
Colston Budd Rogers & Kafes Pty Ltd

as Trustee for C & B Unit Trust
ABN 27 623 918 759

Our Ref: JH/10622/jj

Transport Planning
Traffic Studies
Parking Studies

25 September, 2019

Sydney Catholic Schools
c/- CTPG
Level 13, 333 George Street
SYDNEY NSW 2000

Attention: Greg Carmichael
Email: Greg.Carmichael@ctpg.com.au

Dear Sir,

**RE: ST ANTHONY OF PADUA CATHOLIC SCHOOL AT AUSTRAL
STATE SIGNIFICANT DEVELOPMENT APPLICATION FOR
SCHOOL MASTERPLAN**

1. As requested, we are writing regarding further matters raised by the authorities in relation to the above development. We have previously prepared a report¹ which was submitted with the development application and a letter of 15 February 2019 in response to previous matters raised.
2. In an email of 5 August, the Department of Planning, Industry & Environment has raised a number of further traffic and parking matters. These matters, and our responses, are set out below.

Road / traffic infrastructure upgrades

- *The revised scheme proposes to delete road infrastructure upgrades including signalised intersections and pedestrian crossings without any clear commitment as to how the intersections would be treated or infrastructure delivered in the future. There is no additional assessment of the interim and long terms traffic impacts as well. As part of its assessment of the application for a traffic generating development, the Department must understand and assess the traffic impacts of the proposal including an assessment of measures to mitigate those impacts. Consequently, a revised detailed traffic assessment is required, demonstrating the likely traffic movements, impacts to the operation of the local road network, pedestrian and cyclist movements and safety for each sub-stage of the proposal. The assessment should inform road upgrades and mitigation measures necessary to offset assessed impacts and ensure appropriate levels of service and safety at each sub-*

¹ Transport and Accessibility Impact Assessment for Proposed St Anthony of Padua Catholic School, 125-165 Tenth Avenue and 140-170 Eleventh Avenue, Austral, July 2018 (Amended October 2018).

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stage, with a commitment to delivering those measures subject to roads authority approval at that time.

3. As noted in our previous report, we have assessed 2036 traffic flows (with the Austral/Leppington North precinct fully developed) and traffic from the proposed school when it is fully developed. Traffic flows on adjacent roads and intersections are shown in Figures 3 and 4 of that report. They are reproduced and attached to this letter for the intersections of Fourth Avenue/Tenth Avenue and Fourth Avenue/Eleventh Avenue as Figures 1 and 2.
4. The RMS has previously advised that it does not agree to the provision of traffic signals at the intersections of Fourth Avenue with Tenth Avenue or Eleventh Avenue. We have therefore analysed the operations of the Fourth Avenue intersections for the traffic flows shown in Figures 1 and 2 using SIDRA. The analysis found that the Fourth Avenue intersections would operate satisfactorily under either sign control (give way/stop signs) or roundabout control. Copies of the SIDRA output summaries are provided as Attachment 1.
5. We have also met with officers of Liverpool Council on 22 August 2019. RMS representatives were present via teleconference. At that meeting, it was agreed that:
 - i) initially, for Stage 1, the existing give way and stop controls would be retained at the intersections of Fourth Avenue with Eleventh Avenue and Tenth Avenue respectively;
 - ii) school or pedestrian crossing to be provided on Eleventh Avenue in association with Stage 2 of the school development, when enrolments pass 300 students. The crossing would be subject to traffic committee approval; and
 - iii) at Stage 3 of the school (enrolments of some 1,150) road widening works to be undertaken on Tenth Avenue, Eleventh Avenue and Fourth Avenue, adjacent to the school, including bus bays. Provision to be included for intersection treatments (roundabouts with pedestrian refuges or traffic signals) at the intersections of Fourth Avenue with Tenth Avenue and Eleventh Avenue at this time. Financial contribution to be made to council for construction of these works, at Stage 1. Marked pedestrian crossings to be provided on Tenth Avenue and Eleventh Avenue at this time (to replace school crossing on Eleventh Avenue if not already provided). All works subject to traffic committee/RMS approval.
6. This staging and associated works are shown in plans prepared by MSM Architects and Warren Smith & Partners, provided as Attachment 2.

7. It was also agreed that Liverpool Council would be responsible for appropriate intersection treatments at the intersections of Edmondson Avenue with Tenth and Eleventh Avenues, in association with the plans currently being prepared for the upgrade to Edmondson Avenue, to accommodate future development in the Austral and Leppington North precincts.
 - *The draft RTS advises that the infrastructure upgrades have been altered based on discussions with TfNSW (RMS). Evidence of the meetings and the advice from RMS must be included in the revised Traffic Assessment prior to any further assessment in this regard.*
8. The RMS correspondence is provided as Attachment 3.
 - *The Department notes that the Growth Centre DCP for this precinct requires roundabouts at the intersection to the west of the site. The draft RTS does not clarify why this option has not been considered instead of the signals, in the scenario that an alternate upgrade is proposed.*
9. Figure 2-12 (Precinct road hierarchy) of Schedule 1 (Austral and Leppington North Precincts) of the Liverpool Growth Centre Precincts DCP 2013 (Attachment 4) does not identify roundabouts at the intersections of Fourth Avenue with Tenth or Eleventh Avenues. However, as noted above, roundabouts will be provided at these intersections in association with Stage 3 of the school, when enrolments reach some 1,150.
 - *The RTS advises that the access / egress points will function at an appropriate level of service without left in / left out restrictions. Please outline the expected traffic movements at these points and expected levels of service during peak drop off / pick up times. Modelling should be based on traffic measures proposed to be in place at each relevant substage, and therefore should be updated from previous modelling if signalised intersections are no longer proposed.*
10. Traffic flows at the site access points on Fourth, Tenth and Eleventh Avenues are shown, for the ultimate development of the school and surrounding precinct, in the attached Figure 3. Analysis with SIDRA indicates that these access points would operate with average delays for the highest delayed movements of less than 15 seconds per vehicle during morning and afternoon peak periods. This represents level of service A/B, a good level of service.
11. The analysis is based on priority controls for access to and from the site. It is based on one lane in each direction on Fourth, Tenth and Eleventh Avenues, without additional turning lanes on the frontage roads. This represents existing conditions, and is conservative for all stages of school development. The assessment is also not sensitive to whether traffic signals are provided at Fourth Avenue/Tenth Avenue or Fourth Avenue/Eleventh Avenue.

12. Therefore, additional lanes on these frontages, proposed in association with Stage 3 of the school (see paragraph 5 above) will also be appropriate to cater for traffic turning to and from the school access points at Stage 3 and subsequent stages. Copies of the SIDRA output summaries are provided as Attachment 5.

Public transport

- *The traffic impact assessment should detail how the estimated public transport, pedestrian and bicycle trips have been derived. Figures / estimates have been provided in the RTS but the basis of these figures are unclear.*
13. A summary of surveyed travel modes of other similar private schools is provided in Table 1.

Table 1: Travel modes						
School	Car		Bus		Walk/cycle/other	
	Junior	Senior	Junior	Senior	Junior	Senior
Inaburra	60%	30%	36%	62%	5%	9%
Champagnat		51%		38%		11%
Kincoppal	75%	31%	21%	53%	2%	16%
St Patricks		39%		52%		9%
Average	68%	38%	29%	51%	4%	11%
cf. Austral	60%	40%	30-40%	50-60%	<10%	<10%

14. The estimates of future travel modes at Austral have been based on surveys of other private schools. We note that with regards to the proportion of students walking, cycling or using other modes of travel, the majority of these were students who walked. The proportion of students cycling was generally less than one per cent.
- *The Department reiterates its earlier advice and requires that a draft Green Travel Plan and draft Traffic and Parking Management Plan must be provided with the RTS to enable the Department to assess the quality of the commitments to maximise sustainable travel modes and the ability to manage traffic and safety impacts under the proposed layout.*
15. Previous correspondence from TfNSW and council requires these to be prepared following approval, and prior to operation of the school. Copies of draft documents are provided as Attachments 6 and 7.
- *The Department reiterates earlier advice that consideration should be given to reducing excess car parking and providing additional bicycle parking consistent with DCP requirements to encourage reduced reliance on private motor vehicles in favour of alternative forms of transport.*

16. We note that the Liverpool Growth Centre Precincts DCP does not include bicycle parking requirements for schools. 180 bicycle parking spaces are proposed.
17. As noted above, the proportion of students found cycling at other private schools was generally less than one per cent. Private schools draw from a wider catchment than local schools and the proportion of students cycling is therefore lower.
18. For the proposed school at Austral, one per cent of students represents some 25 bicycle parking spaces, which is readily satisfied by the proposed provision of 180 bicycle parking spaces. These will be located as follows:
 - 10 spaces adjacent to Eleventh Avenue for visitors;
 - 60 enclosed spaces adjacent to the car park in the south-eastern corner of the campus for students;
 - 60 spaces from Tenth Avenue, on the eastern part of the site, for students;
 - 40 enclosed spaces at the north-western and south-eastern corners of the central building for staff, including showers;
 - 10 spaces adjacent to Tenth Avenue for visitors.
19. With regards to appropriately providing for alternative forms of transport, this is typically provided at private schools by bus services. The proposed road works at Austral include significant infrastructure for buses to anticipate and encourage this expectation.
20. With regards to car parking provision, the Liverpool Growth Centre Precincts Development Control Plan includes the following parking requirements:
 - one space per employee; plus
 - one space per 100 students; plus
 - one space per five students in year 12;
 - for child care centres – one space per six children, plus one space per employee, based on one employee per four children (under two years old), one employee per eight children (two to three years old) and one employee per 10 children (three years or older).
21. Based on a student population of 2,280 (including 240 in year 12), 200 employees and a 125 place child care centre (including 36 children under two, 45 children between two and three and 44 children over three), 311 parking spaces would be required.
22. The 326 proposed parking spaces satisfies this requirement.

23. It should be noted that at the meeting with council officers on 22 August, council expressed a strong view that on-site parking provision should not be reduced. If the department considers that parking provision should be reduced, an appropriate condition of consent could be included.

Road Widening

- *The Department considers that the road widening required by the development is beyond that expected in the precinct planning and is a direct consequence of the traffic and infrastructure generated by the proposed school. Consequently, the additional land required for the road widening must be within the school site. This matter was raised in Council's submission and well as Department's key issues letter after the exhibition of the EIS. However, no response has been provided in this regard.*
 - *The proposal in its current form would only provide for half of the road widening within the site and relies on other land owners to construct the remaining half. This requirement would burden a Council owned part and private residential allotments. There is no evidence of a road widening easement at these locations. Consequently, the proposal cannot rely on these allotments without any owners' consent for the effected land owners consenting to this encroachment. The proposed road widening is not supported in its current form by the Department. The site plan is to be amended to allow the entire widening to occur within the site and the development envelope adjusted to cater for this widening.*
24. All land required for road widening will be provided from the school site. The civil and architectural plans have been amended to more clearly reflect this aspect.
- *The school boundary should also be adjusted so that public footpaths and required verge landscaping are outside of the school boundary – noting in some cases the current plans show them within the school boundary.*
 - *The civil plans for road widening / road works remain inconsistent with the plans recommended by the traffic engineers. Please update or explain the reasons for the inconsistencies.*
25. The amended civil and architectural plans incorporate these elements.
- *The Department strongly recommends meeting with both Council and RMS to agree on road infrastructure and traffic management measures, delivery and finding arrangements prior to submission of the RTS.*
26. This meeting was held on 22 August 2019, as noted above.

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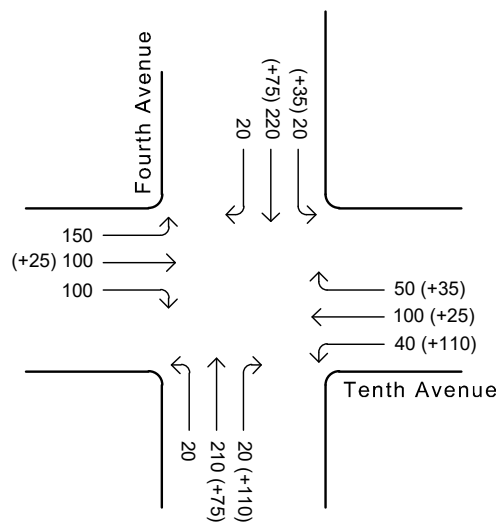
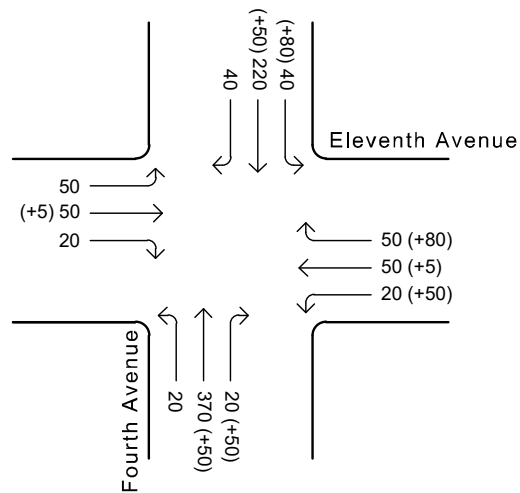
27. We trust the above provides the information you require. Finally, if you should have any queries, please do not hesitate to contact us.

Yours faithfully,

COLSTON BUDD ROGERS & KAFES PTY LTD

A handwritten signature in black ink, appearing to read 'J Hollis', written in a cursive style.

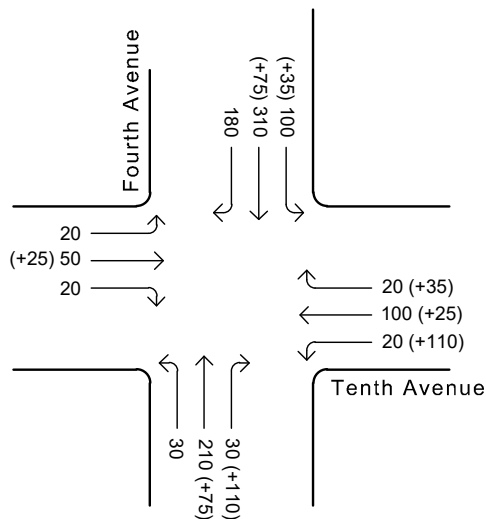
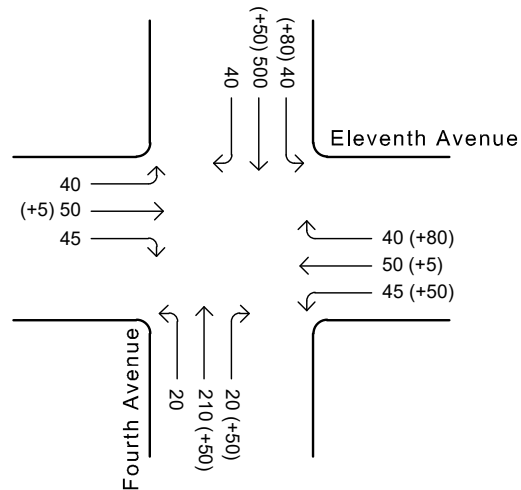
J Hollis
Director



LEGEND

100 - 2036 Peak Hour Traffic Flows
 (+10) - Additional Development Traffic

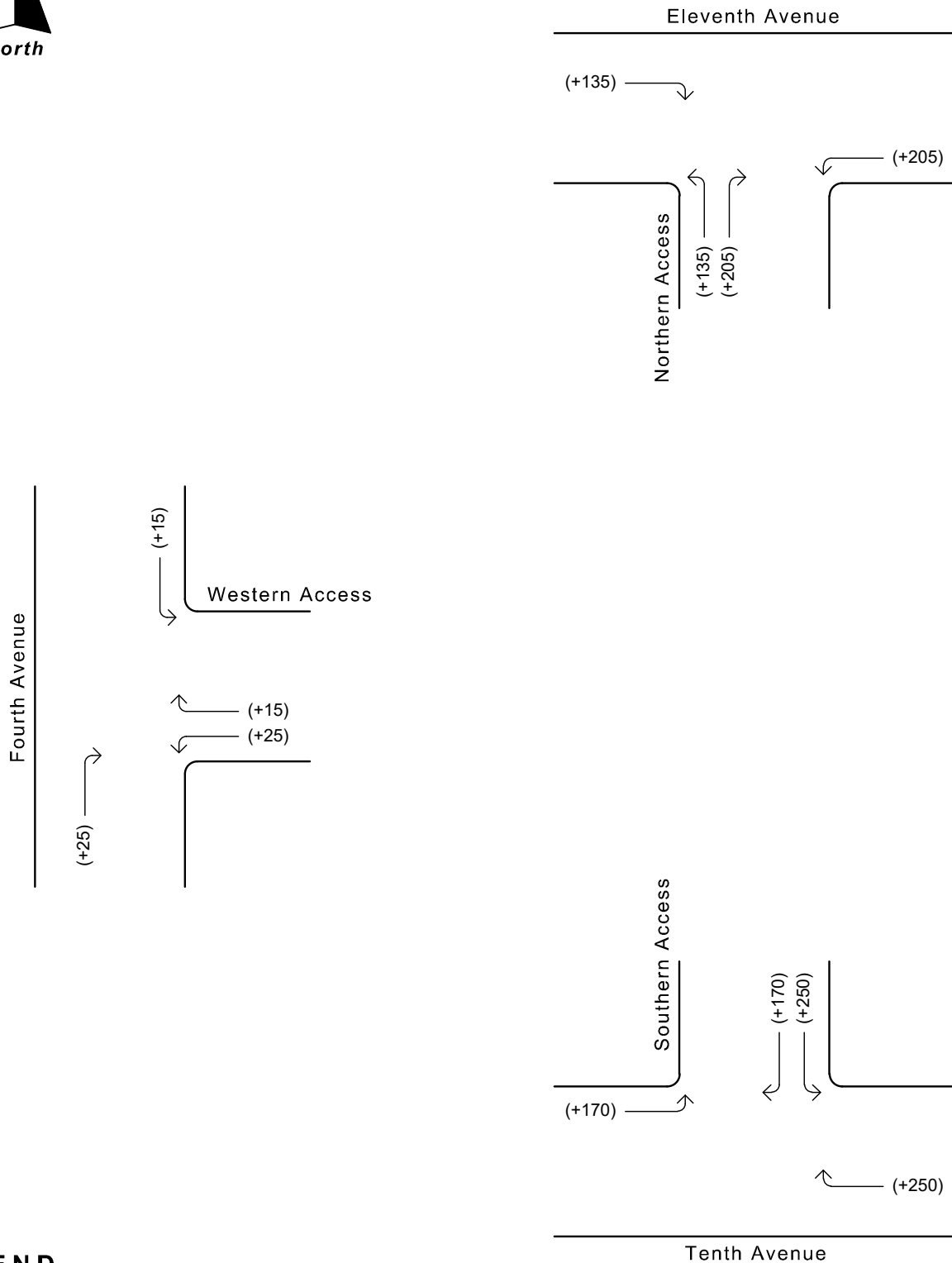
**2036 weekday morning peak hour
 traffic flows plus development traffic**



