3	LOS A	1.2	8.2	0.37	0.63	0.52	40.8
26	R2	23	9.1	23	9.1	0.531	34.1	LOS C	1.2	8.2	0.37	0.63	0.52	40.8
Approach		317	1.3	317	1.3	0.531	8.4	LOS A	1.2	8.2	0.37	0.63	0.52	40.8
NorthWest: Blaxland Road														
27	L2	47	2.2	47	2.2	0.162	5.5	LOS A	0.3	2.2	0.24	0.48	0.24	50.1
29a	R1	611	2.6	611	2.6	0.162	4.5	LOS A	4.1	29.2	0.25	0.49	0.25	31.5
Approach		658	2.6	658	2.6	0.162	4.5	NA	4.1	29.2	0.25	0.48	0.25	35.9
All Vehicles		1562	2.4	1562	2.4	0.531	4.5	NA	4.1	29.2	0.20	0.50	0.23	40.5

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

MOVEMENT SUMMARY

Site: 101 [Site/Blaxland Rd PM (Site Folder: General)]

Network: N101 [Proposed Network PM (Network Folder: General)]

Site/Blaxland Road Intersection
Site Category: (None)
Give-Way (Two-Way)

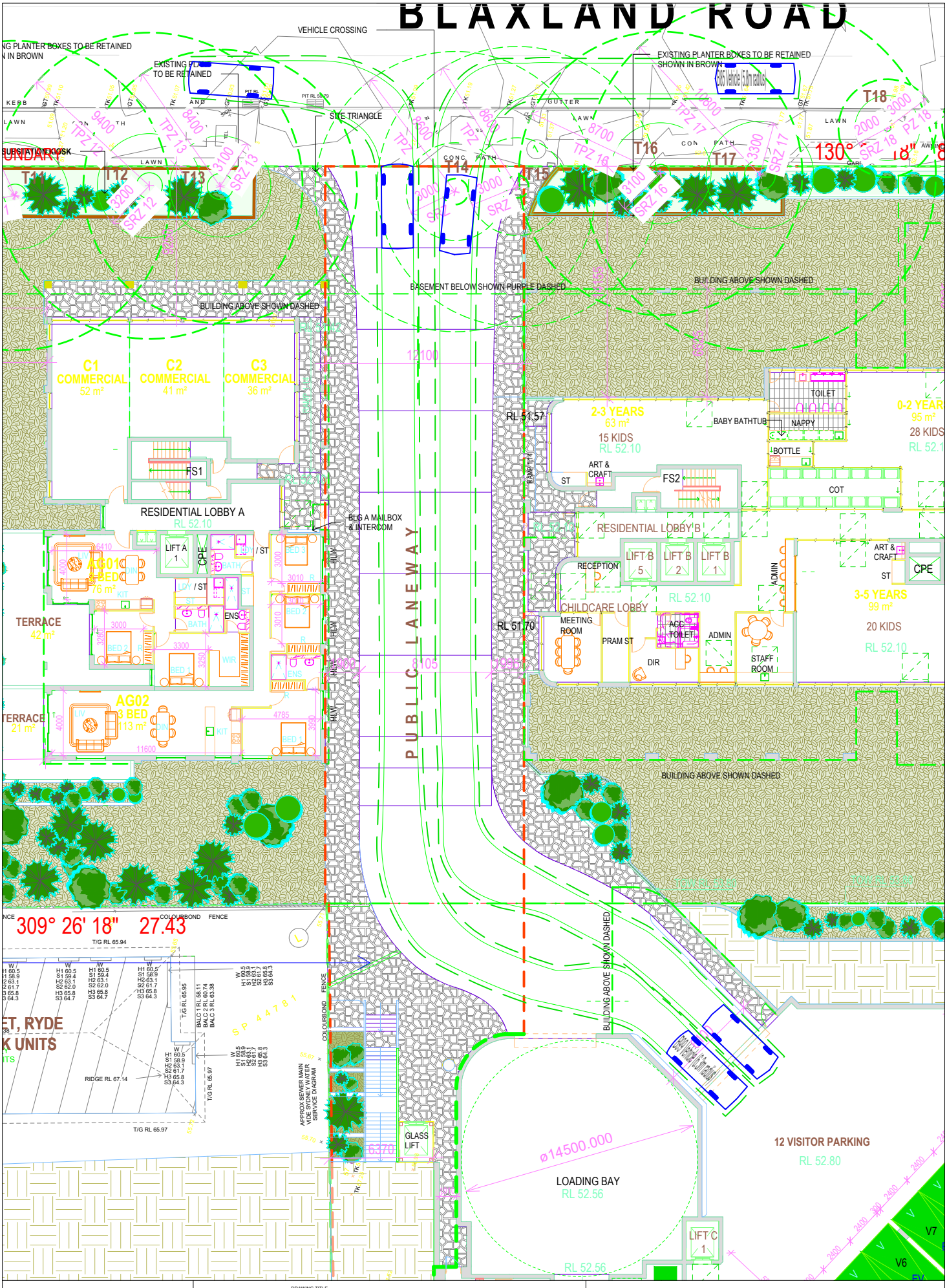
Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Blaxland Road														
21	L2	58	0.0	58	0.0	0.135	5.2	LOS A	0.0	0.0	0.00	0.14	0.00	12.1
22	T1	437	4.1	437	4.1	0.135	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	59.0
Approach		495	3.6	495	3.6	0.135	0.6	NA	0.0	0.0	0.00	0.07	0.00	52.7
NorthWest: Blaxland Road														
28	T1	612	2.8	612	2.8	0.111	0.1	LOS A	0.1	0.4	0.03	0.01	0.03	59.5
29	R2	12	0.0	12	0.0	0.111	8.2	LOS A	0.1	0.4	0.08	0.04	0.08	48.4
Approach		623	2.7	623	2.7	0.111	0.3	NA	0.1	0.4	0.03	0.01	0.03	59.2
SouthWest: Site														
30	L2	9	0.0	9	0.0	0.287	6.8	LOS A	0.4	2.8	0.77	0.89	0.89	34.0
32	R2	47	0.0	47	0.0	0.287	27.2	LOS B	0.4	2.8	0.77	0.89	0.89	8.4
Approach		57	0.0	57	0.0	0.287	23.8	LOS B	0.4	2.8	0.77	0.89	0.89	16.1
All Vehicles		1175	3.0	1175	3.0	0.287	1.5	NA	0.4	2.8	0.05	0.08	0.06	54.2

