

Our Ref: 20044I01A-200714

14 July 2020

Columbia Lane Development Pty Ltd
C/- JQZ Pty Ltd
Retail 24 & 25, 1 Nipper Street
HOMEBUSH NSW 2140

Attention: Mr Jeremy Hung

Dear Jeremy,

**RE: 11-17 COLUMBIA LN, HOMEBUSH
TRAFFIC RESPONSE TO COUNCIL'S COMMENTS**

As requested, MLA Transport Planning (MLA) has reviewed the traffic and parking related comments raised by Strathfield Council in relation to the above development application. MLA provides our responses these matters herein.

Background

Following the submission of the above development application in September 2019, Strathfield Council has assessed the application and provided their comments in a letter dated 22 May 2020. The traffic and parking related comments from Council are provided below together with MLA's responses.

MLA's Responses to Council's Comments

Below is a summary of the matters raised by Council followed by MLA's responses to the comments.

Public Domain – Gramophone Ln

Council's comment is summarised as follow:

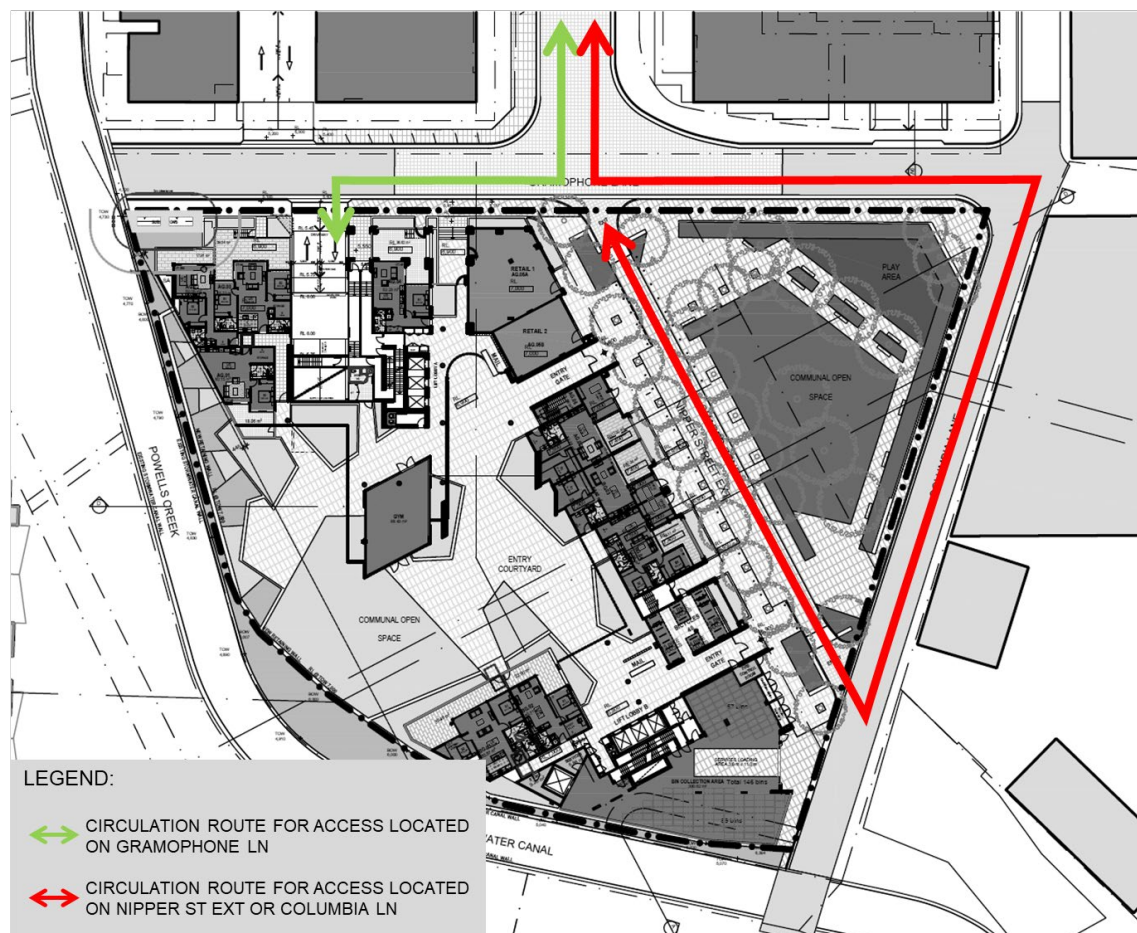
The development 'turns its back on' an active transportation corridor and does not present a pedestrian friendly environment along the corridor that links the development, surrounding developments and the triangular communal open space to the Powell's Creek linear open space.

The location of the basement car park access, in combination with the existing basement access to the residential tower development at 6 – 18 Colombia Lane, concentrates car movements along the link to the Powell's Creek linear open space.

The subject site has frontages to Gramophone Lane, Nipper Street extension as well as Columbia Lane. As such, access driveway to serve the proposed development could potentially be located on any one of these frontage streets. However, from a traffic circulation perspective Gramophone Lane provides the most optimal location for reasons explained below.

The majority of the traffic accessing the subject proposed development and the one at 6-16 Parramatta Road would do so using the Nipper Street intersection with Parramatta Road. If the access to the proposed development was located on Gramophone Lane as proposed, traffic would turn right into Gramophone Lane from Nipper Street then turn directly into the development without having to circulating around the site. However, if the access was located on Nipper Street extension or Columbia Lane, traffic would need to circulate and travel around the block across most of the site. The circulation patterns for the different access location options are shown in Figure 1.

Figure 1: Traffic Circulation Routes



As can be seen from Figure 1, access located on either Nipper Street extension or Columbia Lane would result in vehicles un-necessarily circulating across most the site.

In addition, due to this circuitous route arising from the access driveway being located on Nipper Street extension or Columbia Lane, pedestrians within the site would potentially be exposed to more circulating traffic and conflicts than otherwise would be necessary if the access driveway was located on Gramophone Lane.

Austrorads *Guide to Road Design Part 6A: Paths for Walking and Cycling* suggests a minimum footpath width of 1.2m for most roads and streets. An additional 0.6m (i.e. a total of 1.8m) is suggested so that persons in wheelchairs can pass one another. Furthermore, for streets within shopping areas where there would be higher pedestrian flows the guide suggests a minimum width of 2.4m.

The proposed footpath on the southern side of Gramophone Lane in front of the subject proposed development has a width of 2.8m (measured from the proposed planter boxes adjacent to the building to the edge of Gramophone Lane). Therefore, the proposed pedestrian footpath will have width well in excess of the Austrorads suggested minimum footpath width of 1.2m. As such, the proposed development includes a satisfactory footpath on the same side as the development site. Furthermore, it is noted that with or without the Powell's Creek linear open space, Gramophone Lane is unlikely to generate pedestrian flows as intensive as that of a shopping area.

In addition, the road environment on Gramophone Lane is such that it offers good visibility between drivers and pedestrians as the alignment of the road is straight and the terrain is level and flat. As such, drivers driving along Gramophone Lane would be able to see pedestrians walking along Gramophone Lane and before drivers enter their respective driveways would be able to stop if required to give way to pedestrians walking across the driveway.

In light of the above, Gramophone Lane (specifically the available footpath) in the future would provide a pedestrian friendly environment along the corridor linking the site to the Powell's Creek linear open space.

Public Domain – Nipper St

Council's comment is summarised as follow:

The extension along Nipper Street for vehicles is not supported. Council will support the introduction of bollards to the south to allow for access by emergency service vehicles, however the Nipper Street extension is to facilitate a principally pedestrian orientated environment.

It is noted that heavy vehicles are to be re-routed around the site, utilising Colombia Lane, however it is pertinent that this is tested as a viable solution and capable of accommodating all vehicle activity.

In addition to providing access for emergency vehicles, the Nipper Street extension is proposed for use as a drop-off and/or pick up area for point to point transport. As such, day to day use of the Nipper Street would only generate low volume of traffic flows on it. It is expected that this would be up to 10 vehicle trips per hour during the busiest period.

If the Nipper Street extension is provided as proposed by Council i.e. with bollards at one end and only emergency vehicles are permitted to use it, there would be no centrally designated facilities within the site to accommodate drop-off and pick up areas. This could result in drop-offs occurring randomly throughout the site in non-designated areas which could potentially lead to unintended traffic issues.

It is further noted that heavy vehicles would not be permitted to use the Nipper Street extension.

The proposed shared zone is consistent and compatible with Council's aspiration and vision to have the Nipper Street extension as a principally pedestrian orientated environment. A by-law could be put in place to prevent residents using this area as a loading area.

From the above, it is thus submitted that the proposed extension of Nipper Street would be satisfactory.

Car Park Provision

Council's comment is summarised as follow:

The proposed on-site car parking provision results a surplus of 77 spaces. It is Council's position that a reduction in basement level parking will provide improved ground level amenity and public domain interfaces.