LEGEND

100 - 2036 Peak Hour Traffic Flows
(+10) - Additional Development Traffic

**2036 weekday afternoon peak hour
traffic flows plus development traffic**



LEGEND

(+10) - Additional Development Traffic

Development traffic

ATTACHMENT I

SIDRA OUTPUT SUMMARIES FOR SURROUNDING INTERSECTIONS

SITE LAYOUT

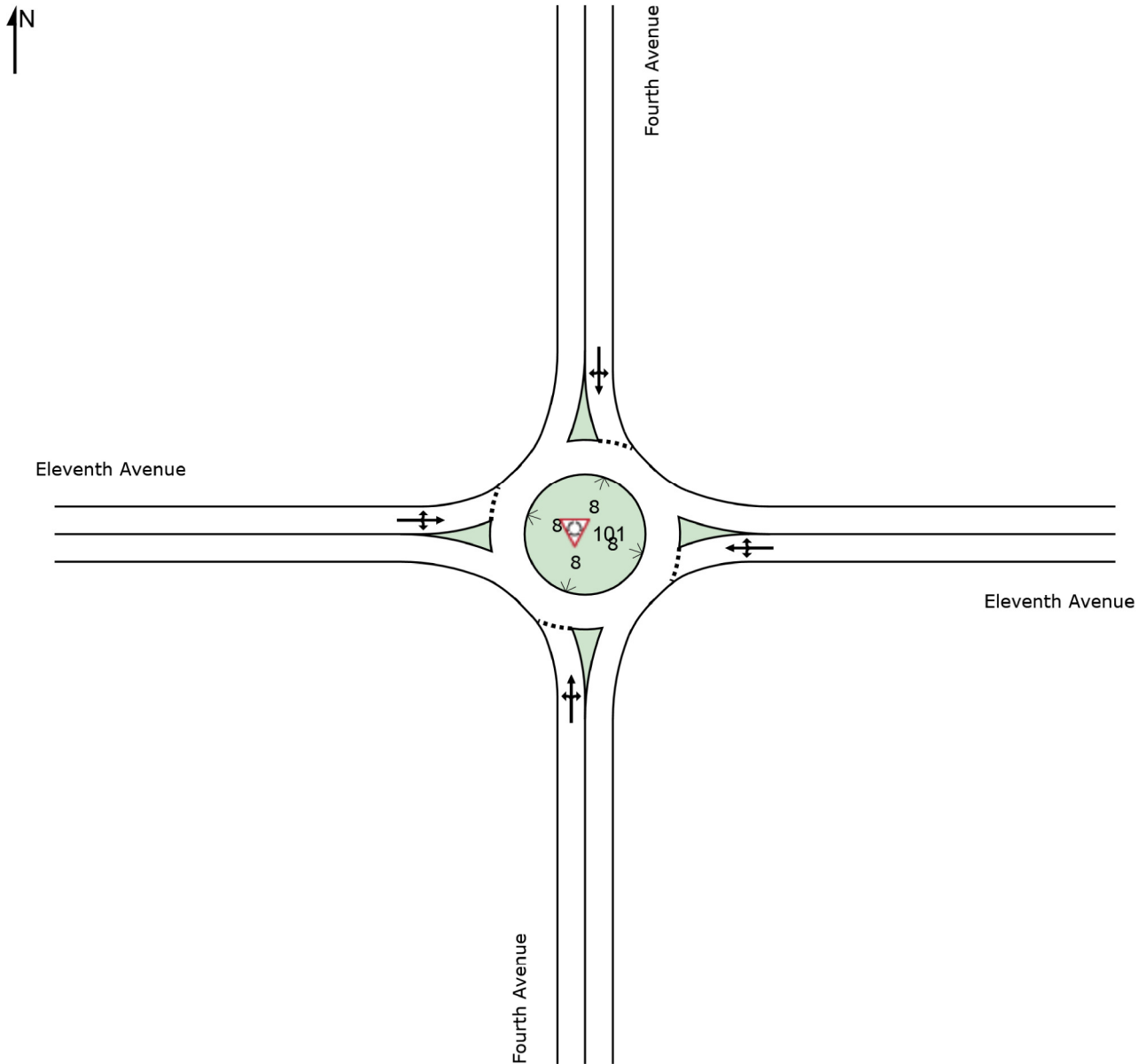


Site: 101 [AM 2036 + DEV - Fourth Avenue - Eleventh Avenue (1 Lane)]

2036 Weekday Morning Peak Hour Development Traffic Flows Plus Development Traffic

Site Category: (None)

Roundabout



MOVEMENT SUMMARY

 **Site: 101 [AM 2036 + DEV - Fourth Avenue - Eleventh Avenue (1 Lane)]**

2036 Weekday Morning Peak Hour Development Traffic Flows Plus Development Traffic
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Fourth Avenue												
1	L2	20	2.0	0.472	4.5	LOS A	3.5	25.2	0.57	0.57	0.57	41.3
2	T1	420	2.0	0.472	4.1	LOS A	3.5	25.2	0.57	0.57	0.57	42.1
3	R2	70	2.0	0.472	7.2	LOS A	3.5	25.2	0.57	0.57	0.57	38.0
Approach		510	2.0	0.472	4.6	LOS A	3.5	25.2	0.57	0.57	0.57	41.4
East: Eleventh Avenue												
4	L2	70	2.0	0.269	4.9	LOS A	1.6	11.4	0.56	0.65	0.56	37.1
5	T1	55	2.0	0.269	4.5	LOS A	1.6	11.4	0.56	0.65	0.56	41.2
6	R2	130	2.0	0.269	7.6	LOS A	1.6	11.4	0.56	0.65	0.56	41.0
Approach		255	2.0	0.269	6.2	LOS A	1.6	11.4	0.56	0.65	0.56	40.1
North: Fourth Avenue												
7	L2	120	2.0	0.362	4.8	LOS A	2.4	17.4	0.41	0.53	0.41	41.4
8	T1	270	2.0	0.362	4.7	LOS A	2.4	17.4	0.41	0.53	0.41	42.7
9	R2	40	2.0	0.362	7.8	LOS A	2.4	17.4	0.41	0.53	0.41	46.2
Approach		430	2.0	0.362	5.0	LOS A	2.4	17.4	0.41	0.53	0.41	42.6
West: Eleventh Avenue												
10	L2	50	2.0	0.172	7.9	LOS A	1.0	7.3	0.70	0.75	0.70	44.3
11	T1	55	2.0	0.172	7.8	LOS A	1.0	7.3	0.70	0.75	0.70	41.0
12	R2	20	2.0	0.172	10.8	LOS A	1.0	7.3	0.70	0.75	0.70	41.2
Approach		125	2.0	0.172	8.3	LOS A	1.0	7.3	0.70	0.75	0.70	42.3
All Vehicles		1320	2.0	0.472	5.4	LOS A	3.5	25.2	0.53	0.59	0.53	41.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

 **Site: 101 [PM 2036 + DEV - Fourth Avenue - Eleventh Avenue (1 Lane)]**

2036 Weekday Afternoon Peak Hour Development Traffic Flows Plus Development Traffic
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Fourth Avenue												
1	L2	20	2.0	0.331	4.2	LOS A	2.2	15.9	0.51	0.54	0.51	41.4
2	T1	260	2.0	0.331	3.8	LOS A	2.2	15.9	0.51	0.54	0.51	42.2
3	R2	70	2.0	0.331	6.9	LOS A	2.2	15.9	0.51	0.54	0.51	38.1
Approach		350	2.0	0.331	4.5	LOS A	2.2	15.9	0.51	0.54	0.51	41.2
East: Eleventh Avenue												
4	L2	95	2.0	0.384	7.6	LOS A	2.6	18.5	0.80	0.84	0.80	36.2
5	T1	55	2.0	0.384	7.2	LOS A	2.6	18.5	0.80	0.84	0.80	40.2
6	R2	120	2.0	0.384	10.3	LOS A	2.6	18.5	0.80	0.84	0.80	40.1
Approach		270	2.0	0.384	8.7	LOS A	2.6	18.5	0.80	0.84	0.80	38.8
North: Fourth Avenue												
7	L2	120	2.0	0.598	5.4	LOS A	5.4	38.1	0.58	0.57	0.58	41.1
8	T1	550	2.0	0.598	5.3	LOS A	5.4	38.1	0.58	0.57	0.58	42.3
9	R2	40	2.0	0.598	8.4	LOS A	5.4	38.1	0.58	0.57	0.58	45.8
Approach		710	2.0	0.598	5.5	LOS A	5.4	38.1	0.58	0.57	0.58	42.2
West: Eleventh Avenue												
10	L2	40	2.0	0.163	6.6	LOS A	0.9	6.5	0.59	0.69	0.59	44.7
11	T1	55	2.0	0.163	6.4	LOS A	0.9	6.5	0.59	0.69	0.59	41.3
12	R2	45	2.0	0.163	9.5	LOS A	0.9	6.5	0.59	0.69	0.59	41.7
Approach		140	2.0	0.163	7.5	LOS A	0.9	6.5	0.59	0.69	0.59	42.4
All Vehicles		1470	2.0	0.598	6.0	LOS A	5.4	38.1	0.61	0.63	0.61	41.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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.
Roundabout Capacity Model: SIDRA Standard.
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.

SITE LAYOUT

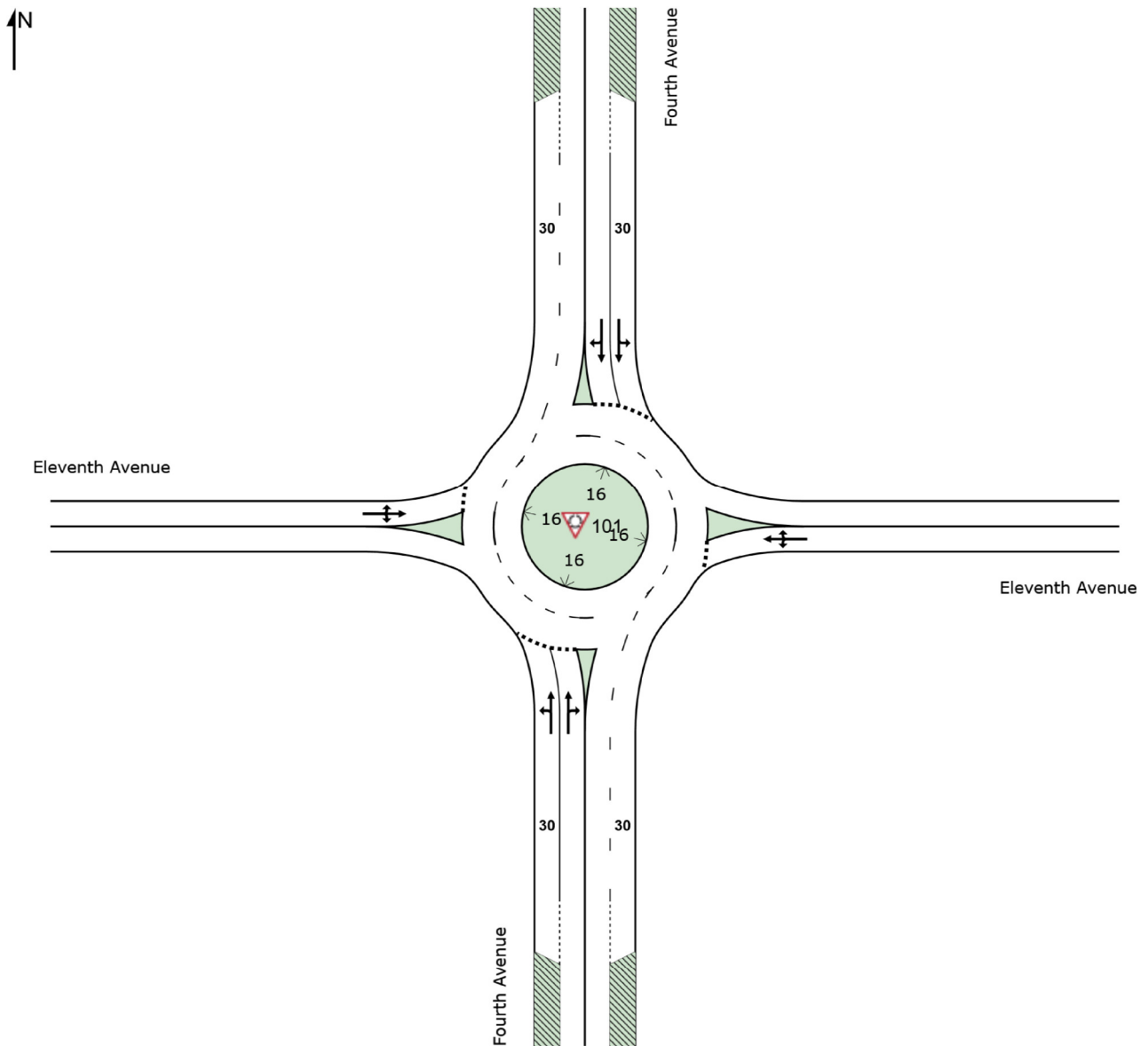


Site: 101 [AM 2036 + DEV - Fourth Avenue - Eleventh Avenue (2 Lane)]

2036 Weekday Morning Peak Hour Development Traffic Flows Plus Development Traffic

Site Category: (None)

Roundabout



MOVEMENT SUMMARY

 **Site: 101 [AM 2036 + DEV - Fourth Avenue - Eleventh Avenue (2 Lane)]**

2036 Weekday Morning Peak Hour Development Traffic Flows Plus Development Traffic
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Fourth Avenue												
1	L2	20	2.0	0.110	4.0	LOS A	0.5	3.4	0.40	0.43	0.40	42.7
2	T1	420	2.0	0.353	2.7	LOS A	2.0	14.5	0.43	0.41	0.43	43.5
3	R2	70	2.0	0.353	6.5	LOS A	2.0	14.5	0.43	0.40	0.43	39.5
Approach		510	2.0	0.353	3.3	LOS A	2.0	14.5	0.43	0.41	0.43	42.8
East: Eleventh Avenue												
4	L2	70	2.0	0.272	3.7	LOS A	1.4	9.8	0.49	0.60	0.49	37.8
5	T1	55	2.0	0.272	3.4	LOS A	1.4	9.8	0.49	0.60	0.49	42.0
6	R2	130	2.0	0.272	7.3	LOS A	1.4	9.8	0.49	0.60	0.49	42.1
Approach		255	2.0	0.272	5.5	LOS A	1.4	9.8	0.49	0.60	0.49	40.9
North: Fourth Avenue												
7	L2	120	2.0	0.126	4.3	LOS A	0.5	3.9	0.30	0.49	0.30	42.2
8	T1	270	2.0	0.239	3.7	LOS A	1.2	8.5	0.30	0.45	0.30	44.1
9	R2	40	2.0	0.239	7.8	LOS A	1.2	8.5	0.30	0.45	0.30	47.7
Approach		430	2.0	0.239	4.2	LOS A	1.2	8.5	0.30	0.46	0.30	43.8
West: Eleventh Avenue												
10	L2	50	2.0	0.159	5.9	LOS A	0.7	5.1	0.56	0.69	0.56	45.7
11	T1	55	2.0	0.159	5.9	LOS A	0.7	5.1	0.56	0.69	0.56	42.3
12	R2	20	2.0	0.159	10.0	LOS A	0.7	5.1	0.56	0.69	0.56	43.4
Approach		125	2.0	0.159	6.5	LOS A	0.7	5.1	0.56	0.69	0.56	43.8
All Vehicles		1320	2.0	0.353	4.3	LOS A	2.0	14.5	0.41	0.49	0.41	42.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

 **Site: 101 [PM 2036 + DEV - Fourth Avenue - Eleventh Avenue (2 Lane)]**

2036 Weekday Afternoon Peak Hour Development Traffic Flows Plus Development Traffic
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Fourth Avenue												
1	L2	20	2.0	0.077	3.8	LOS A	0.3	2.4	0.40	0.42	0.40	42.7
2	T1	260	2.0	0.247	2.5	LOS A	1.3	9.6	0.40	0.41	0.40	43.5
3	R2	70	2.0	0.247	6.4	LOS A	1.3	9.6	0.40	0.41	0.40	39.4
Approach		350	2.0	0.247	3.4	LOS A	1.3	9.6	0.40	0.41	0.40	42.5
East: Eleventh Avenue												
4	L2	95	2.0	0.370	6.1	LOS A	2.2	15.4	0.71	0.80	0.71	37.0
5	T1	55	2.0	0.370	5.8	LOS A	2.2	15.4	0.71	0.80	0.71	41.2
6	R2	120	2.0	0.370	9.7	LOS A	2.2	15.4	0.71	0.80	0.71	41.3
Approach		270	2.0	0.370	7.6	LOS A	2.2	15.4	0.71	0.80	0.71	39.8
North: Fourth Avenue												
7	L2	120	2.0	0.155	4.8	LOS A	0.7	4.8	0.36	0.53	0.36	42.1
8	T1	550	2.0	0.452	4.0	LOS A	2.9	20.3	0.40	0.46	0.40	43.9
9	R2	40	2.0	0.452	8.1	LOS A	2.9	20.3	0.40	0.46	0.40	47.5
Approach		710	2.0	0.452	4.4	LOS A	2.9	20.3	0.40	0.48	0.40	43.7
West: Eleventh Avenue												
10	L2	40	2.0	0.160	5.1	LOS A	0.7	5.0	0.49	0.64	0.49	45.7
11	T1	55	2.0	0.160	5.1	LOS A	0.7	5.0	0.49	0.64	0.49	42.4
12	R2	45	2.0	0.160	9.2	LOS A	0.7	5.0	0.49	0.64	0.49	43.4
Approach		140	2.0	0.160	6.5	LOS A	0.7	5.0	0.49	0.64	0.49	43.6
All Vehicles		1470	2.0	0.452	4.9	LOS A	2.9	20.3	0.46	0.54	0.46	42.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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.
Roundabout Capacity Model: SIDRA Standard.
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.