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.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

APPENDIX D

SWEPT TURNING PATH DIAGRAMS



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www.vargatraffic.com.au
Sydney, Australia

PROJECT
MIXED USE DEVELOPMENT

N

DRAWING TITLE
B99 & B85 TURNING PATHS
Entering/Exiting Site Access Driveway

1:300 @ A4

ADDRESS
691-695 Victoria Road, Ryde

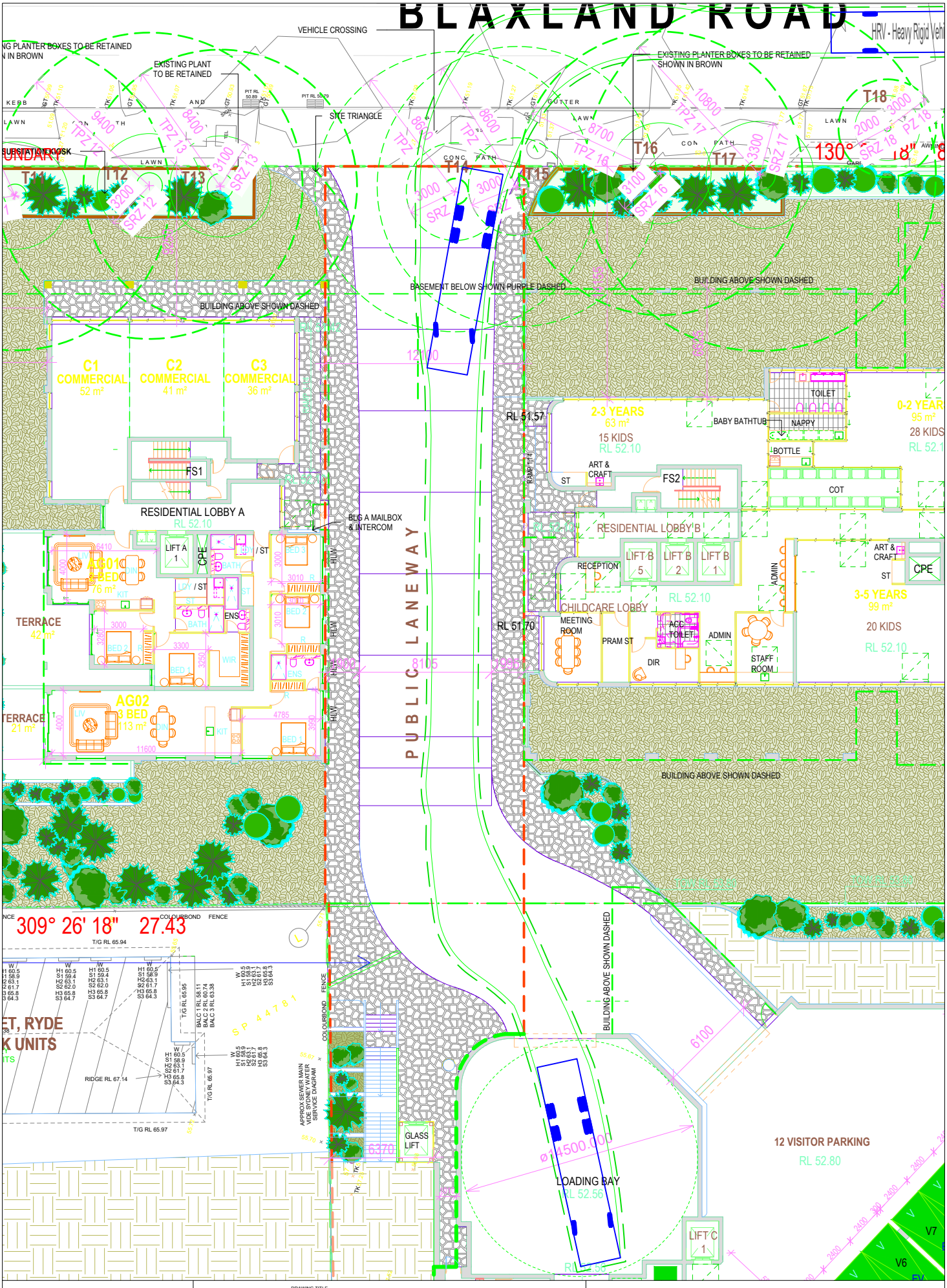
PROJECT NO.
25123

DATE DRAWN
2025-5-15

REVIEWED
ROBERT VARGA

PREPARED
ZACHARY CAI

VARGA TRAFFIC PLANNING Pty Ltd
Transport, Traffic and Parking Consultants



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Neutral Bay, NSW 2089
www.vargatraffic.com.au
Sydney, Australia