It is proposed to comply with Council's suggested reduction in the on-site parking. It is proposed to provide a total of 381 car parking spaces comprising:

- 305 resident car parking spaces
- 72 visitor car parking spaces, and
- 4 retail car parking spaces (for retail staff).

SIDRA Analysis

Council's comment is summarised as follow:

The application does not provide an up-to-date analysis of intersection performance. Council requires an updated SIDRA analysis be submitted which:

- i. Is based on the latest traffic survey results;*
- ii. Incorporates all approved and committed developments to confirm and re-consider the scale and access arrangement as this may have changed since 2015;*
- iii. Ensures all intersection LoS is D or above;*
- iv. Includes the Parramatta Road and Columbia Lane intersection;*
- v. Uses SIDRA network modelling as required or otherwise provide justification;*
- vi. Provide details of the SIDRA analysis, in particular queuing analysis, SCATS data, and signal setting.*

MLA has conducted SIDRA analysis based on the latest traffic surveys conducted on Thursday 28 May 2020 and Saturday 30 May 2020 for the following peak periods:

- weekday morning (7:00am to 9:00am)
- weekday evening (4:00pm to 6:00pm), and
- Saturday (11:00am to 1:00pm).

Modelling scenarios have been developed as follow:

- Scenario 1 2020 existing traffic conditions (based on May 2020 traffic surveys) – see Figure 2, and
- Scenario 2 2020 traffic conditions with traffic from the proposed development on the subject site and known development – see Figure 3.

Figure 2: Existing 2020 Traffic Conditions

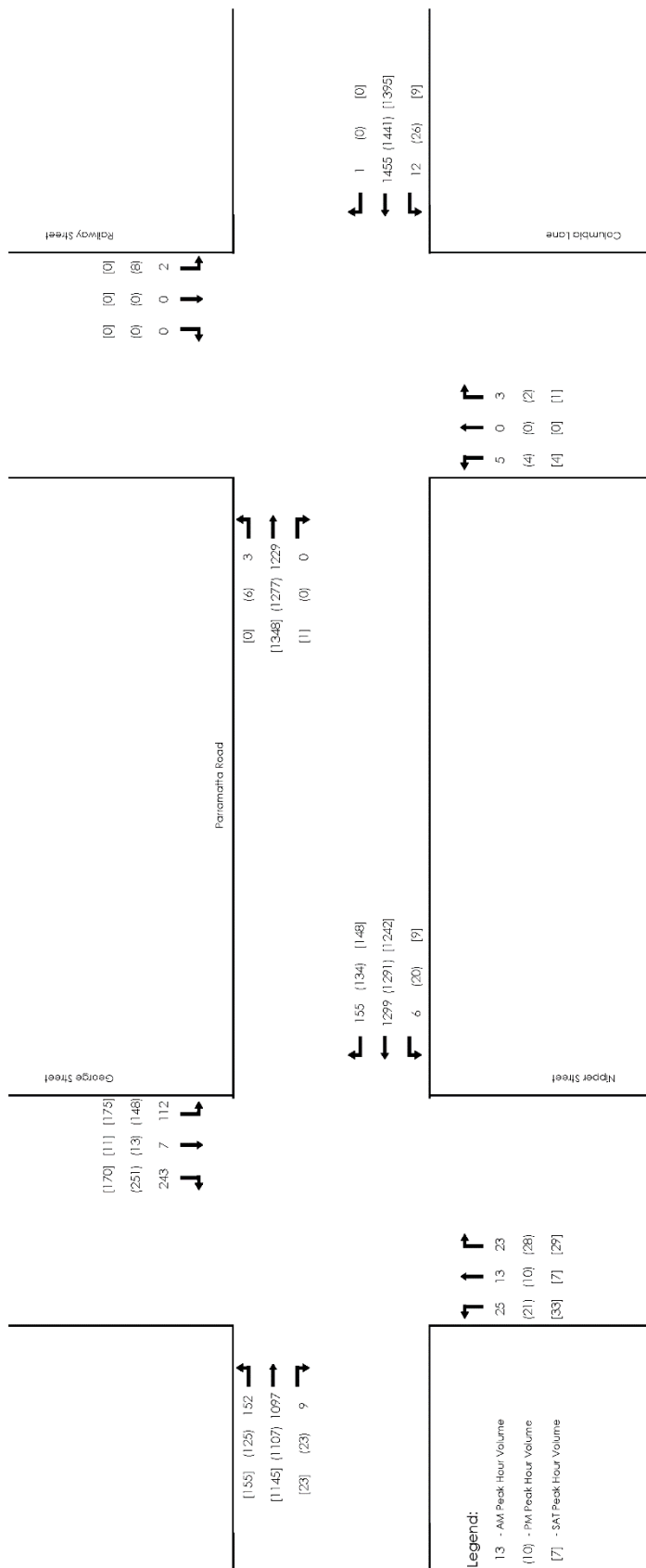
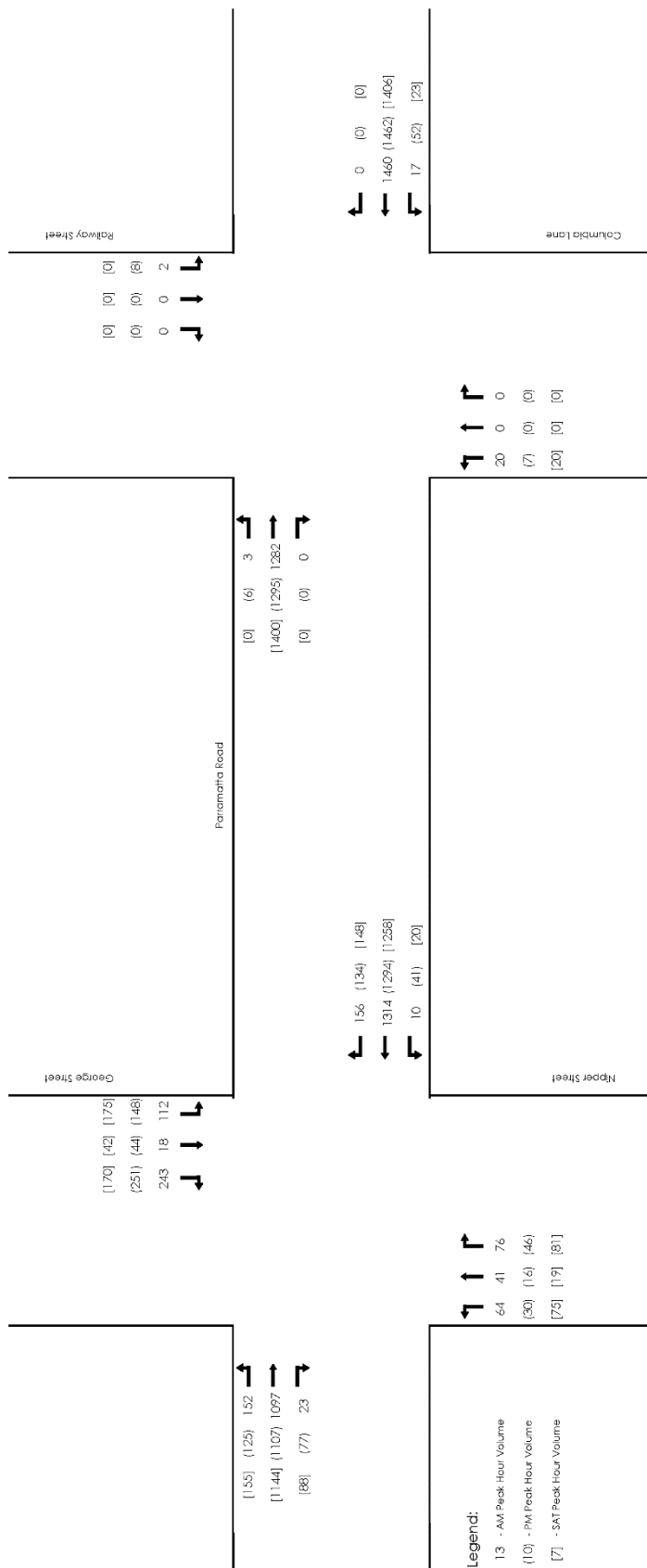


Figure 3: Future 2020 Traffic Conditions



Scenario 2 models include development traffic from known development sites presented in Table 1.

Table 1: Known Development Sites

Site	No. of Dwellings	Retail/Commercial Floor Area
11-17 Columbia Ln (Subject Site)	360	187m ²
2-4 Parramatta Rd (Kennard Site)	456	Nil

The traffic generation rates of the residential component are as follow:

- weekday peak periods – 0.20 vehicle trips per peak hour per dwelling, and
- Saturday peak period – 0.29 vehicle trips per peak hour per dwelling.

The above weekday traffic generation rates are based on traffic generation surveys conducted at the nearby site at 6-18 Parramatta Road by Colston Budd Rogers & Kafes as part of the traffic report prepared in March 2017 for a planning proposal relating to the subject site.