SITE LAYOUT

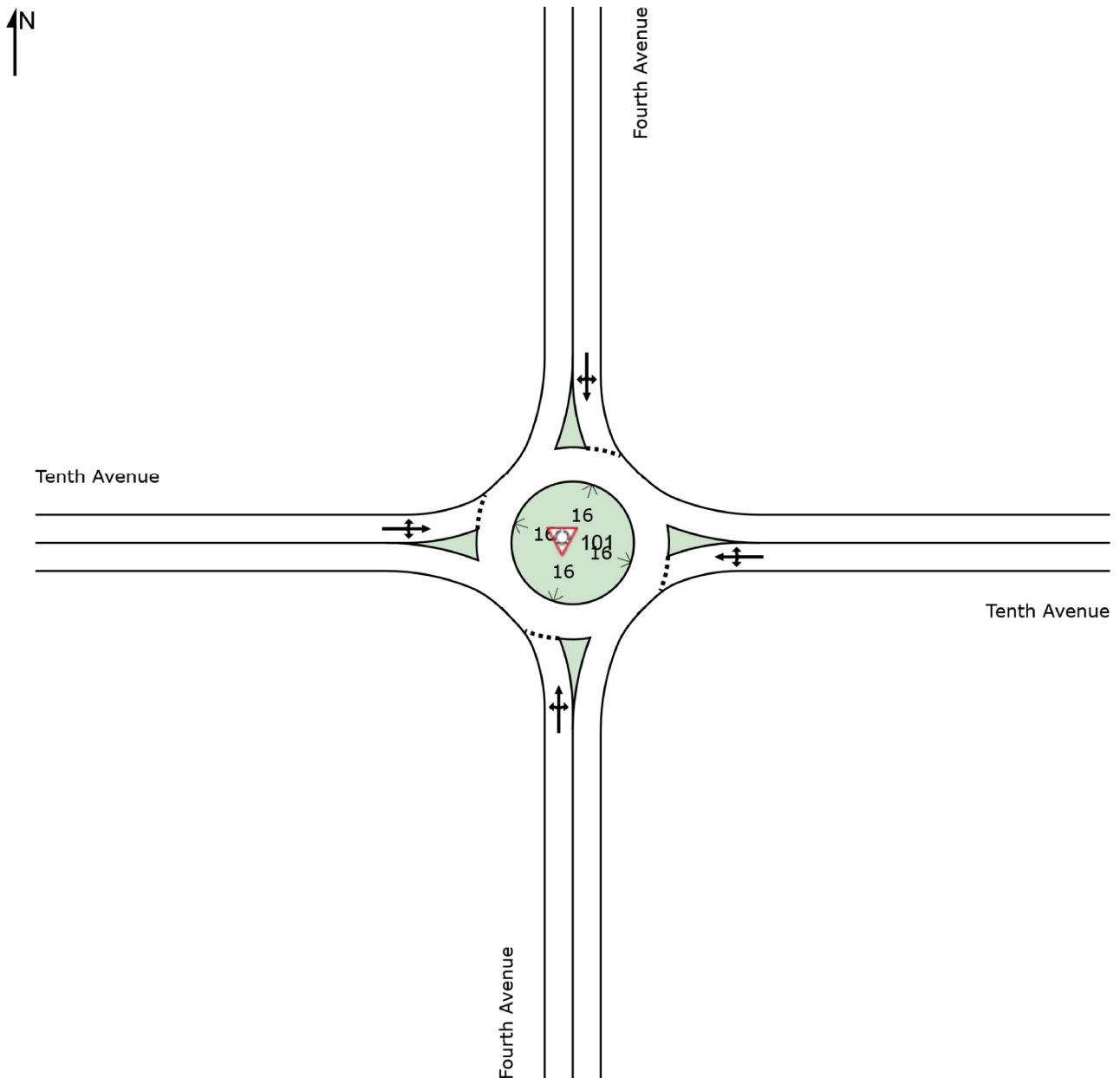


Site: 101 [AM 2036 + DEV - Fourth Avenue - Tenth Avenue (1 Lane)]

2036 Weekday Morning Peak Hour Development Traffic Flows Plus Development Traffic

Site Category: (None)

Roundabout



MOVEMENT SUMMARY

 **Site: 101 [AM 2036 + DEV - Fourth Avenue - Tenth Avenue (1 Lane)]**

2036 Weekday Morning Peak Hour Development Traffic Flows Plus Development Traffic
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Fourth Avenue												
1	L2	20	2.0	0.390	4.6	LOS A	2.8	19.9	0.54	0.58	0.54	45.6
2	T1	285	2.0	0.390	4.6	LOS A	2.8	19.9	0.54	0.58	0.54	42.9
3	R2	130	2.0	0.390	8.7	LOS A	2.8	19.9	0.54	0.58	0.54	42.4
Approach		435	2.0	0.390	5.9	LOS A	2.8	19.9	0.54	0.58	0.54	42.8
East: Tenth Avenue												
4	L2	150	2.0	0.385	4.8	LOS A	2.6	18.5	0.67	0.67	0.67	41.2
5	T1	125	2.0	0.385	4.4	LOS A	2.6	18.5	0.67	0.67	0.67	41.9
6	R2	85	2.0	0.385	8.3	LOS A	2.6	18.5	0.67	0.67	0.67	38.7
Approach		360	2.0	0.385	5.5	LOS A	2.6	18.5	0.67	0.67	0.67	40.9
North: Fourth Avenue												
7	L2	55	2.0	0.376	4.3	LOS A	2.5	18.0	0.63	0.57	0.63	37.9
8	T1	295	2.0	0.376	4.0	LOS A	2.5	18.0	0.63	0.57	0.63	42.9
9	R2	20	2.0	0.376	7.9	LOS A	2.5	18.0	0.63	0.57	0.63	42.9
Approach		370	2.0	0.376	4.3	LOS A	2.5	18.0	0.63	0.57	0.63	42.0
West: Tenth Avenue												
10	L2	150	2.0	0.430	6.7	LOS A	3.0	21.4	0.74	0.77	0.74	41.1
11	T1	125	2.0	0.430	6.7	LOS A	3.0	21.4	0.74	0.77	0.74	41.7
12	R2	100	2.0	0.430	10.8	LOS A	3.0	21.4	0.74	0.77	0.74	45.9
Approach		375	2.0	0.430	7.8	LOS A	3.0	21.4	0.74	0.77	0.74	42.6
All Vehicles		1540	2.0	0.430	5.9	LOS A	3.0	21.4	0.64	0.65	0.64	42.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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.

Roundabout Capacity Model: SIDRA Standard.

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

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

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

MOVEMENT SUMMARY

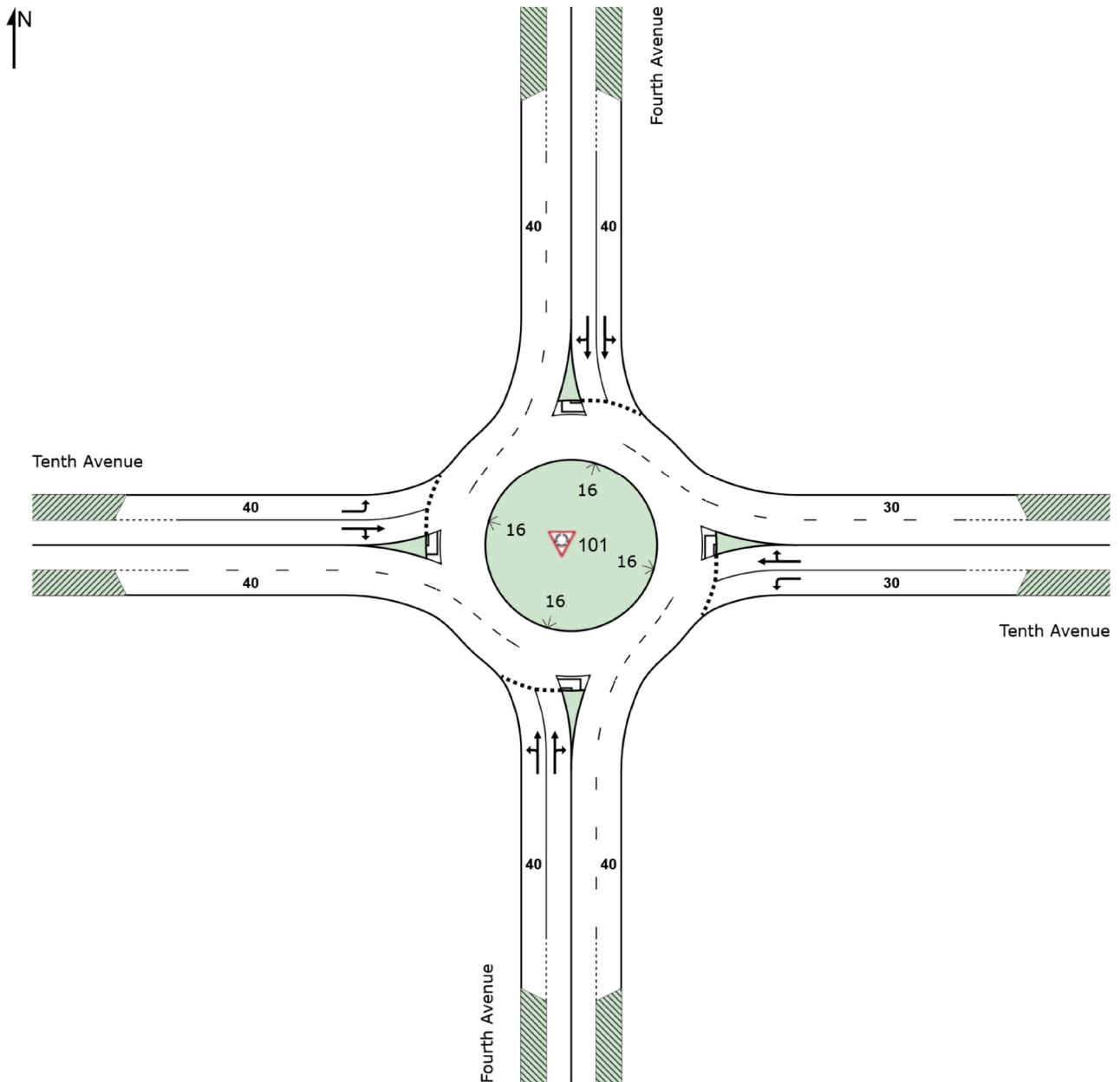
 **Site: 101 [PM 2036 + DEV - Fourth Avenue - Tenth Avenue (1 Lane)]**

2036 Weekday Afternoon Peak Hour Development Traffic Flows Plus Development Traffic
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Fourth Avenue												
1	L2	30	2.0	0.461	5.7	LOS A	3.3	23.3	0.67	0.69	0.67	45.1
2	T1	285	2.0	0.461	5.8	LOS A	3.3	23.3	0.67	0.69	0.67	42.4
3	R2	140	2.0	0.461	9.8	LOS A	3.3	23.3	0.67	0.69	0.67	42.0
Approach		455	2.0	0.461	7.0	LOS A	3.3	23.3	0.67	0.69	0.67	42.4
East: Tenth Avenue												
4	L2	130	2.0	0.398	6.0	LOS A	2.8	20.1	0.79	0.79	0.79	40.8
5	T1	125	2.0	0.398	5.7	LOS A	2.8	20.1	0.79	0.79	0.79	41.5
6	R2	55	2.0	0.398	9.6	LOS A	2.8	20.1	0.79	0.79	0.79	38.3
Approach		310	2.0	0.398	6.5	LOS A	2.8	20.1	0.79	0.79	0.79	40.7
North: Fourth Avenue												
7	L2	135	2.0	0.609	4.0	LOS A	5.4	38.1	0.66	0.57	0.66	37.7
8	T1	385	2.0	0.609	3.6	LOS A	5.4	38.1	0.66	0.57	0.66	42.5
9	R2	180	2.0	0.609	7.5	LOS A	5.4	38.1	0.66	0.57	0.66	42.6
Approach		700	2.0	0.609	4.7	LOS A	5.4	38.1	0.66	0.57	0.66	41.4
West: Tenth Avenue												
10	L2	20	2.0	0.132	5.7	LOS A	0.8	5.6	0.62	0.64	0.62	41.7
11	T1	75	2.0	0.132	5.8	LOS A	0.8	5.6	0.62	0.64	0.62	42.1
12	R2	20	2.0	0.132	9.8	LOS A	0.8	5.6	0.62	0.64	0.62	46.4
Approach		115	2.0	0.132	6.5	LOS A	0.8	5.6	0.62	0.64	0.62	42.7
All Vehicles		1580	2.0	0.609	5.9	LOS A	5.4	38.1	0.69	0.65	0.69	41.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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.
Roundabout Capacity Model: SIDRA Standard.
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.

Roundabout



MOVEMENT SUMMARY

 **Site: 101 [PM 2036 + DEV - Fourth Avenue - Tenth Avenue (2 Lane)]**

2036 Weekday Afternoon Peak Hour Development Traffic Flows Plus Development Traffic
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Fourth Avenue												
1	L2	30	2.0	0.104	5.8	LOS A	0.5	3.8	0.53	0.57	0.53	46.0
2	T1	285	2.0	0.295	4.9	LOS A	1.9	13.7	0.55	0.60	0.55	43.0
3	R2	140	2.0	0.295	8.9	LOS A	1.9	13.7	0.55	0.60	0.55	42.4
Approach		455	2.0	0.295	6.2	LOS A	1.9	13.7	0.55	0.60	0.55	43.0
East: Tenth Avenue												
4	L2	130	2.0	0.157	5.6	LOS A	1.0	6.8	0.68	0.66	0.68	41.3
5	T1	125	2.0	0.173	4.2	LOS A	1.1	8.2	0.67	0.62	0.67	41.8
6	R2	55	2.0	0.173	8.1	LOS A	1.1	8.2	0.67	0.62	0.67	38.6
Approach		310	2.0	0.173	5.5	LOS A	1.1	8.2	0.68	0.64	0.68	41.1
North: Fourth Avenue												
7	L2	135	2.0	0.150	3.9	LOS A	0.8	5.6	0.45	0.50	0.45	38.4
8	T1	385	2.0	0.407	2.7	LOS A	2.9	20.7	0.50	0.46	0.50	43.0
9	R2	180	2.0	0.407	6.7	LOS A	2.9	20.7	0.50	0.46	0.50	43.0
Approach		700	2.0	0.407	4.0	LOS A	2.9	20.7	0.49	0.47	0.49	42.0
West: Tenth Avenue												
10	L2	20	2.0	0.027	6.4	LOS A	0.1	1.0	0.58	0.59	0.58	42.0
11	T1	75	2.0	0.083	5.0	LOS A	0.5	3.5	0.57	0.58	0.57	42.3
12	R2	20	2.0	0.083	9.1	LOS A	0.5	3.5	0.57	0.58	0.57	46.7
Approach		115	2.0	0.083	6.0	LOS A	0.5	3.5	0.57	0.58	0.57	42.9
All Vehicles		1580	2.0	0.407	5.1	LOS A	2.9	20.7	0.55	0.55	0.55	42.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

 **Site: 101 [AM 2036 + DEV - Fourth Avenue - Tenth Avenue (2 Lane)]**

2036 Weekday Morning Peak Hour Development Traffic Flows Plus Development Traffic
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Fourth Avenue												
1	L2	20	2.0	0.091	5.0	LOS A	0.5	3.4	0.44	0.49	0.44	46.3
2	T1	285	2.0	0.258	4.2	LOS A	1.7	11.9	0.45	0.53	0.45	43.3
3	R2	130	2.0	0.258	8.2	LOS A	1.7	11.9	0.45	0.54	0.45	42.6
Approach		435	2.0	0.258	5.5	LOS A	1.7	11.9	0.45	0.53	0.45	43.2
East: Tenth Avenue												
4	L2	150	2.0	0.152	4.4	LOS A	0.9	6.2	0.56	0.57	0.56	41.7
5	T1	125	2.0	0.174	3.3	LOS A	1.1	7.6	0.55	0.54	0.55	42.0
6	R2	85	2.0	0.174	7.2	LOS A	1.1	7.6	0.55	0.54	0.55	38.9
Approach		360	2.0	0.174	4.7	LOS A	1.1	7.6	0.55	0.55	0.55	41.2
North: Fourth Avenue												
7	L2	55	2.0	0.085	4.6	LOS A	0.4	3.1	0.52	0.53	0.52	38.2
8	T1	295	2.0	0.239	3.1	LOS A	1.5	10.7	0.53	0.44	0.53	43.3
9	R2	20	2.0	0.239	7.0	LOS A	1.5	10.7	0.53	0.44	0.53	43.3
Approach		370	2.0	0.239	3.6	LOS A	1.5	10.7	0.53	0.46	0.53	42.4
West: Tenth Avenue												
10	L2	150	2.0	0.164	6.2	LOS A	0.9	6.7	0.61	0.66	0.61	42.1
11	T1	125	2.0	0.197	5.3	LOS A	1.2	8.8	0.60	0.66	0.60	41.9
12	R2	100	2.0	0.197	9.4	LOS A	1.2	8.8	0.60	0.66	0.60	46.2
Approach		375	2.0	0.197	6.8	LOS A	1.2	8.8	0.61	0.66	0.61	43.1
All Vehicles		1540	2.0	0.258	5.1	LOS A	1.7	11.9	0.53	0.55	0.53	42.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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.
Roundabout Capacity Model: SIDRA Standard.
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.