PROJECT
MIXED USE DEVELOPMENT

DRAWING TITLE
12.5M HRV TURNING PATHS
Entering Loading Bay Area

1:300 @ A4

ADDRESS
691-695 Victoria Road, Ryde

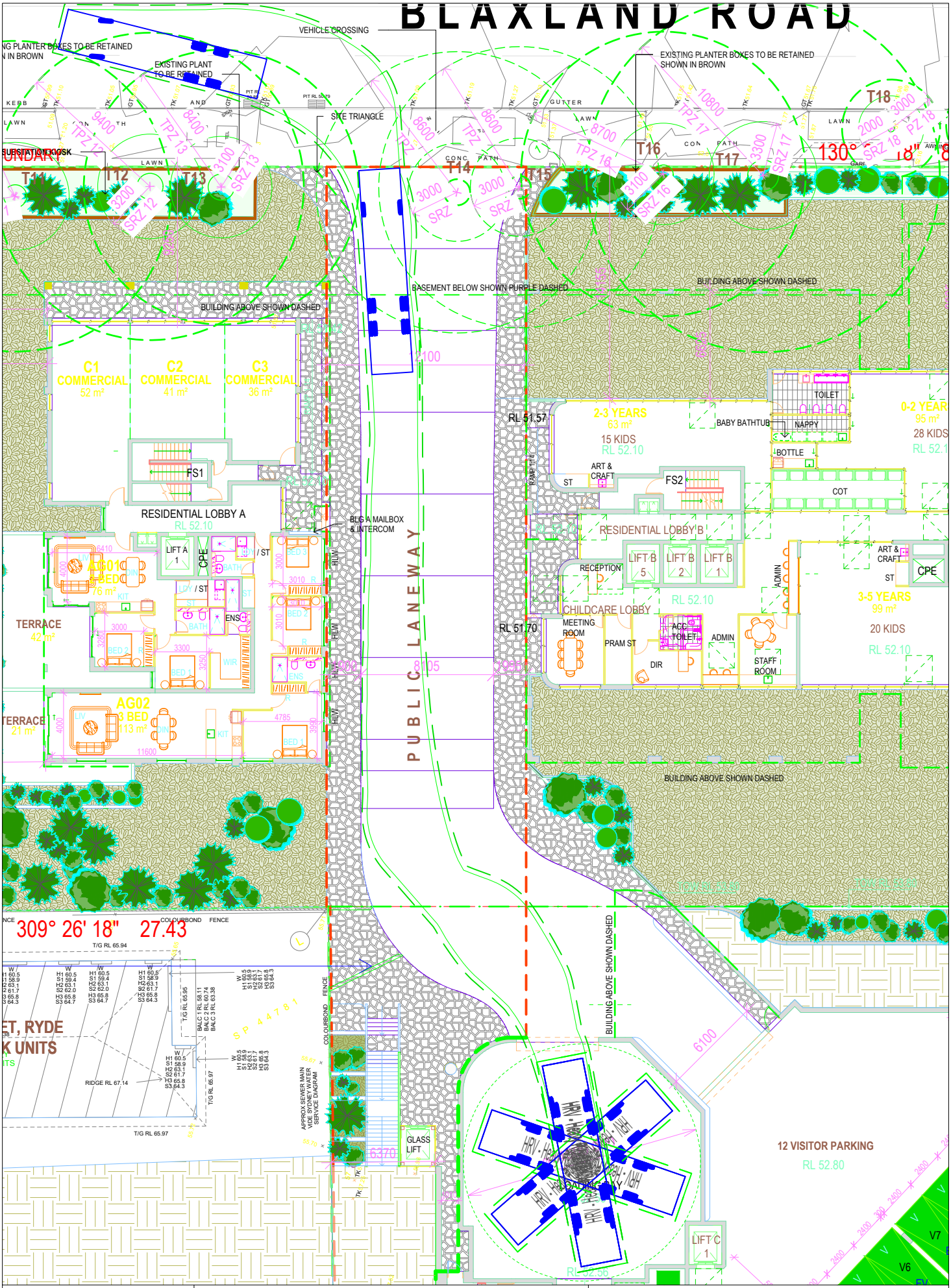
PROJECT NO.
25123

DATE DRAWN
2025-5-15

REVIEWED
ROBERT VARGA

PREPARED
ZACHARY CAI

VARGA TRAFFIC PLANNING Pty Ltd
Transport, Traffic and Parking Consultants



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Sydney, Australia

PROJECT
MIXED USE DEVELOPMENT

DRAWING TITLE
12.5M HRV TURNING PATHS
Exiting Loading Bay Area

1:300 @ A4

ADDRESS
691-695 Victoria Road, Ryde