The weekend traffic generation rate has been adopted as per the traffic assessment prepared by Traffix when they assessed the traffic effects of the proposed development during the weekend peak period. The rate has been sourced from TfNSW Technical Direction TDT2013 04a.

In relation to the retail use, there are no published data for retail use similar to that proposed. As such, traffic generation potential of the retail use has been based on the number of car spaces provided at a rate of one vehicle trips per peak hour per car space provided.

In terms of traffic distribution, it is assumed that development traffic arising from the residential component would be distributed 80 per cent outbound and 20 per cent inbound during the morning peak. The reverse would be true in the evening peak period. During weekend, the traffic would be distributed 50 per cent inbound and 50 per cent outbound.

For retail use, it is assumed 50 per cent inbound and 50 per cent outbound for all peak periods.

Table 2 below shows the estimated development traffic for all known development sites.

Table 2: Development Traffic Estimates

Land Use	Size	Morning Peak			Evening Peak			Saturday Peak		
		In	Out	2-Way	In	Out	2-Way	In	Out	2-Way
11-17 Columbia Ln (Subject Site)										
- Residential	360	14	58	72	58	14	72	52	52	104
- Retail	4 Car Spaces	2	2	4	2	2	4	2	2	4
- Sub-Total	-	16	60	76	60	16	76	54	54	108
2-4 Parramatta Rd (Kennard Site)										
- Residential	456	18	73	91	73	18	91	66	66	132
- Retail	0 Car Spaces	0	0	0	0	0	0	0	0	0
- Sub-Total	-	18	73	91	73	18	91	66	66	132
Total	-	35	133	167	133	35	167	120	120	241

The development traffic has been distributed to the local road network based on existing traffic patterns.

The SIDRA models have been developed as a network model to include the following intersections:

- Parramatta Road with Nipper Street and George Street, and
- Parramatta Road with Columbia Lane and Railway Street.

SIDRA determines the intersection capacity based on the level of service (LoS). LoS is a basic performance parameter used by TfNSW to describe the operation of an intersection. Levels of service indicators range from A (indicating good intersection operation) to F (indicating over-saturated conditions with long delays and queues). At priority controlled (give-way and stop controlled) and roundabout intersection, the LoS is based on the modelled delay (seconds per vehicle) for the most delayed movement. Table 3 sets out the level of service against the average delay with a brief description of the operational conditions for different intersection control type.

Table 3: Level of Service for Intersection Operation

Level of Service	Average Delay (seconds per vehicle)	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, requires other control mode
F	Greater than 70	Unsatisfactory with excessive queuing	Unsatisfactory with excessive queuing; requires other control mode

Source: TfNSW Guide to Traffic Generating Developments, 2002

In addition to the summary and discussion of the modelling results below, detailed modelling results including queues, SCATS data, and signal setting are provided in Attachment One. Electronic SIDRA files will be available upon request.

Table 4 presents a summary of the modelling results for existing traffic conditions.

Table 4: 2020 Existing Traffic Conditions Modelling Results

Intersections	Weekday Morning Peak		Weekday Evening Peak		Saturday Peak	
	LoS	Delay (sec)	LoS	Delay (sec)	LoS	Delay (sec)
Parramatta Rd-Nipper St	C	38	D	47	C	38
Parramatta Rd-Columbia Ln	F	107	F	177	F	207

The traffic modelling results for the existing traffic conditions indicate that the Nipper Street intersection with Parramatta Road operates with satisfactory traffic performance with level of service (LoS) D or better in all assessed peak periods.

However, the Columbia Lane intersection with Parramatta Road is currently operating with LoS F. The poor performance at this intersection is due to the right turn movement on the side streets (Columbia Lane and Railway Street). Traffic surveys indicate these movements carry little to no traffic. If these movements are banned from the network,

the intersection performance would be improved. There are alternative routes for these movements to occur via George Street and Nipper Street respectively.

Separately, it is noted these right turn movements are required to turn across multiple lanes across Parramatta Road. If these movements are permitted to continue, it could become a safety issue in the longer term. It is recommended for these movements to be banned on safety ground. As such, future case models assume this movement will be banned from the road network.

Table 5 presents a summary of the modelling results for the 2020 future case with development traffic.

Table 5: 2020 Future Traffic Conditions Modelling Results

Intersections	Weekday Morning Peak		Weekday Evening Peak		Saturday Peak	
	LoS	Delay (sec)	LoS	Delay (sec)	LoS	Delay (sec)
Parramatta Rd-Nipper St	C	39	D	52	42	C
Parramatta Rd-Columbia Ln	A	8	A	8	A	8

The analysis indicates that in the future the assessed intersections would continue to operate with LoS D or better in all peak periods. It is also noted that the banning of the right turn movements to/from Parramatta Road at the Columbia Lane would improve the performance of the intersection from LoS F to Los A in all peak periods.

Basement Layout

Council's comment is summarised as follow:

The basement layout does not satisfy the minimum queuing requirements and accessible parking requirements. Council considers a turnaround porch area should be included prior to the control point.

In relation to minimum queuing requirements, queues generated by inbound vehicles would have the most impact to the surrounding road network. In this regard, during the busiest period, the inbound movement would have up to 60 vehicle movements per hour.

Using the queue assessment method provided in Austroads *Guide to Traffic Management Part 2: Traffic Theory*, the 98th percentile queue for the inbound movement during the busiest period has been estimated to be approximately than 1.43 vehicles or 8.6m long (assuming a queued length of 6m per vehicle).

The available queue storage area on the driveway is 10.6m from the roller shutter door to the property boundary. As such, there is sufficient queue storage area to accommodate the 98th percentile queue.

In relation to accessible car parking spaces, as indicated in the DA traffic report, the DCP does not have specific requirements for accessible parking. On this basis, reference is made to the Building Code of Australia (BCA). The BCA refers to the Australian Standard for Adaptable Housing (AS4299) which requires at least one accessible car parking space (3.8m wide) to be provided for each adaptable apartment.

In addition, accessible car parking spaces provided in accordance with the design requirements set out in AS2890.6:2009 (i.e. 2.4m wide spaces plus 2.4m wide shared area) would also meet the intent of AS4299 in this regard.

The proposed development includes 59 adaptable apartments. Therefore, 59 accessible spaces are proposed. In addition, up to 5 per cent of the visitor car parking spaces will be provided as accessible car parking spaces for residential visitors.

Council requested for a turnaround area prior to the control plan. It is noted that the current design permits a visitor vehicle to turn around to leave the site in a forward direction in the event that the tenant is not available. Swept path diagram provided in Attachment Two demonstrates that an Australian Standard B99 vehicle can turn around on the driveway prior to the control point using five movements. This is considered to be satisfactory.

Loading/Unloading Activities

Council's comment is summarised as follow:

Other loading/unloading activities associated with future tenants and retails must be accommodated in the basement, as should wash bays for the buildings occupants. The development appears to rely on movement at ground level, conflicting with the pedestrianised environment envisaged at ground level. Any design changes to the loading and unloading activities must be supported by justification detailing loading bay dimensions and numbers.

Council requests for the loading bay to be provided in the basement. However, it considered not feasible to do so nor it is necessary for reasons explained below.

In addition to the ground floor loading bay, it is also proposed to provide two additional service vehicle bays in the basement for use by vans and ute type vehicles.

The loading bay on the ground floor would be used predominantly for waste collection and delivery of bulky items, while the two service vehicle bays in the basement would be used for deliveries of smaller items.

The loading bay on the ground floor as such would generate minimal traffic movements. Any traffic movements generated by the ground floor loading bay would be restricted to off-peak periods, in particular the waste collection vehicles would typically come on to site during early morning hours where there would be minimal pedestrians around.

Furthermore, locating the loading bay in the basement would require the basement to be excavated an additional 1.4m so to provide sufficient headroom to comply with DCP requirements. The excavation of an additional 1.4m of the basement would be a waste of resources and energy for little or no benefits.

Furthermore, due to the onerous design requirements contained within the Australian Standard for service vehicle ramps, the excavation of an additional 1.4m would result in the ramp being lengthened by approximately 10m which would significantly affect the efficiency planning of the basement car park.

The wash bays will be provided in the basement in compliant with Council's requirements.

Waste Collection Point

Council's comment is summarised as follow:

The waste collection point is inadequate and requires redesign to demonstrate compliance with the following:

- i. Along-side the driveway into the site;*
- ii. 10m rear loader accessible – turning circle 18m kerb to kerb;*
- iii. Length of standing area 10m;*
- iv. 3.6m height clearance;*
- v. Gradient of ramps maximum 1:5.*

The current scheme proposes a loading bay to be shared by all tenants of the proposed development. This is located at the ground level off Columbia Lane. The dimensions of the proposed loading bay comply with the dimensional requirements set out in the DCP i.e. 10m long by 3.6m wide with headroom of 3.6m.

MLA has conducted swept path analysis of a 10m waste collection vehicle accessing the proposed loading bay. The swept path analysis indicates the waste collection

vehicle is able to access the loading bay without any issues. The relevant swept path diagrams are contained in Attachment Two.