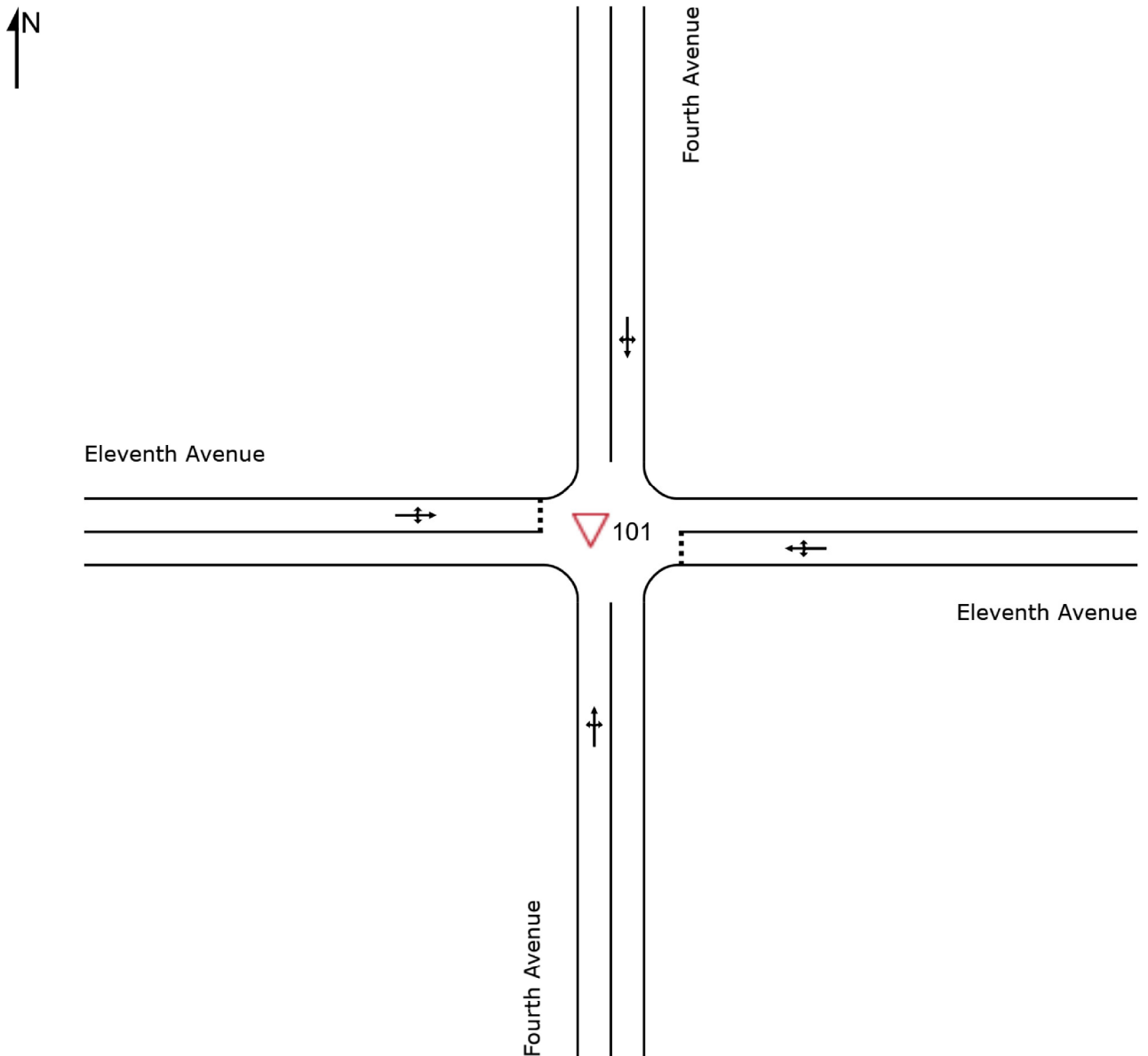
SITE LAYOUT

▽ Site: 101 [AM 2036 + DEV - Fourth Avenue - Eleventh Avenue (1 Lane) (GW)]

2036 Weekday Morning Peak Hour Development Traffic Flows Plus Development Traffic

Site Category: (None)

Giveway / Yield (Two-Way)



MOVEMENT SUMMARY

▽ Site: 101 [AM 2036 + DEV - Fourth Avenue - Eleventh Avenue (1 Lane) (GW)]

2036 Weekday Morning Peak Hour Development Traffic Flows Plus Development Traffic

Site Category: (None)

Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Fourth Avenue												
1	L2	20	2.0	0.280	5.2	LOS A	0.8	5.9	0.20	0.09	0.20	44.0
2	T1	420	2.0	0.280	0.5	LOS A	0.8	5.9	0.20	0.09	0.20	44.9
3	R2	70	2.0	0.280	5.5	LOS A	0.8	5.9	0.20	0.09	0.20	39.3
Approach		510	2.0	0.280	1.3	NA	0.8	5.9	0.20	0.09	0.20	43.9
East: Eleventh Avenue												
4	L2	70	2.0	0.559	7.8	LOS A	3.1	21.8	0.68	0.99	1.16	34.2
5	T1	55	2.0	0.559	13.2	LOS A	3.1	21.8	0.68	0.99	1.16	37.8
6	R2	130	2.0	0.559	18.2	LOS B	3.1	21.8	0.68	0.99	1.16	37.5
Approach		255	2.0	0.559	14.3	LOS A	3.1	21.8	0.68	0.99	1.16	36.7
North: Fourth Avenue												
7	L2	120	2.0	0.234	5.3	LOS A	0.6	4.3	0.18	0.30	0.18	42.8
8	T1	270	2.0	0.234	1.6	LOS A	0.6	4.3	0.18	0.30	0.18	43.5
9	R2	40	2.0	0.234	6.8	LOS A	0.6	4.3	0.18	0.30	0.18	47.2
Approach		430	2.0	0.234	3.2	NA	0.6	4.3	0.18	0.30	0.18	43.6
West: Eleventh Avenue												
10	L2	50	2.0	0.227	6.4	LOS A	0.8	5.9	0.60	0.77	0.62	43.8
11	T1	55	2.0	0.227	10.7	LOS A	0.8	5.9	0.60	0.77	0.62	40.0
12	R2	20	2.0	0.227	14.0	LOS A	0.8	5.9	0.60	0.77	0.62	39.8
Approach		125	2.0	0.227	9.5	LOS A	0.8	5.9	0.60	0.77	0.62	41.4
All Vehicles		1320	2.0	0.559	5.2	NA	3.1	21.8	0.32	0.40	0.42	41.8

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

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

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

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

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

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

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

MOVEMENT SUMMARY

▽ Site: 101 [PM 2036 + DEV - Fourth Avenue - Eleventh Avenue (1 Lane) (GW)]

2036 Weekday Afternoon Peak Hour Development Traffic Flows Plus Development Traffic

Site Category: (None)

Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Fourth Avenue												
1	L2	20	2.0	0.226	7.1	LOS A	1.1	7.6	0.37	0.15	0.37	42.9
2	T1	260	2.0	0.226	1.7	LOS A	1.1	7.6	0.37	0.15	0.37	43.7
3	R2	70	2.0	0.226	7.5	LOS A	1.1	7.6	0.37	0.15	0.37	38.5
Approach		350	2.0	0.226	3.2	NA	1.1	7.6	0.37	0.15	0.37	42.4
East: Eleventh Avenue												
4	L2	95	2.0	0.693	13.0	LOS A	4.2	30.0	0.84	1.27	1.72	32.3
5	T1	55	2.0	0.693	19.3	LOS B	4.2	30.0	0.84	1.27	1.72	35.9
6	R2	120	2.0	0.693	25.4	LOS B	4.2	30.0	0.84	1.27	1.72	35.7
Approach		270	2.0	0.693	19.8	LOS B	4.2	30.0	0.84	1.27	1.72	34.6
North: Fourth Avenue												
7	L2	120	2.0	0.369	5.0	LOS A	0.6	4.1	0.09	0.27	0.09	43.2
8	T1	550	2.0	0.369	1.3	LOS A	0.6	4.1	0.09	0.27	0.09	44.1
9	R2	40	2.0	0.369	6.1	LOS A	0.6	4.1	0.09	0.27	0.09	47.7
Approach		710	2.0	0.369	2.2	NA	0.6	4.1	0.09	0.27	0.09	44.1
West: Eleventh Avenue												
10	L2	40	2.0	0.354	7.0	LOS A	1.4	10.1	0.66	0.85	0.84	41.6
11	T1	55	2.0	0.354	15.1	LOS B	1.4	10.1	0.66	0.85	0.84	38.3
12	R2	45	2.0	0.354	18.9	LOS B	1.4	10.1	0.66	0.85	0.84	37.5
Approach		140	2.0	0.354	14.0	LOS A	1.4	10.1	0.66	0.85	0.84	39.0
All Vehicles		1470	2.0	0.693	6.8	NA	4.2	30.0	0.35	0.48	0.53	40.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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.

SITE LAYOUT

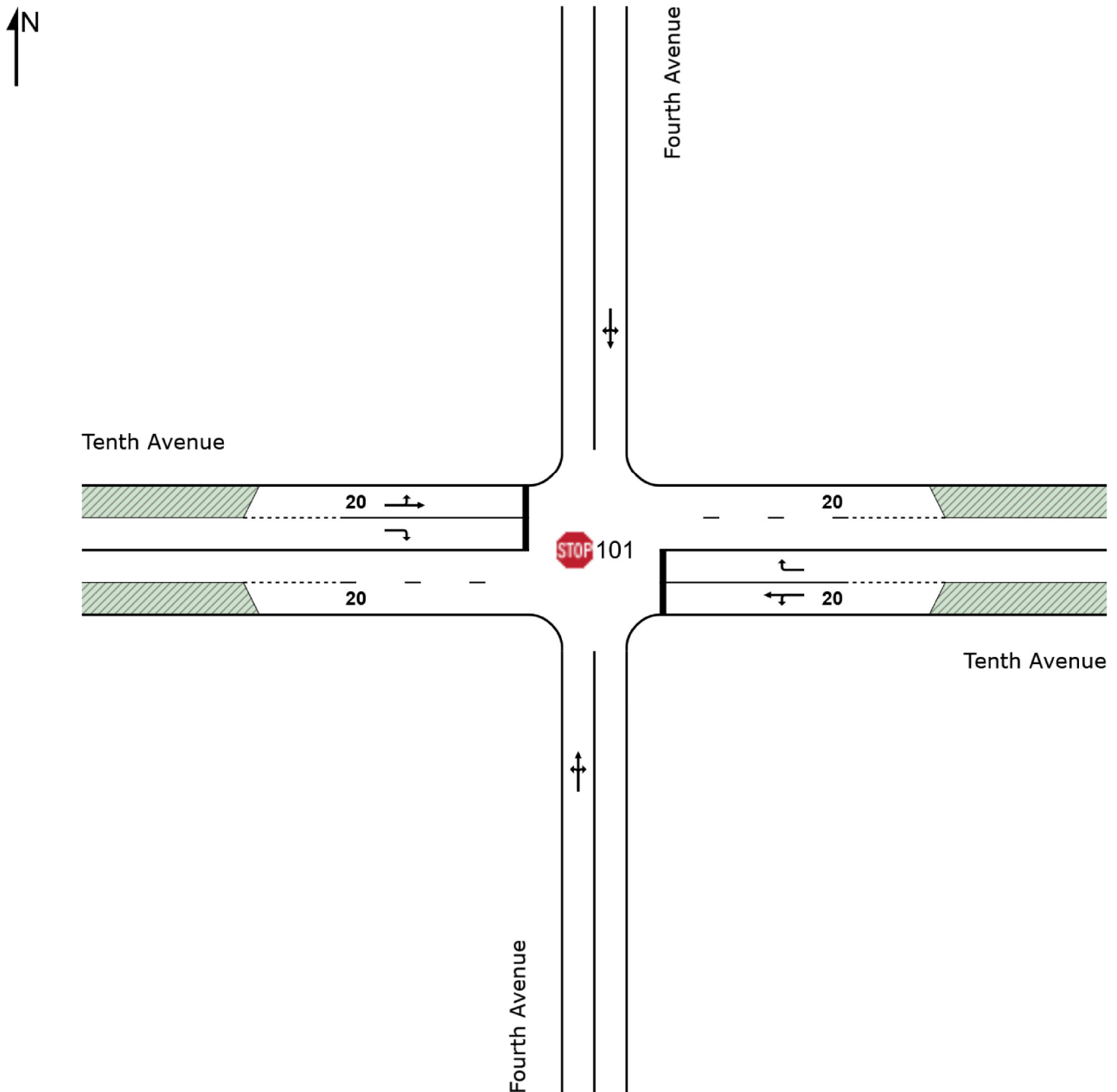


Site: 101 [AM 2036 + DEV - Fourth Avenue - Tenth Avenue (2 Lane) (Stop)]

2036 Weekday Morning Peak Hour Development Traffic Flows Plus Development Traffic

Site Category: (None)

Stop (Two-Way)



MOVEMENT SUMMARY

 **Site: 101 [AM 2036 + DEV - Fourth Avenue - Tenth Avenue (2 Lane) (Stop)]**

2036 Weekday Morning Peak Hour Development Traffic Flows Plus Development Traffic

Site Category: (None)

Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Fourth Avenue												
1	L2	20	2.0	0.258	6.1	LOS A	1.2	8.6	0.34	0.30	0.34	47.0
2	T1	285	2.0	0.258	2.2	LOS A	1.2	8.6	0.34	0.30	0.34	43.1
3	R2	130	2.0	0.258	6.2	LOS A	1.2	8.6	0.34	0.30	0.34	42.5
Approach		435	2.0	0.258	3.6	NA	1.2	8.6	0.34	0.30	0.34	43.0
East: Tenth Avenue												
4	L2	150	2.0	0.422	9.6	LOS A	2.3	16.4	0.57	1.05	0.78	38.8
5	T1	125	2.0	0.422	15.8	LOS B	2.3	16.4	0.57	1.05	0.78	38.7
6	R2	85	2.0	0.337	22.3	LOS B	1.2	8.7	0.82	1.07	1.01	32.1
Approach		360	2.0	0.422	14.8	LOS B	2.3	16.4	0.63	1.06	0.83	37.2
North: Fourth Avenue												
7	L2	55	2.0	0.192	3.8	LOS A	0.2	1.8	0.08	0.09	0.08	39.7
8	T1	295	2.0	0.192	0.1	LOS A	0.2	1.8	0.08	0.09	0.08	45.5
9	R2	20	2.0	0.192	4.7	LOS A	0.2	1.8	0.08	0.09	0.08	44.2
Approach		370	2.0	0.192	0.9	NA	0.2	1.8	0.08	0.09	0.08	44.4
West: Tenth Avenue												
10	L2	150	2.0	0.427	10.3	LOS A	2.3	16.7	0.56	1.04	0.78	38.7
11	T1	125	2.0	0.427	16.8	LOS B	2.3	16.7	0.56	1.04	0.78	38.9
12	R2	100	2.0	0.387	23.5	LOS B	1.5	10.5	0.83	1.07	1.07	38.3
Approach		375	2.0	0.427	16.0	LOS B	2.3	16.7	0.63	1.05	0.86	38.7
All Vehicles		1540	2.0	0.427	8.6	NA	2.3	16.7	0.42	0.61	0.52	40.5

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

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

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

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

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

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

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

MOVEMENT SUMMARY

 **Site: 101 [PM 2036 + DEV - Fourth Avenue - Tenth Avenue (2 Lane) (Stop)]**

2036 Weekday Afternoon Peak Hour Development Traffic Flows Plus Development Traffic

Site Category: (None)

Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Fourth Avenue												
1	L2	30	2.0	0.297	7.4	LOS A	1.7	12.3	0.46	0.32	0.49	46.5
2	T1	285	2.0	0.297	3.1	LOS A	1.7	12.3	0.46	0.32	0.49	42.6
3	R2	140	2.0	0.297	7.6	LOS A	1.7	12.3	0.46	0.32	0.49	42.1
Approach		455	2.0	0.297	4.7	NA	1.7	12.3	0.46	0.32	0.49	42.7
East: Tenth Avenue												
4	L2	130	2.0	0.623	14.5	LOS A	3.8	26.8	0.73	1.29	1.39	35.8
5	T1	125	2.0	0.623	28.4	LOS B	3.8	26.8	0.73	1.29	1.39	35.7
6	R2	55	2.0	0.296	27.6	LOS B	1.0	7.0	0.86	1.05	1.00	30.6
Approach		310	2.0	0.623	22.4	LOS B	3.8	26.8	0.76	1.24	1.32	34.9
North: Fourth Avenue												
7	L2	135	2.0	0.403	4.9	LOS A	2.5	17.5	0.37	0.21	0.40	38.7
8	T1	385	2.0	0.403	1.0	LOS A	2.5	17.5	0.37	0.21	0.40	44.1
9	R2	180	2.0	0.403	5.3	LOS A	2.5	17.5	0.37	0.21	0.40	42.9
Approach		700	2.0	0.403	2.8	NA	2.5	17.5	0.37	0.21	0.40	42.6
West: Tenth Avenue												
10	L2	20	2.0	0.348	11.0	LOS A	1.3	9.3	0.77	1.03	0.96	34.8
11	T1	75	2.0	0.348	25.4	LOS B	1.3	9.3	0.77	1.03	0.96	35.8
12	R2	20	2.0	0.123	27.9	LOS B	0.4	2.6	0.86	1.00	0.86	36.6
Approach		115	2.0	0.348	23.4	LOS B	1.3	9.3	0.78	1.03	0.94	35.8
All Vehicles		1580	2.0	0.623	8.7	NA	3.8	26.8	0.50	0.50	0.65	40.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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.

Colston Budd Rogers & Kafes Pty Ltd

ATTACHMENT 2

STAGING PLANS AND EXTERNAL ROAD WORKS PLANS



STAGING				
	EXISTING	STAGE 1	STAGE 2	STAGE 3
YEAR	2017-2020	2020	2021-2022	2023-2024
YEAR GROUPS	K-3	K-4	K-5, 7-8	K-10
ANTICIPATED ENROLMENTS	248	300	647	1142
CARPARKS REQUIRED	27	27	96	158
TOTAL CARPARKS PROPOSED	33	33	115	213

NOTES

1. Use figured dimensions. Do not scale from drawings.
2. All dimensions are in millimetres, except levels and drawings scale of 1:500 and smaller which are given in metres.
3. Drawings to be read in conjunction with specifications and/or schedules.
4. Contractor to verify all dimensions and levels on site prior to commencing any work or making of shop drawings, and seek instructions if any discrepancies are found.