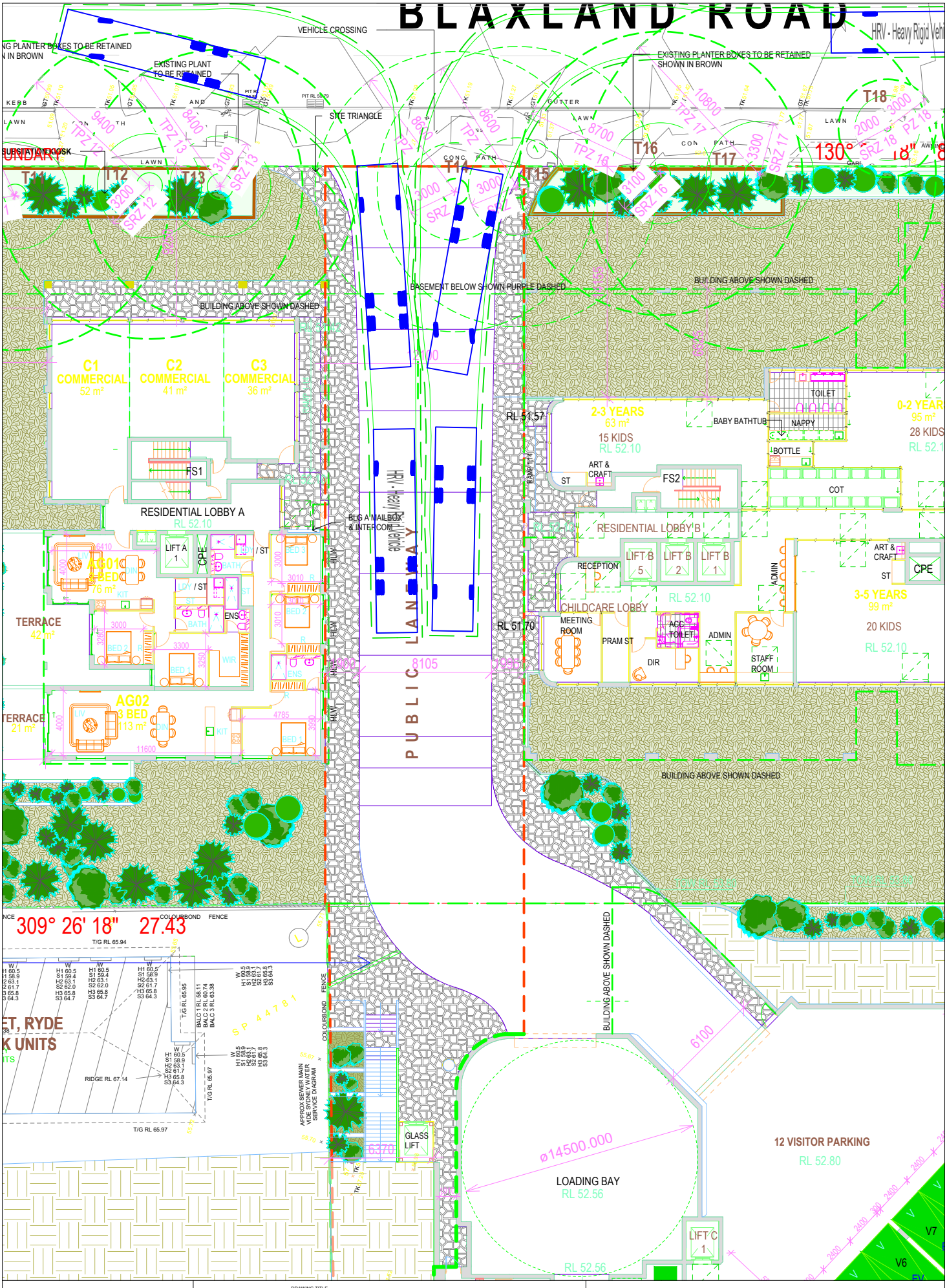
PROJECT NO.
25123

DATE DRAWN
2025-5-15

REVIEWED
ROBERT VARGA

PREPARED
ZACHARY CAI

VARGA TRAFFIC PLANNING Pty Ltd
Transport, Traffic and Parking Consultants



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PROJECT
MIXED USE DEVELOPMENT

DRAWING TITLE
12.5M HRV TURNING PATHS
Simultaneous Passing

1:300 @ A4

ADDRESS
691-695 Victoria Road, Ryde

PROJECT NO.
25123

DATE DRAWN
2025-5-15

REVIEWED
ROBERT VARGA

PREPARED
ZACHARY CAI

VARGA TRAFFIC PLANNING Pty Ltd
Transport, Traffic and Parking Consultants