From the above, the proposed loading bays complies with the design requirements set out in the DCP and have satisfactory access to and from Columbia Lane.

Yours sincerely,



Michael Lee
Director

Encl. Attachment One – SIDRA Modelling Results

Attachment Two – Swept Path Diagrams

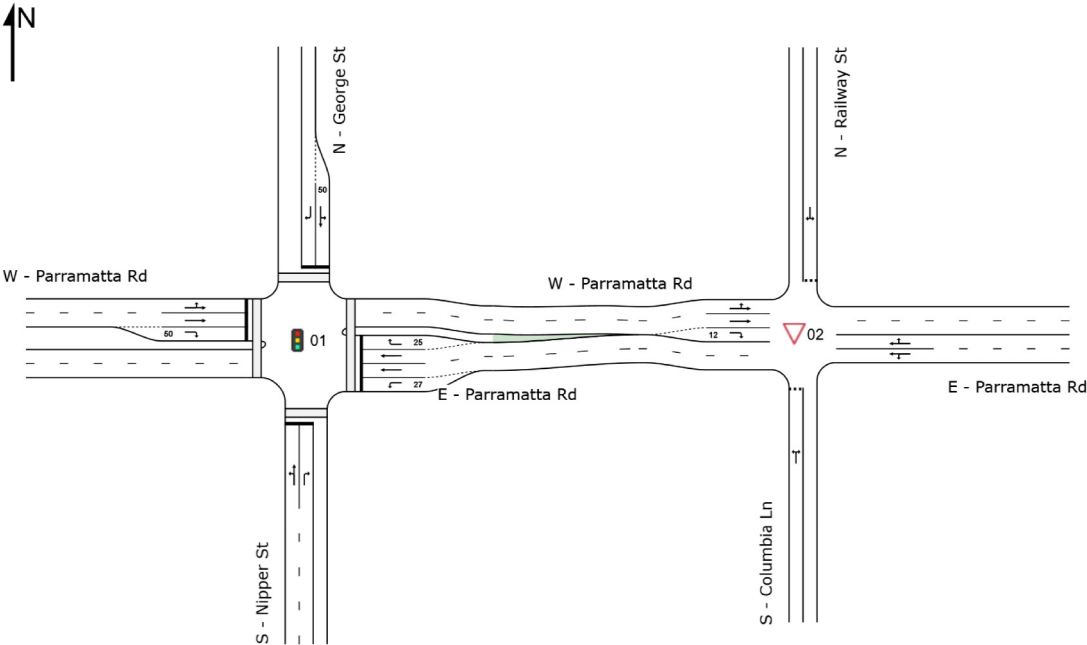
Attachment One

SIDRA Modelling Results

NETWORK LAYOUT

Network: N101 [Parramatta Rd Network (2020AM)]

New Network
Network Category: (None)



SITES IN NETWORK		
Site ID	CCG ID	Site Name
01	NA	Parramatta Rd/George St 2020AM
02	NA	Parramatta Rd/Columbia Ln 2020AM

MOVEMENT SUMMARY

 Site: 01 [Parramatta Rd/George St 2020AM]

 Network: N101 [Parramatta Rd Network (2020AM)]

New Site

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Total	Flows HV	Arrival Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		veh/h	%	veh/h	%	v/c	sec		veh	m			km/h	
South: S - Nipper St														
1	L2	26	8.0	26	8.0	0.133	47.1	LOS D	1.8	13.5	0.88	0.71	0.88	19.3
2	T1	14	0.0	14	0.0	0.133	43.0	LOS D	1.8	13.5	0.88	0.71	0.88	24.6
3	R2	24	0.0	24	0.0	0.060	32.7	LOS C	0.9	6.2	0.81	0.69	0.81	9.1
Approach		64	3.3	64	3.3	0.133	40.8	LOS C	1.8	13.5	0.85	0.71	0.85	18.5
East: E - Parramatta Rd														
4	L2	6	0.0	6	0.0	0.006	10.1	LOS A	0.1	0.8	0.39	0.59	0.39	24.3
5	T1	1367	3.8	1367	3.8	0.864	32.2	LOS C	9.0	65.3	0.87	0.88	0.99	23.5
6	R2	163	1.3	163	1.3	0.965	65.3	LOS E	8.1	57.5	1.00	1.07	1.76	17.7
Approach		1537	3.6	1537	3.6	0.965	35.6	LOS C	9.0	65.3	0.88	0.90	1.07	22.3
North: N - George St														
7	L2	118	0.0	118	0.0	0.275	40.1	LOS C	5.4	37.9	0.84	0.76	0.84	24.1
8	T1	7	0.0	7	0.0	0.275	35.6	LOS C	5.4	37.9	0.84	0.76	0.84	25.9
9	R2	256	0.4	256	0.4	0.801	45.0	LOS D	12.5	88.1	0.99	0.95	1.22	28.8
Approach		381	0.3	381	0.3	0.801	43.3	LOS D	12.5	88.1	0.95	0.89	1.09	27.6
West: W - Parramatta Rd														
10	L2	160	0.7	160	0.7	0.840	43.6	LOS D	35.0	253.1	1.00	0.95	1.07	28.3
11	T1	1155	4.7	1155	4.7	0.840	38.6	LOS C	35.2	256.1	1.00	0.95	1.07	19.1
12	R2	9	11.1	9	11.1	0.121	63.8	LOS E	0.5	4.0	0.99	0.67	0.99	15.6
Approach		1324	4.3	1324	4.3	0.840	39.4	LOS C	35.2	256.1	1.00	0.95	1.07	20.9
All Vehicles		3306	3.5	3306	3.5	0.965	38.1	LOS C	35.2	256.1	0.94	0.91	1.07	22.5

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	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P2	East Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P3	North Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	84	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		242	49.3	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Organisation: TRANSPORT MODELLERS ALLIANCE | Processed: Wednesday, 10 June 2020 1:29:27 AM
Project: C:\Data\Project\Parramatta Road Homebush SIDRA\Model\REV1\Parramatta Rd_Homebush_2020_Base_rev1.sip8

MOVEMENT SUMMARY

Site: 02 [Parramatta Rd/Columbia Ln 2020AM]

Network: N101 [Parramatta Rd Network (2020AM)]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Total	Flows HV	Arrival Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: S - Columbia Ln														
1	L2	5	0.0	5	0.0	0.107	8.3	LOS A	0.2	1.3	0.88	0.94	0.88	14.2
3	R2	3	0.0	3	0.0	0.107	65.8	LOS E	0.2	1.3	0.88	0.94	0.88	29.5
Approach		8	0.0	8	0.0	0.107	29.9	LOS C	0.2	1.3	0.88	0.94	0.88	21.7
East: E - Parramatta Rd														
4	L2	13	0.0	13	0.0	0.409	5.6	LOS A	33.2	241.9	0.00	0.01	0.00	56.8
5	T1	1532	4.7	1532	4.7	0.409	0.1	LOS A	33.2	241.9	0.00	0.01	0.00	59.7
6	R2	1	0.0	1	0.0	0.409	20.1	LOS B	16.6	120.8	0.01	0.00	0.01	55.0
Approach		1545	4.6	1545	4.6	0.409	0.1	NA	33.2	241.9	0.00	0.01	0.00	59.7
North: N - Railway St														
7	L2	2	0.0	2	0.0	0.048	7.3	LOS A	0.1	0.7	0.86	0.79	0.86	25.6
9	R2	1	0.0	1	0.0	0.048	106.5	LOS F	0.1	0.7	0.86	0.79	0.86	11.4
Approach		3	0.0	3	0.0	0.048	40.3	LOS C	0.1	0.7	0.86	0.79	0.86	22.0
West: W - Parramatta Rd														
10	L2	3	0.0	3	0.0	0.344	3.5	LOS A	0.0	0.0	0.00	0.00	0.00	52.5
11	T1	1294	5.4	1294	5.4	0.344	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
12	R2	1	0.0	1	0.0	0.007	24.9	LOS B	0.0	0.1	0.89	0.91	0.89	18.3
Approach		1298	5.4	1298	5.4	0.344	0.0	NA	0.0	0.1	0.00	0.00	0.00	59.8
All Vehicles		2855	4.9	2855	4.9	0.409	0.2	NA	33.2	241.9	0.01	0.01	0.01	59.4

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

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

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

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

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

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

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

MOVEMENT SUMMARY

 Site: 01 [Parramatta Rd/George St 2020PM]

 Network: N101 [Parramatta Rd Network (2020PM)]