[illegible]

CLIENT
SYDNEY CATHOLIC SCHOOLS

STATUS FOR APPROVAL

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9 Hall Street | PO Box 5093 | Lyneham ACT 2602 Australia
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www.munnsslymoore.com.au

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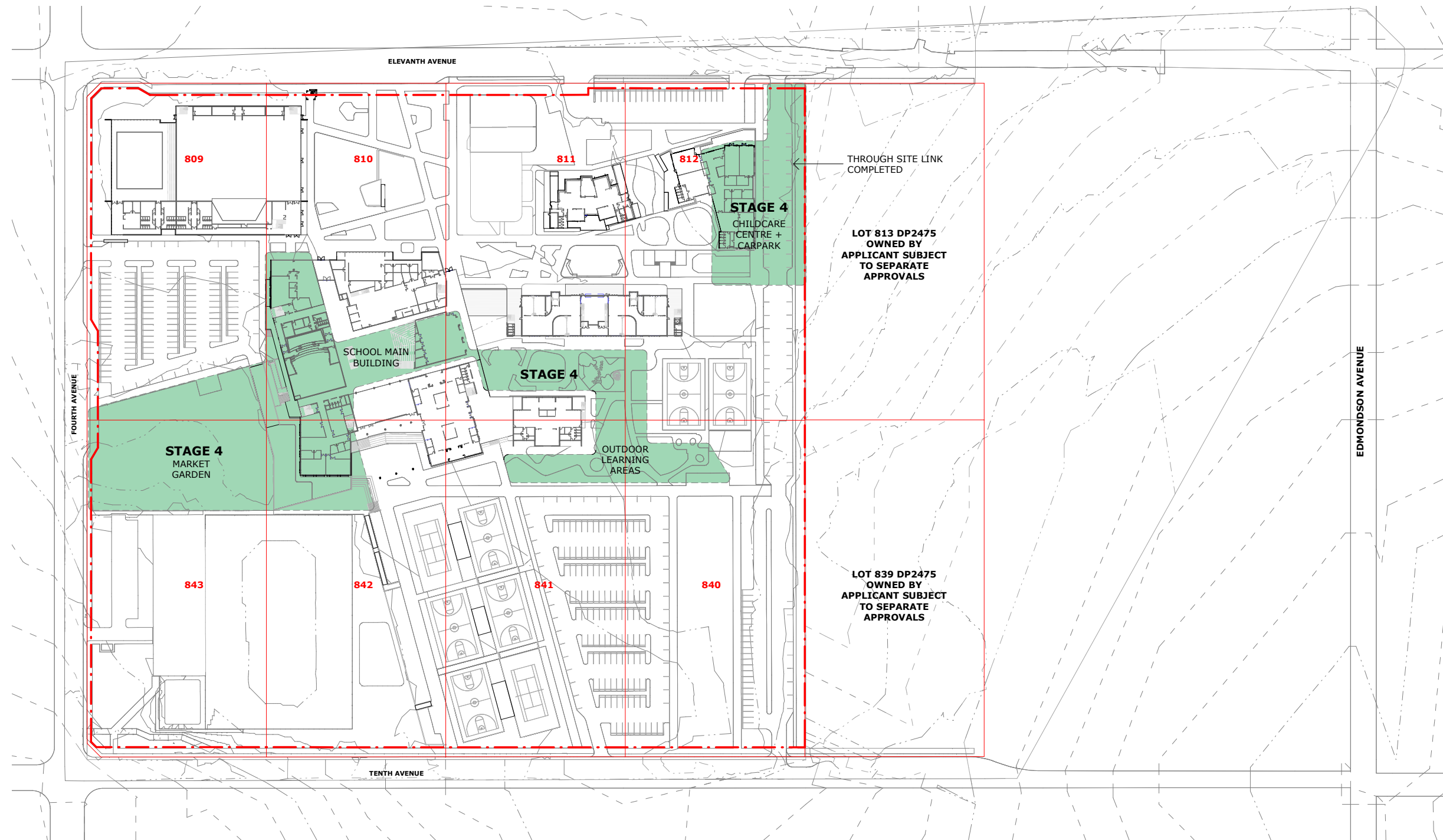


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DATE	21.08.2019	FILE					
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LOT		DP		SUBURB		PROJECT	ADDRESS

PROJECT NO. DRAWING NO. REVISION

4032 DA054 2



1 DIAGRAM - STAGING 4
1 : 1000

	STAGING				
	EXISTING	STAGE 1	STAGE 2	STAGE 3	STAGE 4
YEAR	2017-2020	2020	2021-2022	2023-2024	2025-2026
YEAR GROUPS	K-3	K-4	K-5, 7-8	K-10	P-10
ANTICIPATED ENROLMENTS	248	300	647	1142	1661
CARPARKS REQUIRED	27	27	96	158	245
TOTAL CARPARKS PROPOSED	33	33	115	213	245

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- NOTES
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 - Drawings to be read in conjunction with specifications and/or schedules.
 - Contractor to verify all dimensions and levels on site prior to commencing any work or making of shop drawings, and seek instructions if any discrepancies are found.

NO.	DATE	DESCRIPTION
1	16.08.2019	FOR INFORMATION
2	21.08.2019	FOR INFORMATION



PROJECT
ST ANTHONY OF PADUA

CLIENT
SYDNEY CATHOLIC SCHOOLS

DRAWING
CONCEPT PROPOSAL
STAGE 4 PLAN

STATUS FOR APPROVAL

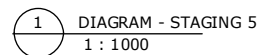
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MUNNS SLY MOORE architects

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SCALE: As indicated @A1

PROJECT NO.	4032	DRAWING NO.	DA055	REVISION	2
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STAGING						
	EXISTING	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5
YEAR	2017-2020	2020	2021-2022	2023-2024	2025-2026	2027
YEAR GROUPS	K-3	K-4	K-5, 7-8	K-10	P-10	P-12
ANTICIPATED ENROLMENTS	248	300	647	1142	1661	1787
CARPARKS REQUIRED	27	27	96	158	245	256
TOTAL CARPARKS PROPOSED	33	33	115	213	245	361

NOTES

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3. Drawings to be read in conjunction with specifications and/or schedules.
4. Contractor to verify all dimensions and levels on site prior to commencing any work or making of shop drawings, and seek instructions if any discrepancies are found.

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4032 DA056 1



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St Anthony of Padua
CATHOLIC SCHOOL AUSTRAL



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Nominated Architect Robert Sly FAIA ACT #331 NSW #6712 www.munnsslymoore.com.au

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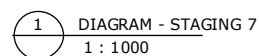
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REVISION

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LOT		DP		SUBURB	PROJECT ADDRESS

PROJECT NO.	DRAWING NO.	REVISION
4032	DA057	1



STAGING								
	EXISTING	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7
YEAR	2017-2020	2020	2021-2022	2023-2024	2025-2026	2027	2028	2029-2034
YEAR GROUPS	K-3	K-4	K-5, 7-8	K-10	P-10	P-12	P-12	P-12
ANTICIPATED ENROLMENTS	248	300	647	1142	1661	1787	1913	2117
CARPARKS REQUIRED	27	27	96	158	245	256	283	299
TOTAL CARPARKS PROPOSED	33	33	115	213	245	361	361	361

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3. Drawings to be read in conjunction with specifications and/or schedules.
4. Contractor to verify all dimensions and levels on site prior to commencing any work or making of shop drawings, and seek instructions if any discrepancies are found.

[illegible]

PROJECT
ST ANTHONY OF PADUA

CLIENT

SYDNEY CATHOLIC SCHOOLS

DRAWING

CONCEPT PROPOSAL

STAGE 7 PLAN

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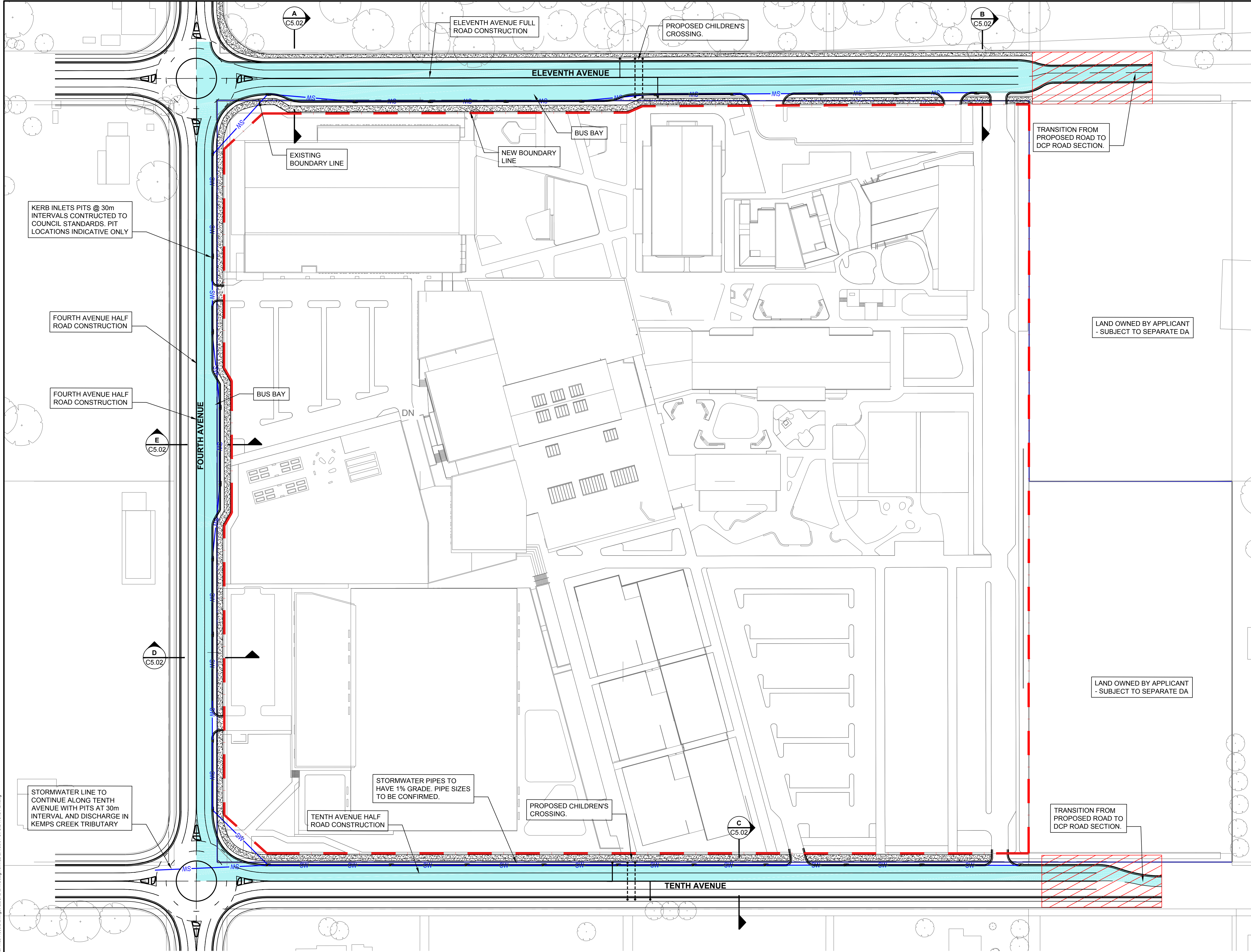
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STATUS **FOR APPROVAL**

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LOT		DP		SUBURB	PROJECT ADDRESS

PROJECT NO. **4032** DRAWING NO. **DA058** REVISION **1**

10



LEGEND

EXTENT OF ROAD WORKS

CONCRETE FOOTPATH PAVEMENT

EXISTING BOUNDARY

PROPOSED BOUNDARY

STORMWATER PIPE

KERB INLET PIT (ON GRADE)

NOTE:

- SPATIAL REQUIREMENTS FOR ROUNDABOUTS AT 10th AND 4th AVENUES INTERSECTION AND AT 11th AND 4th AVENUES INTERSECTION TO BE CONFIRMED BY TRAFFIC ENGINEERS.

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NORTH

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PLAN SCALE 1:750 A1 SHEET

REVISION	AMENDMENT	DATE	REVISION	AMENDMENT	DATE
1	DEVELOPMENT APPLICATION	25/08/18			
2	DEVELOPMENT APPLICATION	19/07/18			
3	DEVELOPMENT APPLICATION	16/08/19			
4	DEVELOPMENT APPLICATION	20/08/19			
5	DEVELOPMENT APPLICATION	30/08/19			
6	DEVELOPMENT APPLICATION	02/09/19			
7	DEVELOPMENT APPLICATION	05/09/19			

CLIENT

SYDNEY CATHOLIC SCHOOLS

PROJECT

ST ANTHONY OF PADUA CATHOLIC SCHOOL

PREPARED BY

Warren Smith & Partners Pty Ltd
1st Floor, 123 Clarence Street, Sydney 2000 NSW Australia
T 02 9299 1312 F 02 9290 1295 wsp@warrensmith.com.au
www.warrensmith.com.au ABN 36 300 430 128

CONSULTING ENGINEERS

■ Hydraulic Services ■ Fire Protection ■ Civil Engineering
■ Sydney Water Accredited Water Servicing Co-ordinator
- Design Project Management - Building Plan Approvals

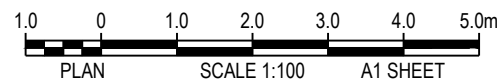
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TITLE				
OFF SITE WORKS PLAN				
SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	A.D.	M.D.	L.Sh.	M.C.
JOB No.	DRAWING No.		ISSUE	
5914000	C5.01		7	
DATE	STATUS			
MARCH 2018	DEVELOPMENT APPLICATION			

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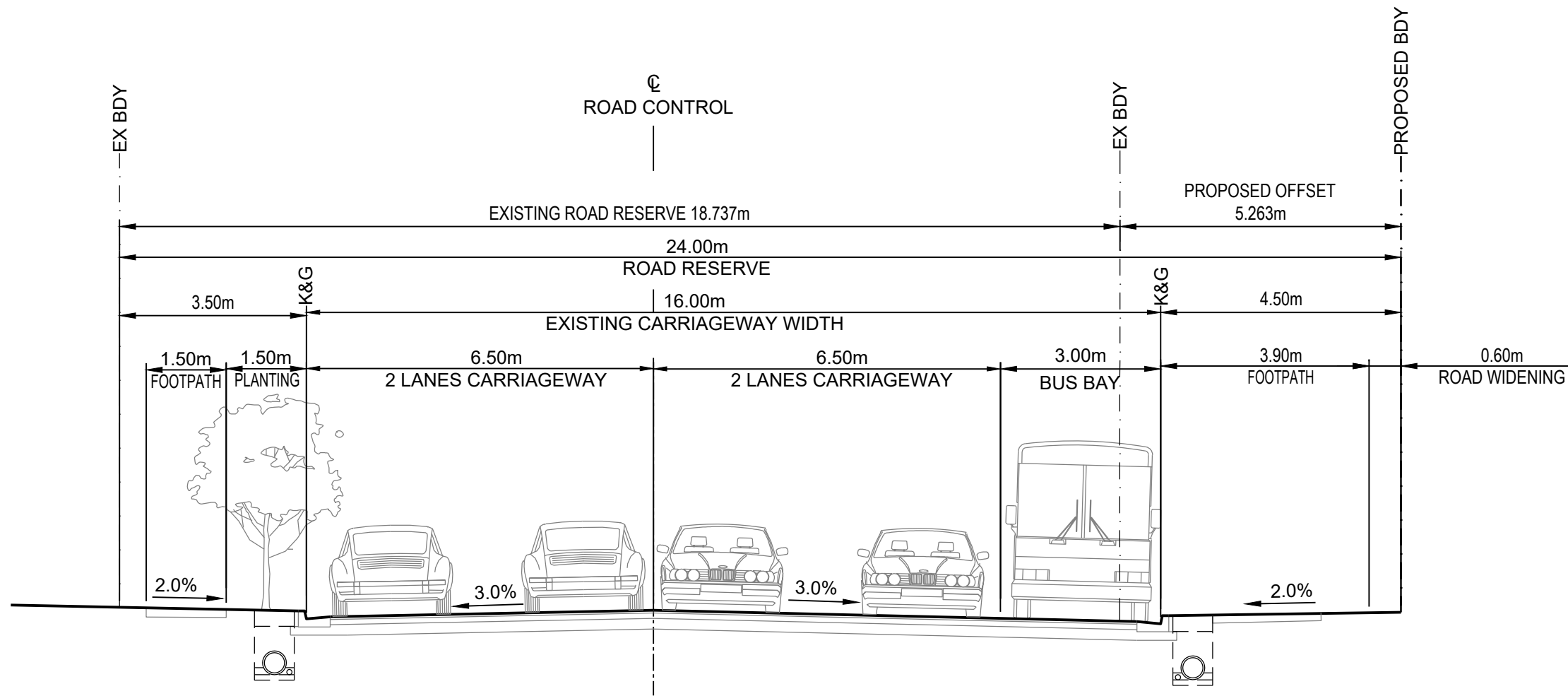


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1	DEVELOPMENT APPLICATION	25/05/18			
2	DEVELOPMENT APPLICATION	19/07/18			
3	DEVELOPMENT APPLICATION	16/08/19			
4	DEVELOPMENT APPLICATION	20/08/19			
5	DEVELOPMENT APPLICATION	30/08/19			
6	DEVELOPMENT APPLICATION	24/09/19			

CLIENT	SYDNEY CATHOLIC SCHOOLS
PROJECT	ST ANTHONY OF PADUA CATHOLIC SCHOOL

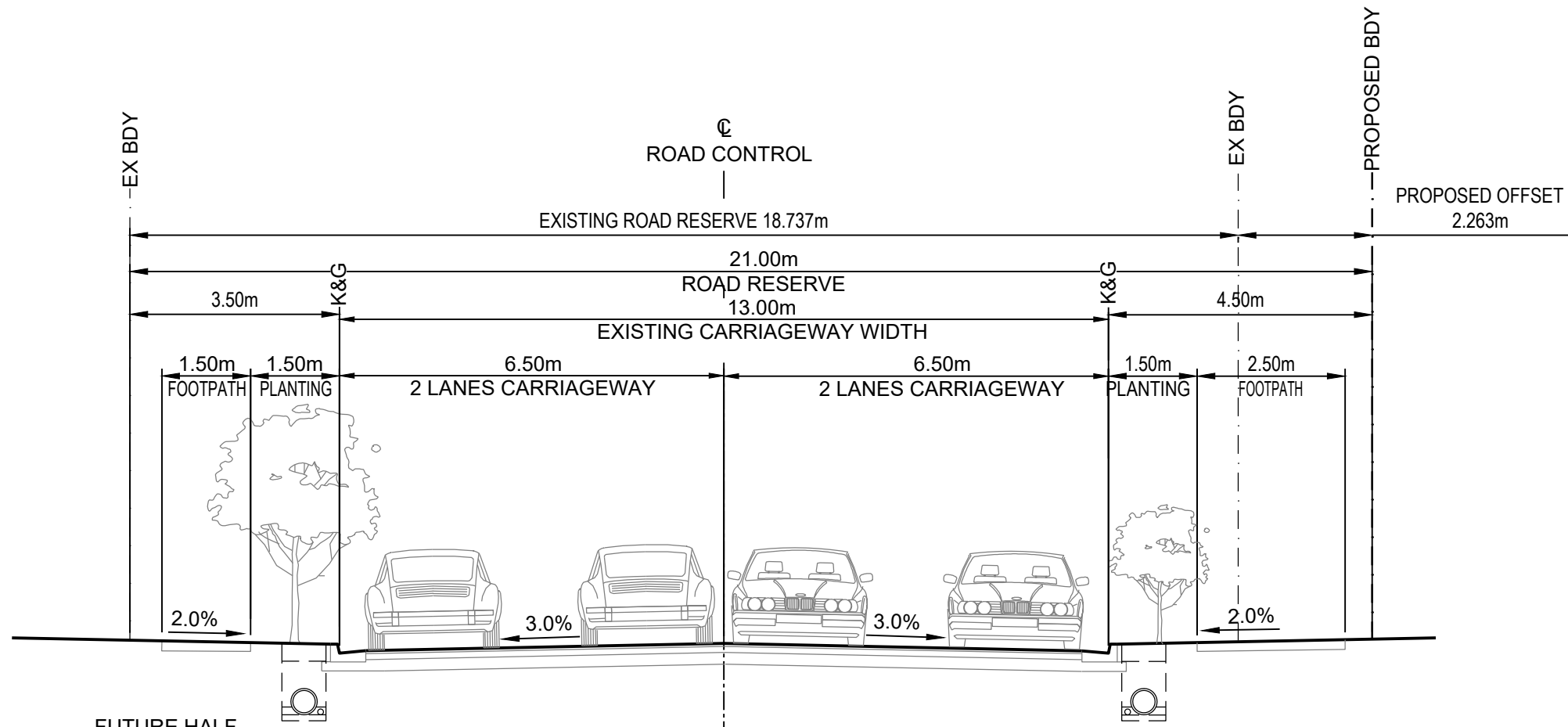
PREPARED BY	<div><div><div>Warren Smith & Partners</div><div><div>Warren Smith & Partners Pty Ltd</div><div>1st Floor, 123 Clarence Street, Sydney 2000 NSW Australia</div><div>T 02 9299 1312 F 02 9290 1295 wsp@warrensmith.com.au</div><div>www.warrensmith.com.au ABN 36 300 430 128</div></div></div><div><div><div>CONSULTING ENGINEERS</div><div><div>■ Hydraulic Services</div><div>■ Fire Protection</div><div>■ Civil Engineering</div><div>■ Sydney Water Accredited Water Servicing Co-ordinator</div><div>- Design Project Management - Building Plan Approvals</div></div></div><div><div><div>Q</div><div>QUALITY ASSURED</div></div><div><div>LIU No: 04CPR010771</div><div>SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.</div></div></div></div></div>
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ROAD TYPICAL SECTIONS				
SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	A.D.	M.D.	L.Sh.	M.C.
JOB No.	DRAWING No.		ISSUE	
5914000	C5.02		6	
DATE	STATUS			
MARCH 2018	DEVELOPMENT APPLICATION			



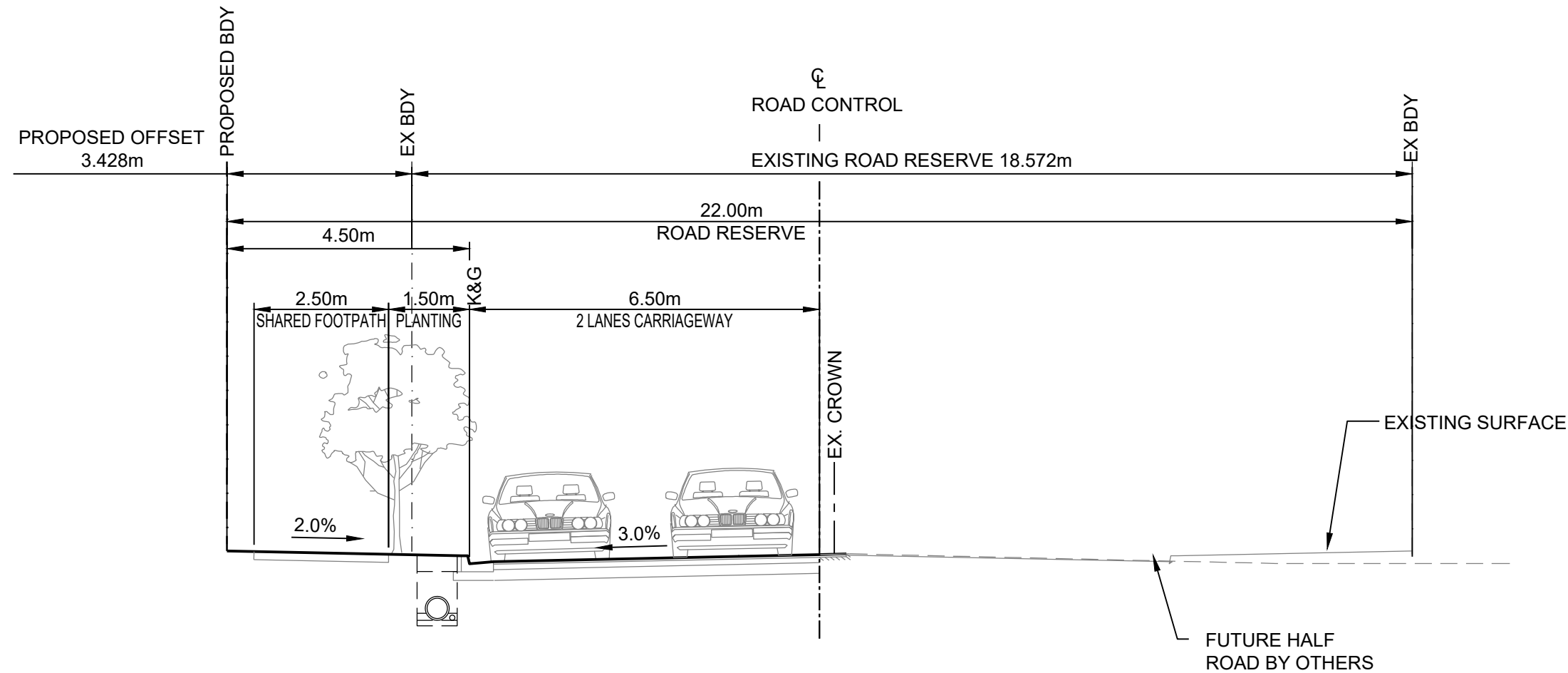
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SCALE 1:100



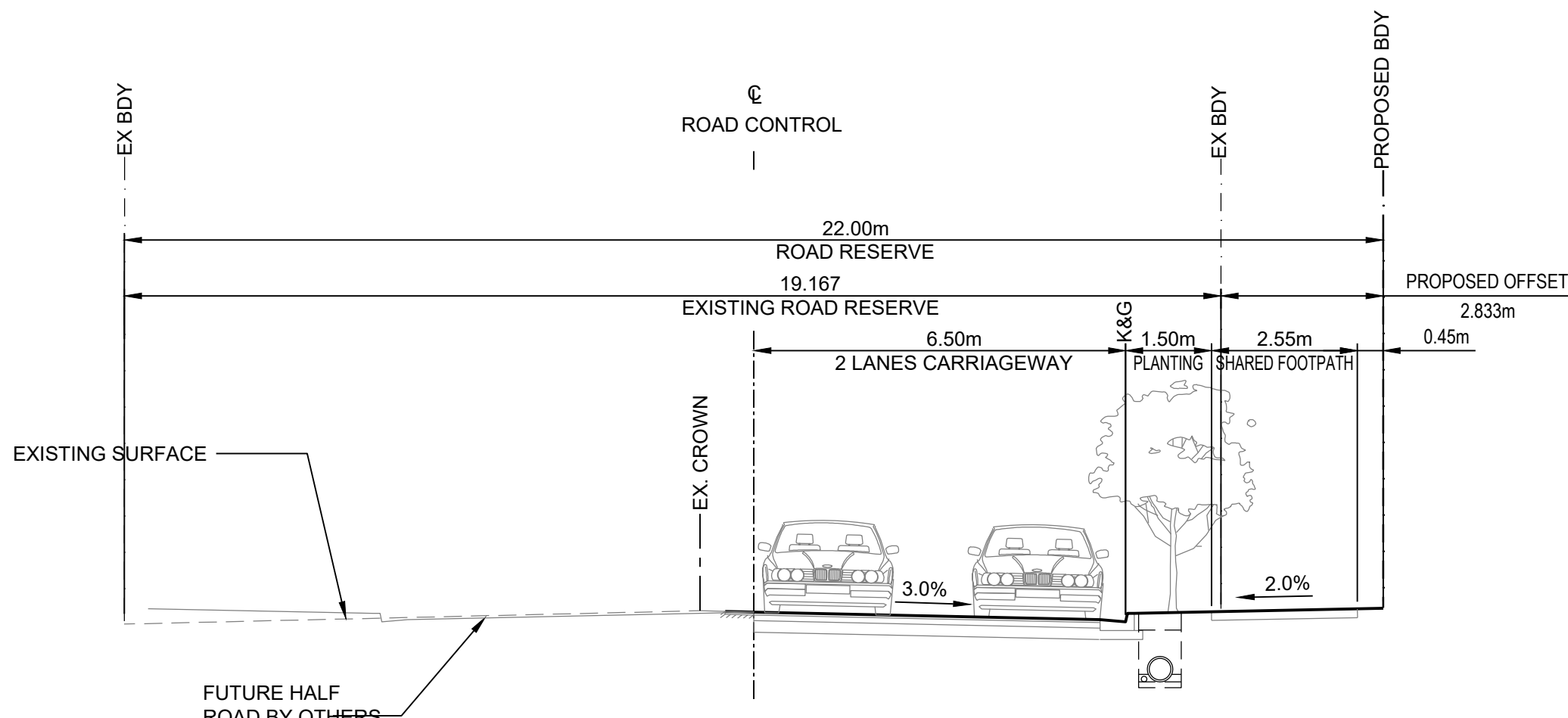
TYPICAL SECTION B - ELEVENTH AVENUE

SCALE 1:100



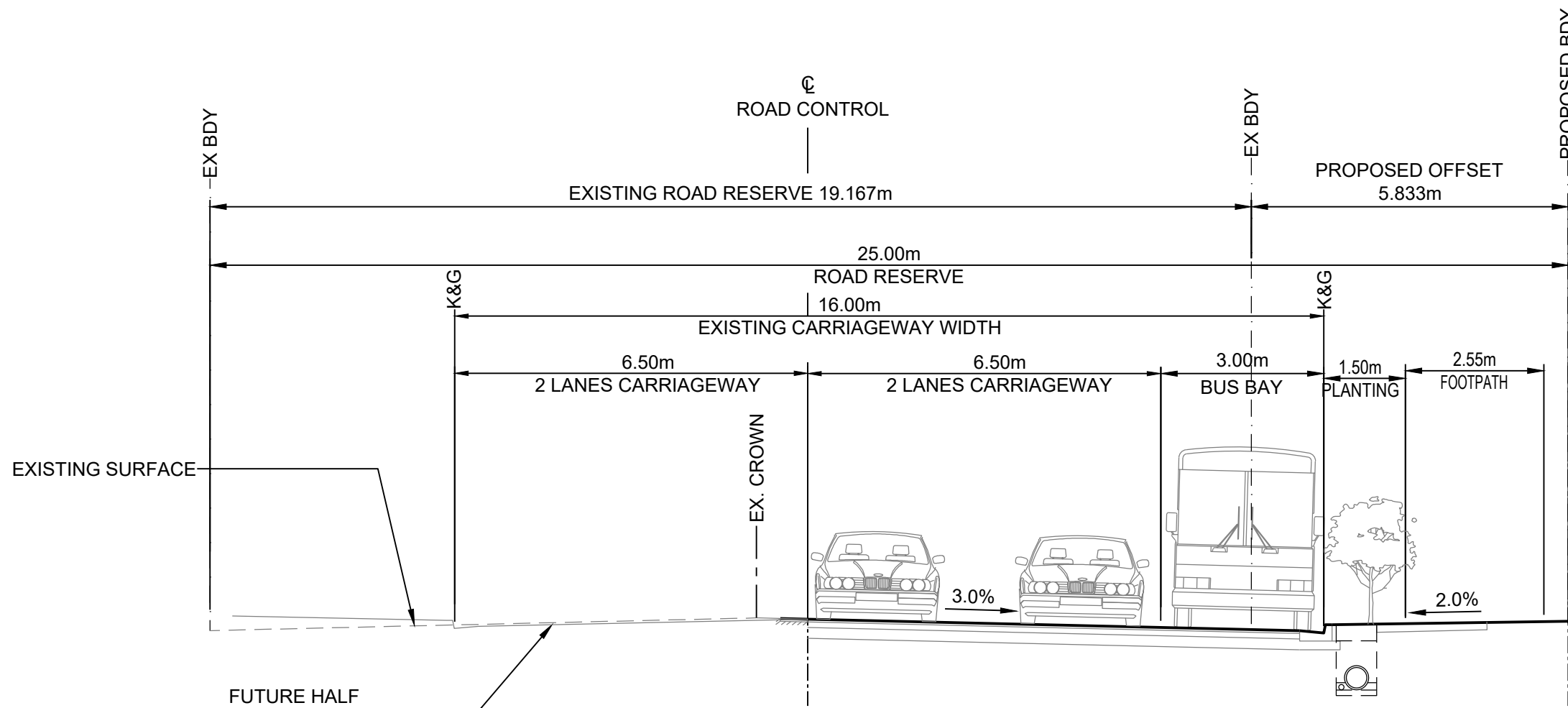
TYPICAL SECTION C - TENTH AVENUE

SCALE 1:100



TYPICAL SECTION D - FOURTH AVENUE

SCALE 1:100



TYPICAL SECTION E - FOURTH AVENUE

SCALE 1:100

NOTE:
- OFFSET CROWN TO BE DETERMINED
WHEN ROAD GEOMETRY IS FINALISED.

PRELIMINARY - NOT FOR CONSTRUCTION

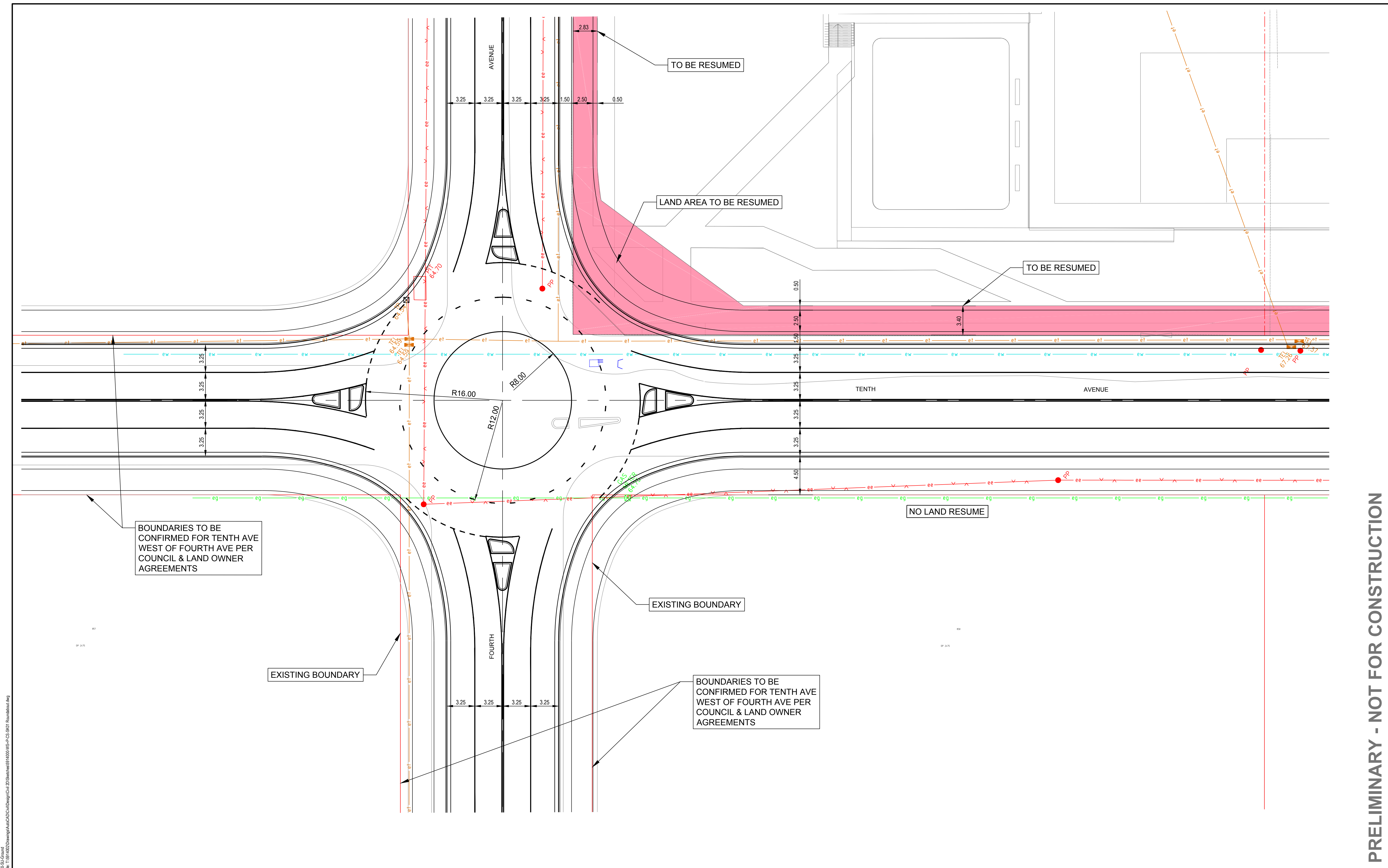


CLIENT	<p>SYDNEY CATHOLIC SCHOOLS</p>
PROJECT	<p>ST ANTHONY OF PADUA CATHOLIC SCHOOLS</p>

TITLE				
ELEVENTH AND FOURTH AVENUE INTERSECTION				
SCALE AS SHOWN	DRAWN M.D.	DESIGNED M.D.	CHECKED L.S.	APPROVED M.C.
JOB No. 5914002		DRAWING No. SK-04		ISSUE 01
DATE SEPT. 2019		STATUS DEVELOPMENT APPLICATION		



TITLE				
ELEVENTH AND FOURTH AVENUE INTERSECTION				
SCALE AS SHOWN	DRAWN P.M.	DESIGNED P.M.	CHECKED L.S.	APPROVED M.C.
JOB No. 5914002		DRAWING No. SK-02		ISSUE 02
DATE AUGUST 2019	STATUS DEVELOPMENT APPLICATION			



Colston Budd Rogers & Kafes Pty Ltd

ATTACHMENT 3

RMS CORRESPONDENCE

Michael Corban

From: Pahee Rathan <Pahee.RATHAN@rms.nsw.gov.au>
Sent: Thursday, 15 August 2019 3:20 PM
To: Joshua Hollis
Cc: Greg Carmichael <Greg.Carmichael@ctpg.com.au>
(Greg.Carmichael@ctpg.com.au); Charles Wiafe; Aditi Coomar
Subject: St Anthony of Padua Catholic School (Concept DA and Stage 1) (SSD 8865)
Attachments: 20190207 - Meeting between RMS and traffic consultant - File Note.docx

Hi Joshua,

I refer to your email below regarding the proposed School in Austral.