New Site

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 109 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Total	Flows HV	Arrival Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		veh/h	%	veh/h	%	v/c	sec		veh	m			km/h	
South: S - Nipper St														
1	L2	22	0.0	22	0.0	0.085	42.3	LOS C	1.4	9.8	0.84	0.70	0.84	21.1
2	T1	11	0.0	11	0.0	0.085	38.3	LOS C	1.4	9.8	0.84	0.70	0.84	25.9
3	R2	29	3.6	29	3.6	0.065	28.3	LOS B	1.0	7.1	0.77	0.69	0.77	10.3
Approach		62	1.7	62	1.7	0.085	35.0	LOS C	1.4	9.8	0.81	0.69	0.81	19.1
East: E - Parramatta Rd														
4	L2	21	0.0	21	0.0	0.020	12.4	LOS A	0.5	3.2	0.44	0.61	0.44	21.8
5	T1	1359	2.7	1359	2.7	0.886	40.5	LOS C	9.1	65.3	0.95	0.99	1.12	20.3
6	R2	141	0.7	141	0.7	1.011	72.8	LOS F	7.8	54.9	1.00	1.06	1.91	13.2
Approach		1521	2.5	1521	2.5	1.011	43.1	LOS D	9.1	65.3	0.95	0.99	1.18	18.9
North: N - George St														
7	L2	156	0.7	156	0.7	0.336	37.9	LOS C	7.2	50.4	0.84	0.77	0.84	24.9
8	T1	14	0.0	14	0.0	0.336	33.3	LOS C	7.2	50.4	0.84	0.77	0.84	26.6
9	R2	264	0.8	264	0.8	0.629	32.6	LOS C	10.9	76.8	0.89	0.81	0.89	32.8
Approach		434	0.7	434	0.7	0.629	34.5	LOS C	10.9	76.8	0.87	0.79	0.87	30.1
West: W - Parramatta Rd														
10	L2	132	0.0	132	0.0	0.933	61.9	LOS E	42.0	296.6	1.00	1.08	1.25	24.1
11	T1	1165	1.4	1165	1.4	0.933	56.1	LOS D	42.0	296.6	1.00	1.08	1.25	14.7
12	R2	24	4.3	24	4.3	0.366	66.3	LOS E	1.4	10.0	1.00	0.70	1.00	15.2
Approach		1321	1.3	1321	1.3	0.933	56.8	LOS E	42.0	296.6	1.00	1.08	1.24	16.1
All Vehicles		3338	1.8	3338	1.8	1.011	47.3	LOS D	42.0	296.6	0.96	0.99	1.16	19.3

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

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

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

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

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

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

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	53	48.8	LOS E	0.2	0.2	0.95	0.95
P2	East Full Crossing	53	48.8	LOS E	0.2	0.2	0.95	0.95
P3	North Full Crossing	53	48.8	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	84	48.8	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		242	48.8	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Site: 02 [Parramatta Rd/Columbia Ln 2020PM]

Network: N101 [Parramatta Rd Network (2020PM)]

New Site
Site Category: (None)
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Total	Flows HV	Arrival Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Queue Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: S - Columbia Ln														
1	L2	4	0.0	4	0.0	0.195	12.3	LOS A	0.3	2.4	0.94	0.98	0.95	7.5
3	R2	2	50.0	2	50.0	0.195	177.1	LOS F	0.3	2.4	0.94	0.98	0.95	18.4
Approach		6	16.7	6	16.7	0.195	67.2	LOS E	0.3	2.4	0.94	0.98	0.95	11.9
East: E - Parramatta Rd														
4	L2	27	3.8	27	3.8	0.400	5.6	LOS A	30.9	218.6	0.00	0.02	0.00	56.1
5	T1	1517	1.0	1517	1.0	0.400	0.1	LOS A	30.9	218.6	0.00	0.01	0.01	59.6
6	R2	1	0.0	1	0.0	0.400	20.5	LOS B	26.0	183.9	0.01	0.00	0.01	55.0
Approach		1545	1.1	1545	1.1	0.400	0.2	NA	30.9	218.6	0.00	0.01	0.00	59.5
North: N - Railway St														
7	L2	8	0.0	8	0.0	0.046	7.4	LOS A	0.1	0.9	0.74	0.72	0.74	36.1
9	R2	1	0.0	1	0.0	0.046	102.2	LOS F	0.1	0.9	0.74	0.72	0.74	20.0
Approach		9	0.0	9	0.0	0.046	18.0	LOS B	0.1	0.9	0.74	0.72	0.74	35.1
West: W - Parramatta Rd														
10	L2	6	0.0	6	0.0	0.349	3.5	LOS A	0.0	0.0	0.00	0.01	0.00	52.4
11	T1	1344	1.3	1344	1.3	0.349	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
12	R2	1	0.0	1	0.0	0.006	23.7	LOS B	0.0	0.1	0.89	0.90	0.89	18.9
Approach		1352	1.2	1352	1.2	0.349	0.0	NA	0.0	0.1	0.00	0.00	0.00	59.8
All Vehicles		2913	1.2	2913	1.2	0.400	0.3	NA	30.9	218.6	0.01	0.01	0.01	59.1

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

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

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

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

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

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

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

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MOVEMENT SUMMARY

 Site: 01 [Parramatta Rd/George St 2020SAT]

 Network: N101 [Parramatta Rd Network (2020SAT)]

New Site

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Total	Flows HV	Arrival Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		veh/h	%	veh/h	%	v/c	sec		veh	m			km/h	
South: S - Nipper St														
1	L2	35	0.0	35	0.0	0.112	43.1	LOS D	1.8	12.9	0.84	0.72	0.84	20.6
2	T1	7	0.0	7	0.0	0.112	39.1	LOS C	1.8	12.9	0.84	0.72	0.84	25.5
3	R2	31	0.0	31	0.0	0.095	34.7	LOS C	1.2	8.2	0.85	0.70	0.85	8.7
Approach		73	0.0	73	0.0	0.112	39.2	LOS C	1.8	12.9	0.85	0.71	0.85	17.8
East: E - Parramatta Rd														
4	L2	9	0.0	9	0.0	0.008	11.1	LOS A	0.2	1.3	0.38	0.60	0.38	23.2
5	T1	1307	3.1	1307	3.1	0.826	27.2	LOS B	9.1	65.3	0.85	0.81	0.91	25.9
6	R2	156	0.7	156	0.7	0.926	52.1	LOS D	6.9	48.5	1.00	1.01	1.59	20.1
Approach		1473	2.9	1473	2.9	0.926	29.8	LOS C	9.1	65.3	0.86	0.83	0.98	24.8
North: N - George St														
7	L2	184	1.1	184	1.1	0.371	37.3	LOS C	8.3	58.7	0.83	0.78	0.83	25.0
8	T1	12	0.0	12	0.0	0.371	32.7	LOS C	8.3	58.7	0.83	0.78	0.83	26.8
9	R2	179	0.0	179	0.0	0.990	82.8	LOS F	11.6	81.2	1.00	1.19	1.88	21.0
Approach		375	0.6	375	0.6	0.990	58.9	LOS E	11.6	81.2	0.91	0.97	1.33	22.5
West: W - Parramatta Rd														
10	L2	163	0.6	163	0.6	0.849	43.9	LOS D	37.0	262.5	1.00	0.96	1.07	28.3
11	T1	1205	2.0	1205	2.0	0.849	38.7	LOS C	37.0	262.5	1.00	0.96	1.07	19.1
12	R2	24	0.0	24	0.0	0.287	64.5	LOS E	1.4	9.5	1.00	0.71	1.00	15.5
Approach		1393	1.8	1393	1.8	0.849	39.8	LOS C	37.0	262.5	1.00	0.95	1.07	20.7
All Vehicles		3313	2.1	3313	2.1	0.990	37.5	LOS C	37.0	262.5	0.92	0.90	1.05	22.5

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	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P2	East Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P3	North Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	84	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		242	49.3	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Site: 02 [Parramatta Rd/Columbia Ln 2020SAT]

Network: N101 [Parramatta Rd Network (2020SAT)]

New Site
Site Category: (None)
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: S - Columbia Ln														
1	L2	4	0.0	4	0.0	0.130	7.0	LOS A	0.2	1.5	0.91	0.94	0.91	10.1
3	R2	1	100.0	1	100.0	0.130	206.7	LOS F	0.2	1.5	0.91	0.94	0.91	22.7
Approach		5	20.0	5	20.0	0.130	47.0	LOS D	0.2	1.5	0.91	0.94	0.91	13.5
East: E - Parramatta Rd														
4	L2	9	11.1	9	11.1	0.385	5.7	LOS A	27.8	197.6	0.00	0.01	0.00	55.3
5	T1	1468	1.7	1468	1.7	0.385	0.1	LOS A	27.8	197.6	0.00	0.00	0.01	59.7
6	R2	1	0.0	1	0.0	0.385	21.9	LOS B	13.1	93.2	0.01	0.00	0.01	55.0
Approach		1479	1.8	1479	1.8	0.385	0.1	NA	27.8	197.6	0.00	0.00	0.01	59.7
North: N - Railway St														
7	L2	1	0.0	1	0.0	0.047	7.6	LOS A	0.1	0.6	0.91	0.86	0.91	22.2
9	R2	1	0.0	1	0.0	0.047	96.9	LOS F	0.1	0.6	0.91	0.86	0.91	9.3
Approach		2	0.0	2	0.0	0.047	52.3	LOS D	0.1	0.6	0.91	0.86	0.91	16.8
West: W - Parramatta Rd														
10	L2	1	0.0	1	0.0	0.369	3.5	LOS A	0.0	0.0	0.00	0.00	0.00	52.5
11	T1	1419	1.9	1419	1.9	0.369	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
12	R2	1	0.0	1	0.0	0.006	21.2	LOS B	0.0	0.1	0.87	0.87	0.87	20.2
Approach		1421	1.9	1421	1.9	0.369	0.0	NA	0.0	0.1	0.00	0.00	0.00	59.9
All Vehicles		2907	1.8	2907	1.8	0.385	0.2	NA	27.8	197.6	0.00	0.00	0.01	59.4