I have discussed this matter with Aditi Coomar of Department of Planning and I tried to contact Charles Wiafe of Liverpool Council without success.

I have attached our last meeting minutes for your information. As discussed at the meeting, Roads and Maritime does not support installation of traffic control signals as the warrants for the provision of traffic control signals are not met. Roads and Maritime also advised that other traffic control measures, for the safe operation of the school, need to be provided to the satisfaction of Council.

I am advised that Department of Planning requires evidence for the provision of traffic control measures (other than traffic control signals) to the satisfaction of Council.

I trust this clear the misunderstanding.

If you still need to meet with Roads and Maritime, we will be available on the week commencing 26 August 2019.

Regards
Pahee

Pahee Rathan
Senior Land Use Assessment Coordinator
North West Precinct | Greater Sydney Division
T 02 8849 2219 M 0417 246 510
www.rms.nsw.gov.au
Every journey matters

Roads and Maritime Services
27 Argyle Street Parramatta NSW 2150

From: Joshua Hollis [mailto:joshua.hollis@cbrk.com.au]
Sent: Thursday, 15 August 2019 2:27 PM
To: Sharon Verhoeven
Cc: Greg Carmichael <Greg.Carmichael@ctpg.com.au> (Greg.Carmichael@ctpg.com.au); Pahee Rathan
Subject: Meeting with Pahee Monday 19th August

Hi Sharon,

I've been asked to see whether Pahee is available for a meeting on Monday morning 10:00 am at RMS with Charles Wiafe (Liverpool Council) and the project team for the proposed St Anthony of Padua school at Austral. I have left a message with Pahee to call me.

The Department of Planning has asked the project team for evidence of meetings with RMS. We met with Pahee earlier in the year but the department is not satisfied with the outcomes of that meeting. We are therefore seeking to meet with Pahee to resolve the matters raised by the department regarding this application. I have advised the project manager that department representatives should also be at the meeting.

Charles has indicated that he is available for Monday morning at 10:00 am. Are you able to book a meeting room for that time at RMS and invite Pahee as well?

Appreciate your help and happy to discuss if needed.

Thanks,

Joshua Hollis
Director
Colston Budd Rogers & Kafes Pty Ltd
Suite 1801 - Tower A, Zenith Centre
821 Pacific Highway
Chatswood NSW 2067
PO Box 5186
West Chatswood NSW 1515
Phone: (02) 9411 2411
Fax: (02) 9411 2422
Email: joshua.hollis@cbrk.com.au

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File note: Meeting between RMS and consultants

Meeting: Thursday 7th February 2019

Attendees: Malgy Coman, Pahee Rathan, Lyn Van Putten, Joshua Hollis (traffic consultant), Elizabeth D'Olier (project manager)

- Went through RMS letter dated 19 December 2018 and advised that the proposed traffic signals on the local road network are not supported.
- Joshua advised that both he and Council suggested the traffic signals to the client.
- RMS explained that the school numbers would not warrant traffic signals and that Joshua will need to talk to Council about alternatives (e.g. pedestrian crossings via Traffic Committee, developer contributions etc).
- Additional information for pedestrian crossing will need to be submitted via Council's Traffic Committee and RMS Network and Safety representative will be involved in this process.
- Joshua does not have information regarding the new church and school facilities. Will be provided in future development applications.
- Joshua will submit additional information regarding the catchment area identified for the proposed school development, identifying expected trip distribution.
- RMS will be providing comments to DPE under traffic generating development referral process and will be requesting conditions for school zones.
- If the traffic signals are removed from the application RMS will provide amended letter with comments from DPE's consideration in the determination of the application. Additional traffic modelling information would not be required.

ATTACHMENT 4

DCP EXTRACT



Figure 2-12: Precinct road hierarchy

ATTACHMENT 5

SIDRA OUTPUT SUMMARIES FOR SITE ACCESS POINTS

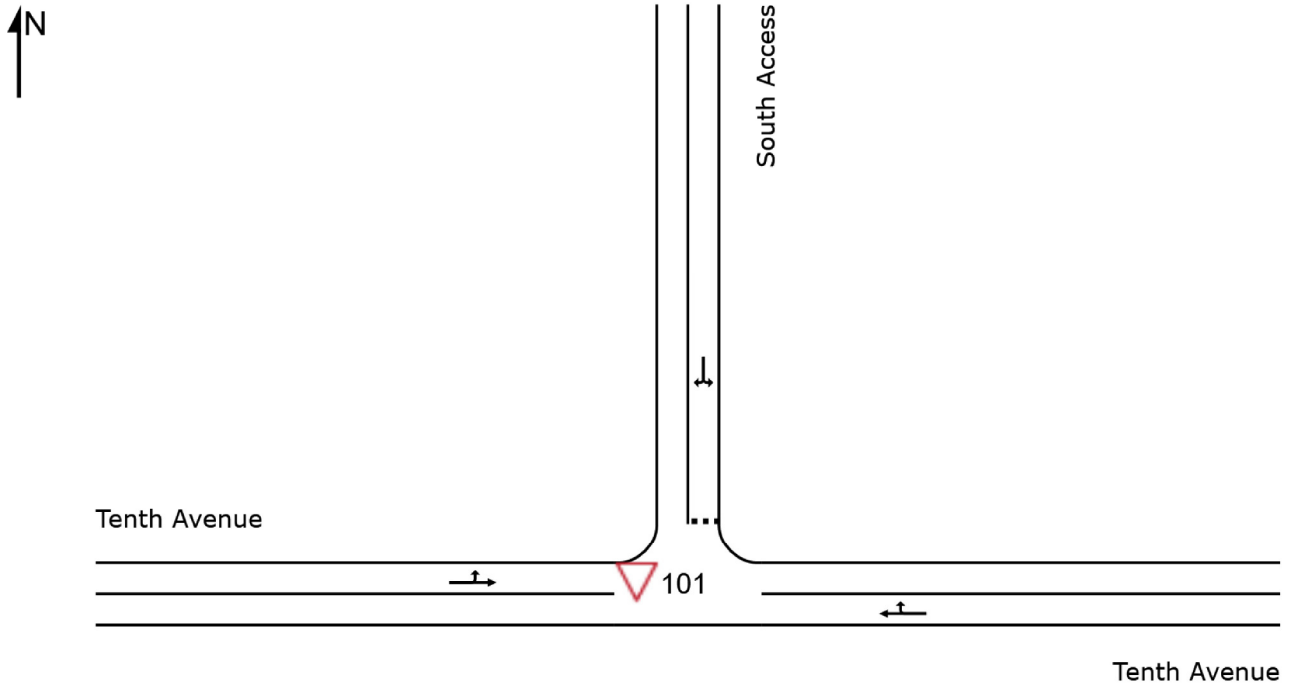
SITE LAYOUT

▽ Site: 101 [AM EX+D - Tenth Avenue - South Access]

Morning Peak Hour Traffic Flows Plus Development Traffic

Site Category: (None)

Giveaway / Yield (Two-Way)



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MOVEMENT SUMMARY

▽ Site: 101 [AM EX+D - Tenth Avenue - South Access]

Morning Peak Hour Traffic Flows Plus Development Traffic
 Site Category: (None)
 Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Tenth Avenue												
5	T1	360	2.0	0.413	2.4	LOS A	3.1	21.7	0.46	0.30	0.56	38.2
6	R2	250	2.0	0.413	6.8	LOS A	3.1	21.7	0.46	0.30	0.56	26.3
Approach		610	2.0	0.413	4.2	NA	3.1	21.7	0.46	0.30	0.56	32.2
North: South Access												
7	L2	250	2.0	0.567	3.7	LOS A	4.1	29.5	0.56	0.84	0.95	25.3
9	R2	170	2.0	0.567	11.6	LOS A	4.1	29.5	0.56	0.84	0.95	25.2
Approach		420	2.0	0.567	6.9	LOS A	4.1	29.5	0.56	0.84	0.95	25.3
West: Tenth Avenue												
10	L2	170	2.0	0.254	3.5	LOS A	0.0	0.0	0.00	0.17	0.00	39.6
11	T1	310	2.0	0.254	0.0	LOS A	0.0	0.0	0.00	0.17	0.00	39.4
Approach		480	2.0	0.254	1.3	NA	0.0	0.0	0.00	0.17	0.00	39.5
All Vehicles		1510	2.0	0.567	4.0	NA	4.1	29.5	0.34	0.41	0.49	31.7

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

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

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

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

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

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

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

MOVEMENT SUMMARY

▽ Site: 101 [PM EX+D - Tenth Avenue - South Access]

Afternoon Peak Hour Traffic Flows Plus Development Traffic
 Site Category: (None)
 Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Tenth Avenue												
5	T1	310	2.0	0.397	2.7	LOS A	2.9	20.7	0.49	0.34	0.61	38.1
6	R2	250	2.0	0.397	7.0	LOS A	2.9	20.7	0.49	0.34	0.61	26.2
Approach		560	2.0	0.397	4.7	NA	2.9	20.7	0.49	0.34	0.61	31.7
North: South Access												
7	L2	250	2.0	0.565	3.9	LOS A	4.1	29.1	0.59	0.89	0.99	25.3
9	R2	170	2.0	0.565	11.1	LOS A	4.1	29.1	0.59	0.89	0.99	25.2
Approach		420	2.0	0.565	6.8	LOS A	4.1	29.1	0.59	0.89	0.99	25.3
West: Tenth Avenue												
10	L2	170	2.0	0.275	3.5	LOS A	0.0	0.0	0.00	0.15	0.00	39.6
11	T1	350	2.0	0.275	0.0	LOS A	0.0	0.0	0.00	0.15	0.00	39.5
Approach		520	2.0	0.275	1.2	NA	0.0	0.0	0.00	0.15	0.00	39.5
All Vehicles		1500	2.0	0.565	4.0	NA	4.1	29.1	0.35	0.43	0.50	31.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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.

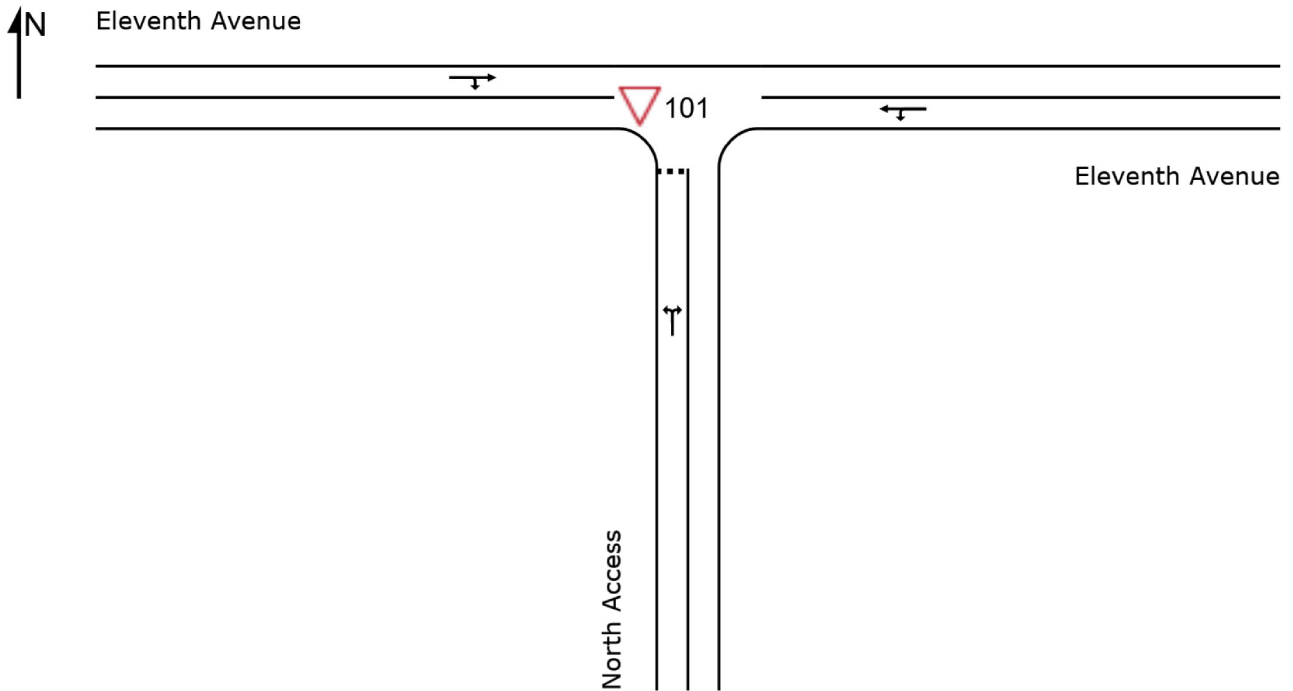
SITE LAYOUT

Site: 101 [AM EX+D - Eleventh Avenue - North Access]

Morning Peak Hour Traffic Flows Plus Development Traffic

Site Category: (None)

Giveaway / Yield (Two-Way)



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MOVEMENT SUMMARY

▽ Site: 101 [AM EX+D - Eleventh Avenue - North Access]

Morning Peak Hour Traffic Flows Plus Development Traffic
 Site Category: (None)
 Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: North Access												
1	L2	135	2.0	0.415	1.9	LOS A	2.3	16.6	0.50	0.61	0.65	25.8
3	R2	205	2.0	0.415	6.0	LOS A	2.3	16.6	0.50	0.61	0.65	25.7
Approach		340	2.0	0.415	4.3	LOS A	2.3	16.6	0.50	0.61	0.65	25.7
East: Eleventh Avenue												
4	L2	205	2.0	0.244	3.5	LOS A	0.0	0.0	0.00	0.21	0.00	39.4
5	T1	255	2.0	0.244	0.0	LOS A	0.0	0.0	0.00	0.21	0.00	39.3
Approach		460	2.0	0.244	1.6	NA	0.0	0.0	0.00	0.21	0.00	39.4
West: Eleventh Avenue												
11	T1	245	2.0	0.247	1.4	LOS A	1.2	8.3	0.36	0.22	0.36	38.7
12	R2	135	2.0	0.247	5.8	LOS A	1.2	8.3	0.36	0.22	0.36	26.5
Approach		380	2.0	0.247	3.0	NA	1.2	8.3	0.36	0.22	0.36	33.3
All Vehicles		1180	2.0	0.415	2.8	NA	2.3	16.6	0.26	0.33	0.30	32.5

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

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

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

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

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

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

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

MOVEMENT SUMMARY

Site: 101 [PM EX+D - Eleventh Avenue - North Access]

Afternoon Peak Hour Traffic Flows Plus Development Traffic
 Site Category: (None)
 Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: North Access												
1	L2	135	2.0	0.421	2.0	LOS A	2.4	16.9	0.51	0.63	0.68	25.8
3	R2	205	2.0	0.421	6.1	LOS A	2.4	16.9	0.51	0.63	0.68	25.6
Approach		340	2.0	0.421	4.5	LOS A	2.4	16.9	0.51	0.63	0.68	25.7
East: Eleventh Avenue												
4	L2	205	2.0	0.252	3.5	LOS A	0.0	0.0	0.00	0.20	0.00	39.5
5	T1	270	2.0	0.252	0.0	LOS A	0.0	0.0	0.00	0.20	0.00	39.3
Approach		475	2.0	0.252	1.5	NA	0.0	0.0	0.00	0.20	0.00	39.4
West: Eleventh Avenue												
11	T1	245	2.0	0.249	1.5	LOS A	1.2	8.5	0.37	0.22	0.37	38.7
12	R2	135	2.0	0.249	5.9	LOS A	1.2	8.5	0.37	0.22	0.37	26.5
Approach		380	2.0	0.249	3.0	NA	1.2	8.5	0.37	0.22	0.37	33.3
All Vehicles		1195	2.0	0.421	2.9	NA	2.4	16.9	0.26	0.33	0.31	32.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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.

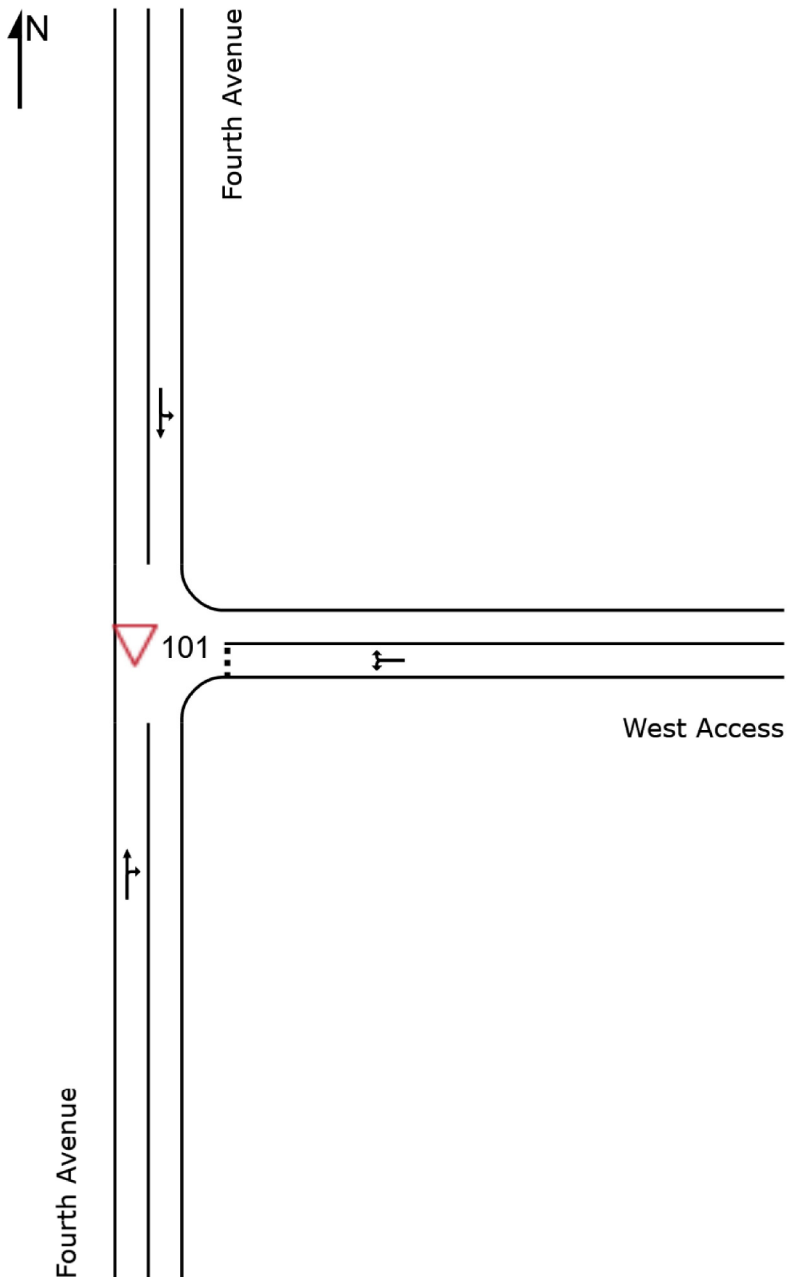
SITE LAYOUT

▽ Site: 101 [AM EX+D - Fourth Avenue - West Access]

Morning Peak Hour Traffic Flows Plus Development Traffic

Site Category: (None)

Giveaway / Yield (Two-Way)



MOVEMENT SUMMARY

▽ Site: 101 [AM EX+D - Fourth Avenue - West Access]

Morning Peak Hour Traffic Flows Plus Development Traffic
 Site Category: (None)
 Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Fourth Avenue												
2	T1	520	2.0	0.291	0.1	LOS A	0.3	1.9	0.05	0.03	0.05	59.5
3	R2	25	2.0	0.291	7.4	LOS A	0.3	1.9	0.05	0.03	0.05	57.2
Approach		545	2.0	0.291	0.5	NA	0.3	1.9	0.05	0.03	0.05	59.4
East: West Access												
4	L2	25	2.0	0.049	6.8	LOS A	0.2	1.3	0.45	0.66	0.45	51.6
6	R2	15	2.0	0.049	10.3	LOS A	0.2	1.3	0.45	0.66	0.45	51.1
Approach		40	2.0	0.049	8.1	LOS A	0.2	1.3	0.45	0.66	0.45	51.4
North: Fourth Avenue												
7	L2	15	2.0	0.195	5.6	LOS A	0.0	0.0	0.00	0.02	0.00	58.0
8	T1	360	2.0	0.195	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.7
Approach		375	2.0	0.195	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.7
All Vehicles		960	2.0	0.291	0.7	NA	0.3	1.9	0.05	0.05	0.05	59.1

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

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

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

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

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

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

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

MOVEMENT SUMMARY

▽ Site: 101 [PM EX+D - Fourth Avenue - West Access]

Afternoon Peak Hour Traffic Flows Plus Development Traffic
Site Category: (None)
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Fourth Avenue												
2	T1	360	2.0	0.217	0.6	LOS A	0.4	2.7	0.13	0.04	0.13	58.8
3	R2	25	2.0	0.217	9.8	LOS A	0.4	2.7	0.13	0.04	0.13	56.6
Approach		385	2.0	0.217	1.2	NA	0.4	2.7	0.13	0.04	0.13	58.7
East: West Access												
4	L2	25	2.0	0.067	8.8	LOS A	0.2	1.7	0.59	0.78	0.59	50.2
6	R2	15	2.0	0.067	12.4	LOS A	0.2	1.7	0.59	0.78	0.59	49.7
Approach		40	2.0	0.067	10.2	LOS A	0.2	1.7	0.59	0.78	0.59	50.0
North: Fourth Avenue												
7	L2	15	2.0	0.367	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	58.1
8	T1	690	2.0	0.367	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
Approach		705	2.0	0.367	0.2	NA	0.0	0.0	0.00	0.01	0.00	59.8
All Vehicles		1130	2.0	0.367	0.9	NA	0.4	2.7	0.06	0.05	0.06	59.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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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ATTACHMENT 6

DRAFT GREEN TRAVEL PLAN

**St Anthony of Padua
Catholic School
Austral
Green Travel Plan**

Green Travel Plan

Introduction

The purpose of this Green Travel Plan is to promote initiatives for more sustainable travel to St Anthony of Padua Catholic School Austral of students, parents, staff and visitors. The Plan is designed to complement broader sustainability initiatives for the School and is important in promoting patterns of behavior which protect and improve our local and global environment.

Major Objectives

There are three major objectives of St Anthony of Padua 's Green Travel Plan:

1. To promote alternative options to the car for travel to and from school for St Anthony of Padua staff and students;
2. To promote more efficient and green use car travel where the car is chosen as the mode of travel
3. To promote alternatives to the car for visitors travelling to and from St Anthony of Padua .

Anticipated Outcomes

The Green Plan seeks to achieve the following benefits:

1. Improved staff and student health and wellbeing by promoting cycling and walking to improve physical activity and health;
2. Reduced the school's carbon footprint through reduced car trips for students, staff and visitors and the adoption of efficient vehicles internally;
3. Reduction in local traffic congestion and resulting air pollution;
4. Enhancing the economic efficiency of the School's operations; and,
5. Creating opportunities for St Anthony of Padua to demonstrate strong leadership in the area of sustainability.

Measuring Performance

St Anthony of Padua regards the following indicators as significant in evaluating the success of the Plan:

1. Changes in the number of staff members travelling to work by car;
2. Changes in the number of students travelling to school by car;
3. Establishment of cycling as a viable practical alternate to traveling by car and
4. Promote more sustainable car usage

Benchmarking

With respect to the aforementioned performance measures the School has set the following benchmarks:

1. To reduce individual driver car-based travel for staff by 25% by achieving:
 - At least 5% of staff regularly commute to the school by cycle
 - At least 10% of staff car pooling
 - At least 10% of staff using public transport or shuttle bus services
2. To reduce student travel by car by 30% by achieving:
 - At least 25% of students travelling by public transport
 - At least 5% of students cycling
 - Actively discouraging senior students who are of licence age from driving to the school
3. To provide the infrastructure so that the necessary step change can be made by funding and building:
 - Providing quality corporate standard end of trip cycle storage, cycle maintenance, locker, shower and change room facilities for at least 10% of staff
 - Providing marked car-pool reserved bays who have entered into a staff car pooling arrangement
 - Providing at least one electric vehicle charging bay for staff
 - Providing covered well located safe cycle bays for at least 15% of students
 - Providing convenient safe cycle parking for visitors near the main entry

Resourcing the Green Travel Plan

- All of the infrastructure commitments will be funded by Sydney Catholic Schools as part of the school development programme.
- The School will establish a sustainability committee who will monitor performance of the Plan and report on progress annually.

Key Initiatives

The School will:

Survey and Report

- survey parents, students and staff to raise awareness of the Travel Plan, afford respondents an opportunity to provide input into green travel strategies and establish a baseline for future analysis of travel arrangements.
- conduct bi-annual surveys to assist in evaluating the efficacy of green travel initiatives.

Information and Awareness

- make available to staff, students and parents via the School's website information regarding alternatives to car use.
- Publish articles and/or information in the School Newsletter to raise awareness of broader impacts of sustainability focused travel choices.

Facilities

- provide the necessary infrastructure

Promote Walking

- promote the benefits of walking to staff, students and parents.
- review its practices to limit impediments to walking as a viable means of travelling to School.

Promote Public Transport

- collaborate with bus service operators to establish school bus travel routes as early as possible
- promote public transport options generally.

Promote Efficient Car Use

- promote more efficient use of cars for trips to and from work. Publish details of staff wishing to carpool on the School's intranet.

Promote Electric Vehicles

- promote the use of electric vehicles by providing charging facilities.

Use Technology to Reduce Travel Requirements

- invest in technology to facilitate electronic meetings, excursions and interactions generally.

School Sustainability Policy

- promote minimisation of energy use
- promote minimisation of greenhouse gas emissions and ozone depleting substances
- develop teaching and learning programmes to instill in children ways to be creative, empowered and positive about the future they are creating through connections and understanding of the environment.
- evaluate and monitor the effectiveness of their school environmental management plan at regular intervals – including traffic management

Strategies

The School will:

1. Publish relevant articles in the school's newsletter. Matters of interest might include: the health benefits of walking, School sustainability initiatives, driving to reduce emissions, and the true costs of carbon emissions.
2. Establish a dedicated space within the St Anthony of Padua website where the School can publish information pertinent to sustainability generally and green travel specifically and report results of its own initiatives.
3. Construct adequate bicycle parking facilities within the Precinct.
4. Construct additional shower and bathroom facilities convenient to the bicycle parking spaces and make these facilities available for morning use.
5. Following an appropriate education and orientation process, publish staff, student and parent travel information to facilitate car-pooling, cycle groups or walking teams.
6. Provide premium carpark for carpooling vehicles
7. Install an electric charging station in the staff carpark for electric vehicles
8. Provide safe cycling training for students electing to ride a bicycle to School
9. Organise walking activities during lunch breaks to introduce staff and students to the benefits of walking and improve physical conditioning of participants
10. Promote the use of IT supported conferencing and excursions
11. Substitute carbon fueled machines with electric or otherwise more efficient alternatives where feasible
12. Support local and national initiatives such as Bike Week and Earth Hour

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ATTACHMENT 7

DRAFT TRAFFIC AND PARKING MANAGEMENT PLAN

**St Anthony of Padua
Catholic School Austral
Traffic & Parking
Management Plan**

Preamble St Anthony of Padua Catholic School Austral will be a 125 place childcare, 4-stream primary and 8 stream secondary school in the community of schools under the governance of the Sydney Catholic Schools system within the Archdiocese of Sydney. St Anthony of Padua opened in 2018. It is anticipated that the school will grow its enrolment to 2280 students in future years in addition to the 125 childcare places (total 2405), in response to demand for primary education in the Liverpool Local Government Area.

Purpose The purpose of the Traffic Management Plan ("The Plan") is to provide staff, parents, students and the local community with guiding principles and protocols that assure:

1. The students who attend St Anthony of Padua Austral can arrive and depart safely to and from school;
2. Adequate controls are in place to ensure local neighbourhood pedestrian and vehicular traffic amenity is maintained;
3. Adequate review mechanisms are implemented to ensure "the plan" is responsive to changing circumstances, including heeding directives from authorised traffic officers;
4. "The plan" will be amended as necessary to ensure purposes #1 and #2 are maintained.

Overall Principles of Traffic Management

The overall principles of traffic management for the student set-down and pick-up operation are as follows:-

- provide a safe and convenient environment for students;
- minimise impact of on-street parking in the vicinity of the site, particularly during the morning and afternoon peak periods;
- manage and control vehicles and pedestrians in Eleventh Avenue and Tenth Avenue during the morning and afternoon periods;
- manage and control children crossing Eleventh Avenue and Tenth Avenue;
- encourage older children to travel with siblings and to use public transport services to travel to and from the school;
- provide appropriate kerbside parking restrictions.
- minimise effects on pedestrian movements and amenity;
- maintain pedestrian access throughout the school and develop safe and appropriate pedestrian facilities;
- provide convenient access to public transport, including rail and bus (including provision of a school operated shuttle bus) to connect to established services at Leppington railway station;
- manage and control traffic on the internal access roads;
- provide appropriate on-site parking for staff, Year 12 students and visitors;
- provide appropriate on-site bicycle parking, including the provision of lockers and change facilities
- provide appropriate access for emergency vehicles;
- encourage a low speed environment within the school;
- maintain safety for students and staff;
- manage and control student set-down and pick-up at the school;
- improve internal circulation within the site; and
- minimise pedestrian/vehicular conflicts.

In order to minimise the effect of parents/carers setting down and picking up students during the morning and afternoon and also to minimise the number of vehicles present in the vicinity of the school, the following measures are also proposed:-

- continue to encourage parents/carers to require older children to use public transport services, if appropriate.
- encourage car pooling to increase the number of students per car and to reduce the total number of cars in the area at any given time;
- manage the pick-up operation of students during the afternoon period; and
- inform parents/carers of the student set-down and pick-up arrangements for the school and encourage them to follow the proposed measures.

Responsibility The St Anthony of Padua Austral school principal is the responsible person, who implements, reviews and amends as necessary “the plan”.
At present that person is – The Principal
The Principal is supported in this role by the St Anthony of Padua Austral Traffic Committee whose members will include key staff from the school.

Implementation “The Plan” will come into effect in 2020 and will be reviewed quarterly.
(Note: Given the school is developing and traffic management will be influenced by construction activity, the school proposes to implement negotiated interim traffic management for the short term.)

Other Strategies Whilst “The Plan” focuses on the safe and efficient movement of traffic associated with the drop-off and pick-up of students by private vehicle, it also complements other strategies the school is implementing and promoting with respect to arrivals and departures, such as:

- Students, accompanied by parent(s)/carer(s) walking to school such as walk-to-school bus scheme;
(Benefit: Health and wellbeing and community building through social interaction of parents during journey and on arrival);
- Students walking to school unaccompanied;
(Benefit: Student health and wellbeing and building independence and resilience);
- Students riding bicycles to school;
(Benefit: Student health and wellbeing; secure bike racks provided by school);
- Students encouraged to use public transport;
(Benefit: Taking advantage of local bus services. Enrolment pack will include:
 - o Student travel pass applications
 - o Local transport options and routes
- Parents are encouraged to carpool;
(Benefit: Community building and reduction in vehicle movements.)

Parent Orientation

When parent(s)/carer(s) enrol their children at St Anthony of Padua Austral Primary, they not only commit to supporting the ideals and principles of Catholic education, they also commit to supporting the “policies and procedures of St Anthony of Padua Austral and the Archdiocese of Sydney”. To that effect they commit to supporting and abiding by the procedures and protocols of the Traffic Management Plan.

“The Plan” will be included in the Enrolment Pack, as well as public transport information and other travel options.

Communication To ensure “The Plan” remains viable and effective; the school will provide updates and changes to procedures through the following media:

- School fortnightly newsletters; *(Note: the school will regularly publish articles relating to traffic safety)*
- The School App, whereby notification and alerts can be sent to parents at any time; *(Note: the App will prove to be an effective tool in communicating given the speed and coverage)*
- Emails to parents; *(Note: important notifications will be sent via email to parent(s)/carer(s).)*

School Hours Supervision of students on site commences at 08:20 and concludes at 15:30.
Supervision is provided by teaching staff only.

Drop-Off and Pick-Up General Principles

The arrival of students travelling by car will be supervised between 08:20 and 08:45;
The departure of students travelling by car will be supervised between 15:00 and 15:30.

Supervising staff will be required to wear high visibility vests and will be focused on student safety and monitoring of traffic flow.

All vehicles entering the parking controlled zone or the purpose of picking up and setting down during term time will only approach from the East, proceed along the length of the zone, dropping off only at the designated area.

Drop-Off Protocols

The drop-off for students will be naturally staggered with cars arriving randomly over the supervised period from 08:20 to 08:45 with the peak expected between 08:30 – 08:45 given parents arrive at various times depending on their family's schedule.

(Note: It is anticipated that, upon completion of the building program, before and after school care program will be operating each day of the school term to cater for parents that need to drop off their child(ren) prior to playground supervision starting at 08:20).

Pick-up Protocols

The afternoon pick-up will be staggered.

The school will implement an alphabetical grouping of students into three even-sized groups; numbered "1", "2" and "3".

The following pick-up schedule will be followed:

Group	Time
1	15:00 – 15:10
2	15:10 – 15:20
3	15:20 – 15:30

Cars arriving before the allocated time will be required to drive through the pick-up zone and return at the appropriate time.

Supervisors shall monitor and record non-conformities to enable the principal to take necessary corrective action; supervising teachers are not permitted to direct traffic.

For those families participating in the staff-assisted pick-up arrangements, the following procedures shall be followed:

- At the prescribed commencement time, staff will be positioned at the designated pick up spaces which will be identified by a red traffic cone;
- Senior leadership staff, experienced in drop-off and pick-up systems will oversee the process and provide troubleshooting;
- Classroom teachers will ensure all students are dismissed on time;
- Students will be marshaled on the school site into their pick-up groups according to the alphabetical order by surname, to prevent delays in accessing their car;
- The student name and time slot for pickup will be displayed on the passenger side sun visor or dashboard;
- At arrival at the start of the pick-up bay, the staff member will relay via wireless microphone the name of student, who will then be directed to a pick up point;
- The student will enter the car from the passenger side only at the pick-up point. Staff will assist by handing student bag into the car. *(Note: Staff must never assist students enter the car from the road side);*
- Parents will remain in their car and have control of their vehicle at all times. *(Note: It is the driver's responsibility to ensure his/her passengers' seat belts are secured.)*
- It is required that, should a vehicle arrive at the head of the pick-up queue and the student is not yet ready, then the vehicle will leave the vehicle pick-up queue, drive around the block and rejoin the queue.

Car Parking

- The school currently provides car parking for vehicles within the car park located on Eleventh Avenue.
- The school will provide car parking for vehicles within new car parks off Fourth Avenue and Tenth Avenue.
- An electric vehicle charging station will be installed to support electric vehicles.
- The main on-site parking area for the high school will provide car parking for 124 vehicles, including 25 student set-down/pick-up spaces within the new car parks.
- The other main on-site parking areas will include two new car parks on located on the south eastern corner of the development, adjacent to the basketball courts located next to Tenth Avenue. These parking areas will provide a total of some 155 parking spaces including 37 student set-down/pick-up spaces
- Accessible parking spaces are also distributed throughout the site for visitors and staff.
- A campus driveway/drop off area located on the western side of the development connecting Tenth Avenue and Eleventh Avenue will be the main traffic throughfare. It will contain 39 carparks, as well as 65 drop off spaces.
- On-site parking is also available for service vehicles and garbage collection vehicles. These vehicles will be accommodated on the internal circulation roads within the school and provision has been made to cater for vehicles ranging from small commercial vehicles to medium rigid trucks.
- Loading facilities within the school are located adjacent to the school facilities. The service areas within the school have been designed to allow service vehicles to turn around on-site, with trucks entering and exiting the site in a forward direction.
- In addition to on-site parking, bus zones are provided on-street in Forth Avenue and Tenth Avenue.

Bicycle Parking & Facilities

- Bicycle access to the school is available from Fourth Avenue, Tenth Avenue and Eleventh Avenue
- Bicycle parking is provided for:
 - 30 bicycles Adjacent to Eleventh Avenue (open) – Student and Visitor parking
 - 60 bicycles Adjacent to the carparks in the south eastern corner of the campus (enclosed) – Student parking Only
 - 20 bicycles off Tenth Avenue, in between the soccer field and basketball courts (open) – Student and Visitor parking
 - 60 bicycles and end of trip facilities which include showers and changerooms adjacent to fourth Avenue (enclosed & Secure) - Staff
 - 10 bicycles Adjacent to Fourth Avenue (open) – Student and Visitor parking