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

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

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

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

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

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

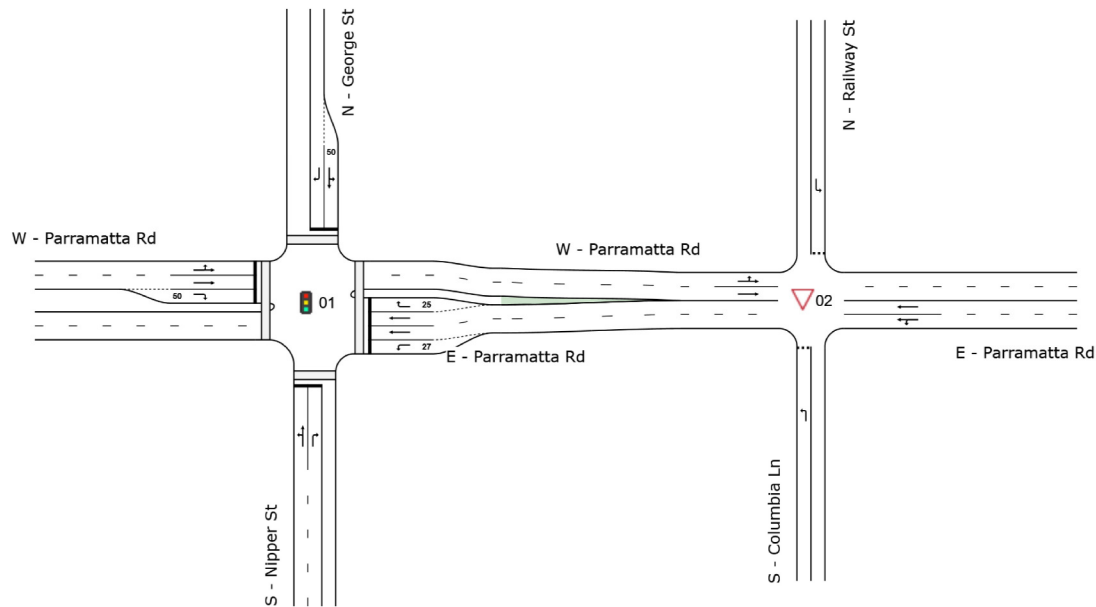
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

NETWORK LAYOUT

Network: N101 [Parramatta Rd Network (2020AM-Dev)]

New Network

Network Category: (None)



SITES IN NETWORK

Site ID	CCG ID	Site Name
01	NA	Parramatta Rd/George St 2020AM-Dev
02	NA	Parramatta Rd/Columbia Ln 2020AM-Dev

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MOVEMENT SUMMARY

 Site: 01 [Parramatta Rd/George St 2020AM-Dev]

 Network: N101 [Parramatta Rd Network (2020AM-Dev)]

New Site

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Total	Flows HV	Arrival Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		veh/h	%	veh/h	%	v/c	sec		veh	m			km/h	
South: S - Nipper St														
1	L2	67	3.1	67	3.1	0.367	50.1	LOS D	5.4	38.4	0.93	0.77	0.93	18.8
2	T1	43	0.0	43	0.0	0.367	46.0	LOS D	5.4	38.4	0.93	0.77	0.93	23.8
3	R2	80	0.0	80	0.0	0.204	34.1	LOS C	3.1	21.5	0.85	0.74	0.85	8.8
Approach		191	1.1	191	1.1	0.367	42.4	LOS C	5.4	38.4	0.90	0.76	0.90	17.8
East: E - Parramatta Rd														
4	L2	11	0.0	11	0.0	0.009	10.2	LOS A	0.2	1.4	0.40	0.60	0.40	24.3
5	T1	1383	3.8	1383	3.8	0.863	31.9	LOS C	9.0	65.3	0.87	0.88	0.99	23.6
6	R2	164	1.3	164	1.3	0.977	69.0	LOS E	8.4	59.3	1.00	1.08	1.81	17.2
Approach		1558	3.5	1558	3.5	0.977	35.7	LOS C	9.0	65.3	0.88	0.90	1.07	22.3
North: N - George St														
7	L2	118	0.0	118	0.0	0.350	44.2	LOS D	6.3	44.0	0.89	0.77	0.89	23.0
8	T1	19	0.0	19	0.0	0.350	39.6	LOS C	6.3	44.0	0.89	0.77	0.89	24.8
9	R2	256	0.4	256	0.4	0.813	45.9	LOS D	12.7	89.2	1.00	0.96	1.24	28.5
Approach		393	0.3	393	0.3	0.813	45.1	LOS D	12.7	89.2	0.96	0.89	1.12	27.0
West: W - Parramatta Rd														
10	L2	160	0.7	160	0.7	0.847	44.3	LOS D	35.7	257.9	1.00	0.96	1.08	28.1
11	T1	1155	4.7	1155	4.7	0.847	39.2	LOS C	35.7	257.9	1.00	0.96	1.07	18.9
12	R2	24	4.3	24	4.3	0.296	64.7	LOS E	1.4	9.9	1.00	0.71	1.00	15.4
Approach		1339	4.2	1339	4.2	0.847	40.3	LOS C	35.7	257.9	1.00	0.95	1.07	20.6
All Vehicles		3480	3.3	3480	3.3	0.977	38.9	LOS C	35.7	257.9	0.94	0.91	1.07	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	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P2	East Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P3	North Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	84	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		242	49.3	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Site: 02 [Parramatta Rd/Columbia Ln 2020AM-Dev]

Network: N101 [Parramatta Rd Network (2020AM-Dev)]

New Site
Site Category: (None)
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Total	Flows HV	Arrival Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		veh/h	%	veh/h	%	v/c	sec		veh	m			km/h	
South: S - Columbia Ln														
1	L2	21	0.0	21	0.0	0.065	8.4	LOS A	0.1	0.7	0.58	0.78	0.58	29.3
Approach		21	0.0	21	0.0	0.065	8.4	LOS A	0.1	0.7	0.58	0.78	0.58	29.3
East: E - Parramatta Rd														
4	L2	18	0.0	18	0.0	0.411	5.6	LOS A	32.2	233.8	0.00	0.01	0.00	56.7
5	T1	1537	4.7	1537	4.7	0.411	0.0	LOS A	32.2	233.8	0.00	0.01	0.00	59.7
Approach		1555	4.6	1555	4.6	0.411	0.1	NA	32.2	233.8	0.00	0.01	0.00	59.7
North: N - Railway St														
7	L2	2	0.0	2	0.0	0.003	7.4	LOS A	0.0	0.1	0.53	0.55	0.53	44.8
Approach		2	0.0	2	0.0	0.003	7.4	LOS A	0.0	0.1	0.53	0.55	0.53	44.8
West: W - Parramatta Rd														
10	L2	3	0.0	3	0.0	0.358	3.5	LOS A	0.0	0.0	0.00	0.00	0.00	52.5
11	T1	1349	5.1	1349	5.1	0.358	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		1353	5.1	1353	5.1	0.358	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
All Vehicles		2931	4.8	2931	4.8	0.411	0.1	NA	32.2	233.8	0.00	0.01	0.00	59.6

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.

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

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

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

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

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

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MOVEMENT SUMMARY

 Site: 01 [Parramatta Rd/George St 2020PM-Dev]

 Network: N101 [Parramatta Rd Network (2020PM-Dev)]

New Site

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Total	Flows HV	Arrival Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		veh/h	%	veh/h	%	v/c	sec		veh	m			km/h	
South: S - Nipper St														
1	L2	32	0.0	32	0.0	0.128	43.3	LOS D	2.1	14.9	0.85	0.71	0.85	20.8
2	T1	17	0.0	17	0.0	0.128	39.3	LOS C	2.1	14.9	0.85	0.71	0.85	25.7
3	R2	48	2.2	48	2.2	0.115	29.4	LOS C	1.7	11.8	0.81	0.72	0.81	10.0
Approach		97	1.1	97	1.1	0.128	35.7	LOS C	2.1	14.9	0.83	0.71	0.83	18.6
East: E - Parramatta Rd														
4	L2	43	0.0	43	0.0	0.040	12.4	LOS A	0.9	6.6	0.44	0.63	0.44	21.8
5	T1	1362	2.7	1362	2.7	0.888	40.7	LOS C	9.1	65.3	0.94	0.98	1.11	20.3
6	R2	141	0.7	141	0.7	0.905	45.3	LOS D	5.9	41.7	1.00	0.95	1.51	21.5
Approach		1546	2.5	1546	2.5	0.905	40.3	LOS C	9.1	65.3	0.94	0.97	1.13	20.4
North: N - George St														
7	L2	156	0.7	156	0.7	0.487	44.8	LOS D	9.5	67.1	0.92	0.80	0.92	23.0
8	T1	46	0.0	46	0.0	0.487	40.3	LOS C	9.5	67.1	0.92	0.80	0.92	24.7
9	R2	264	0.8	264	0.8	0.633	33.2	LOS C	11.1	77.9	0.90	0.81	0.90	32.6
Approach		466	0.7	466	0.7	0.633	37.8	LOS C	11.1	77.9	0.91	0.80	0.91	28.8
West: W - Parramatta Rd														
10	L2	132	0.0	132	0.0	0.968	74.8	LOS F	48.1	339.5	1.00	1.17	1.37	21.8
11	T1	1165	1.4	1165	1.4	0.968	68.6	LOS E	48.1	339.5	1.00	1.18	1.37	12.6
12	R2	81	1.3	81	1.3	0.969	87.1	LOS F	5.6	39.6	1.00	1.05	1.85	12.4
Approach		1378	1.2	1378	1.2	0.969	70.3	LOS E	48.1	339.5	1.00	1.17	1.40	13.8
All Vehicles		3487	1.7	3487	1.7	0.969	51.7	LOS D	48.1	339.5	0.95	1.02	1.20	18.5

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	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P2	East Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P3	North Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	84	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		242	49.3	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Site: 02 [Parramatta Rd/Columbia Ln 2020PM-Dev]

Network: N101 [Parramatta Rd Network (2020PM-Dev)]

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

Movement Performance - Vehicles														
Mov ID	Turn	Demand Total	Flows HV	Arrival Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		veh/h	%	veh/h	%	v/c	sec		veh	m			km/h	
South: S - Columbia Ln														
1	L2	7	0.0	7	0.0	0.019	7.2	LOS A	0.0	0.2	0.50	0.66	0.50	31.2
Approach		7	0.0	7	0.0	0.019	7.2	LOS A	0.0	0.2	0.50	0.66	0.50	31.2
East: E - Parramatta Rd														
4	L2	55	1.9	55	1.9	0.358	5.6	LOS A	30.4	214.8	0.00	0.05	0.00	56.0
5	T1	1328	1.2	1328	1.2	0.358	0.0	LOS A	30.4	214.8	0.00	0.02	0.00	59.4
Approach		1383	1.2	1383	1.2	0.358	0.3	NA	30.4	214.8	0.00	0.02	0.00	59.2
North: N - Railway St														
7	L2	8	0.0	8	0.0	0.010	7.5	LOS A	0.0	0.3	0.53	0.59	0.53	44.7
Approach		8	0.0	8	0.0	0.010	7.5	LOS A	0.0	0.3	0.53	0.59	0.53	44.7
West: W - Parramatta Rd														
10	L2	6	0.0	6	0.0	0.354	3.5	LOS A	0.0	0.0	0.00	0.01	0.00	52.4
11	T1	1363	1.2	1363	1.2	0.354	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		1369	1.2	1369	1.2	0.354	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
All Vehicles		2768	1.2	2768	1.2	0.358	0.2	NA	30.4	214.8	0.00	0.02	0.00	59.4

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

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

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

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

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

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

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

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MOVEMENT SUMMARY

 Site: 01 [Parramatta Rd/George St 2020SAT-Dev]

 Network: N101 [Parramatta Rd Network (2020SAT-Dev)]

New Site

Site Category: (None)

Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Site User-Given Phase Times)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Total	Flows HV	Arrival Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		veh/h	%	veh/h	%	v/c	sec		veh	m			km/h	
South: S - Nipper St														
1	L2	79	0.0	79	0.0	0.264	44.7	LOS D	4.5	31.5	0.88	0.76	0.88	20.2
2	T1	20	0.0	20	0.0	0.264	40.7	LOS C	4.5	31.5	0.88	0.76	0.88	25.0
3	R2	85	0.0	85	0.0	0.294	36.5	LOS C	3.4	23.8	0.92	0.75	0.92	8.3
Approach		184	0.0	184	0.0	0.294	40.5	LOS C	4.5	31.5	0.90	0.76	0.90	17.0
East: E - Parramatta Rd														
4	L2	21	0.0	21	0.0	0.018	11.6	LOS A	0.4	2.9	0.39	0.62	0.39	22.7
5	T1	1324	3.1	1324	3.1	0.797	25.1	LOS B	9.1	65.3	0.85	0.79	0.87	27.1
6	R2	156	0.7	156	0.7	0.888	42.6	LOS D	6.0	42.5	1.00	0.95	1.44	22.2
Approach		1501	2.8	1501	2.8	0.888	26.8	LOS B	9.1	65.3	0.86	0.80	0.93	26.2
North: N - George St														
7	L2	184	1.1	184	1.1	0.527	43.8	LOS D	10.8	75.9	0.92	0.81	0.92	23.2
8	T1	44	0.0	44	0.0	0.527	39.2	LOS C	10.8	75.9	0.92	0.81	0.92	25.0
9	R2	184	0.0	184	0.0	1.018	91.6	LOS F	13.0	91.1	1.00	1.21	1.92	17.0
Approach		413	0.5	413	0.5	1.018	64.6	LOS E	13.0	91.1	0.96	0.99	1.37	19.4
West: W - Parramatta Rd														
10	L2	163	0.6	163	0.6	0.917	55.8	LOS D	44.0	312.7	1.00	1.04	1.19	25.3
11	T1	1204	2.0	1204	2.0	0.917	50.0	LOS D	44.0	312.7	1.00	1.05	1.19	16.0
12	R2	93	0.0	93	0.0	0.914	75.8	LOS F	5.9	41.2	1.00	1.00	1.61	13.7
Approach		1460	1.7	1460	1.7	0.917	52.3	LOS D	44.0	312.7	1.00	1.04	1.22	17.3
All Vehicles		3558	2.0	3558	2.0	1.018	42.3	LOS C	44.0	312.7	0.93	0.92	1.10	20.4

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

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

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

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

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

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

Movement Performance - Pedestrians								
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Prop. Queued	Effective Stop Rate	
P1	South Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P2	East Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P3	North Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	84	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		242	49.3	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

Site: 02 [Parramatta Rd/Columbia Ln 2020SAT-Dev]

Network: N101 [Parramatta Rd Network (2020SAT-Dev)]

New Site
Site Category: (None)
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles														
Mov ID	Turn	Demand Total	Flows HV	Arrival Total	Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed	
		veh/h	%	veh/h	%	v/c	sec		veh	m			km/h	
South: S - Columbia Ln														
1	L2	21	0.0	21	0.0	0.048	7.0	LOS A	0.1	0.6	0.51	0.71	0.51	31.5
Approach		21	0.0	21	0.0	0.048	7.0	LOS A	0.1	0.6	0.51	0.71	0.51	31.5
East: E - Parramatta Rd														
4	L2	24	4.3	24	4.3	0.390	5.6	LOS A	22.9	162.8	0.00	0.02	0.00	56.1
5	T1	1480	1.7	1480	1.7	0.390	0.0	LOS A	22.9	162.8	0.00	0.01	0.00	59.7
Approach		1504	1.7	1504	1.7	0.390	0.1	NA	22.9	162.8	0.00	0.01	0.00	59.6
North: N - Railway St														
7	L2	1	0.0	1	0.0	0.001	7.8	LOS A	0.0	0.0	0.55	0.54	0.55	44.4
Approach		1	0.0	1	0.0	0.001	7.8	LOS A	0.0	0.0	0.55	0.54	0.55	44.4
West: W - Parramatta Rd														
10	L2	1	0.0	1	0.0	0.383	3.5	LOS A	0.0	0.0	0.00	0.00	0.00	52.5
11	T1	1474	1.8	1474	1.8	0.383	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		1475	1.8	1475	1.8	0.383	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
All Vehicles		3001	1.8	3001	1.8	0.390	0.1	NA	22.9	162.8	0.00	0.01	0.00	59.6

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.

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

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

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

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

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

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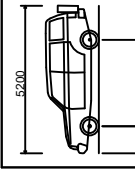
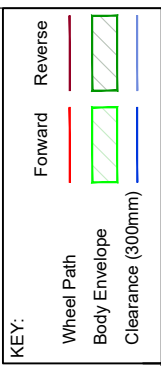
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Attachment Two

Swept Path Diagrams

NOTE: NUMBERS IN CIRCLE INDICATE THE NUMBER OF MOVEMENTS REQUIRED TO COMPLETE THE MANOEUVRE.



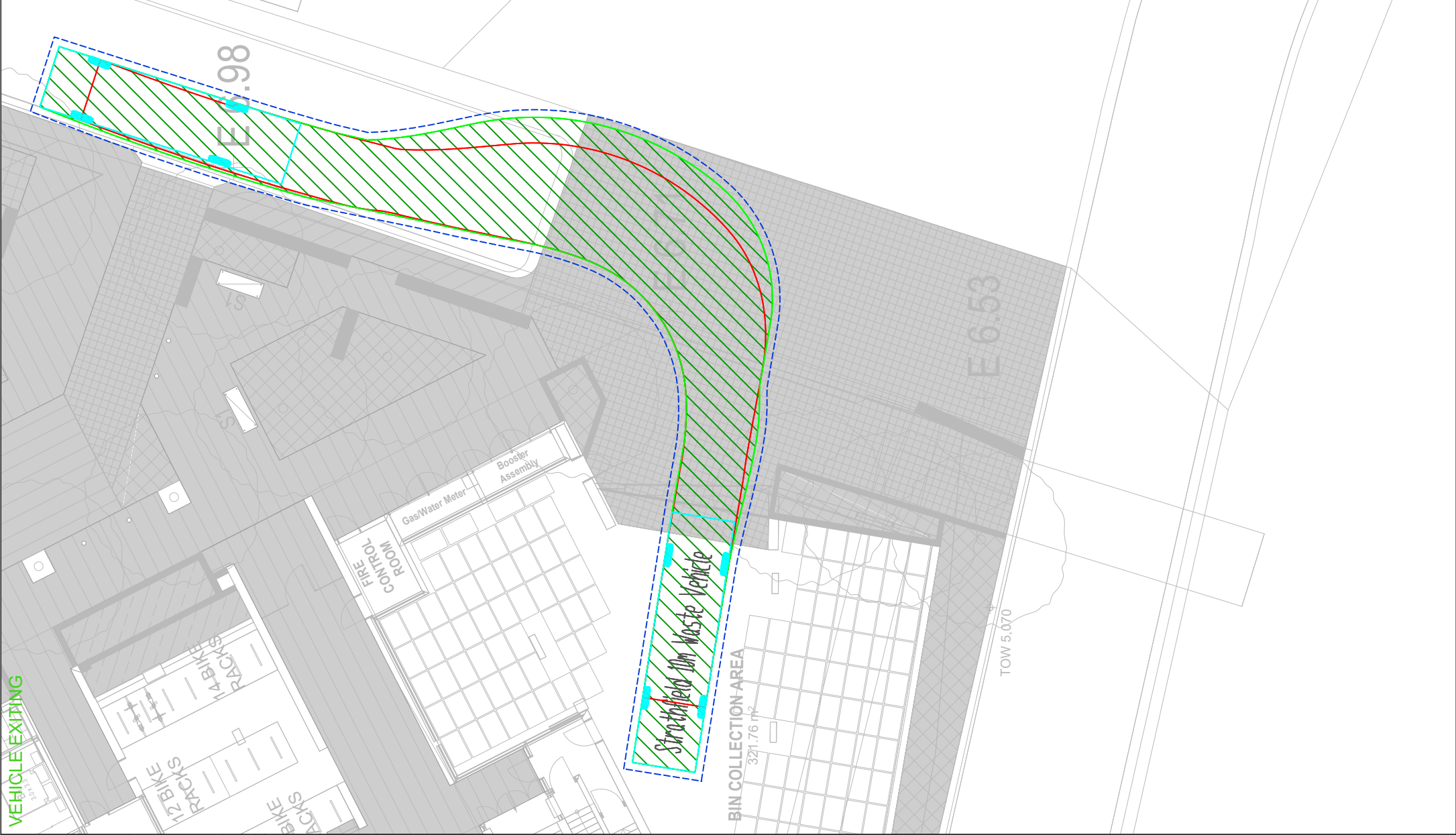
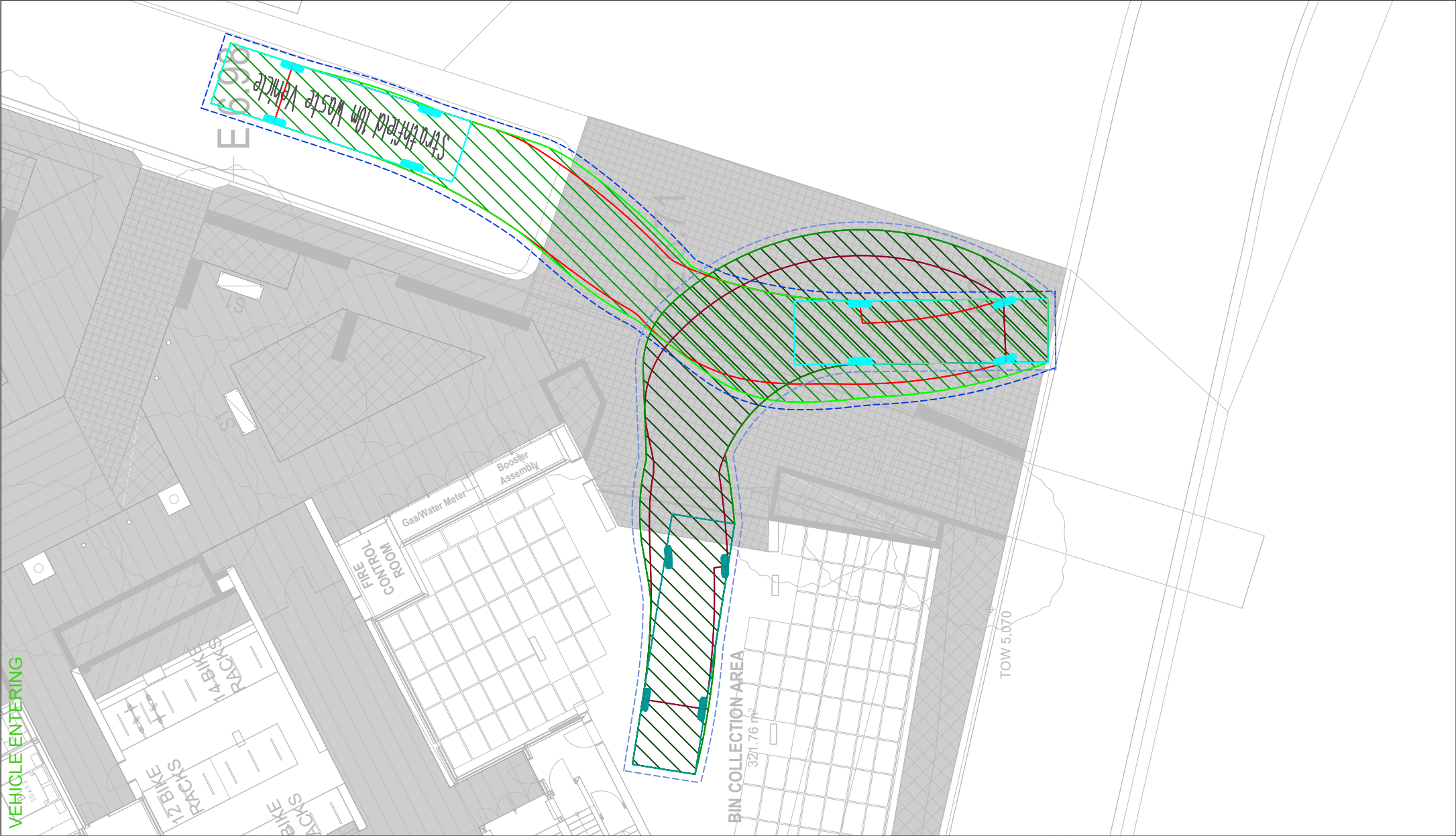
B99 Vehicle (Realistic min radius) (2004)	5200mm
Overall Length	1940mm
Overall Width	1878mm
Overall Body Height	272mm
Min Body Ground Clearance	1840mm
Track Width	4.00s
Lock-to-lock time	6250mm
Curb to Curb Turning Radius	

DATE:	SCALE:
14 JULY 2020	1:100@A3

DRAWING NO.:	REV.:
20044CAD001B-001	B

DRAWING TITLE:
VEHICLE SWEEPED PATH -
AS2890.1 5.2M B99 TURNING
AROUND ON DRIVEWAY

PROJECT:
11-17 COLUMBIA LN,
HOMEBUSH



NOTE: NUMBERS IN CIRCLE INDICATE THE NUMBER OF MOVEMENTS REQUIRED TO COMPLETE THE MANOEUVRE.

KEY:

Wheel Path	Forward	Reverse
Body Envelope		
Clearance (300mm)		

Strathfield 10m Waste Vehicle

Overall Length	10.000m
Overall Width	2.500m
Overall Body Height	3.206m
Min Body Ground Clearance	0.411m
Track Width	2.500m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	10.000m

DATE:	14 JULY 2020	SCALE:	1:200@A3
DRAWING NO.:	20044CAD001B-002	REV:	B
DRAWING TITLE:			
VEHICLE SWEEP PATH - STRATHFIELD COUNCIL 10M WASTE TRUCK ACCESSING LOADING BAY			
PROJECT:			
11-17 COLUMBIA LN, HOMEBUSH			