



10 August 2023

Mr Tarun Chadha
Archidrome
Suite 206,
8 Help Street,
Chatswood NSW 2067

Dear Mr Chadha,

**CERTIFICATE OF DESIGN
SUBJECT PREMISES
DEVELOPMENT CONSENT**

**Traffic and parking
32 Halloran Street, Turvey Park NSW 2650
DA22/0460**

I refer to your request to recommend amendments to the design depicted in Archidrome drawing A02 "GROUND FLOOR PLAN" Revision R-01 dated 16/06/2023. The purpose of the amendments is to provide a turning bay by conversion of one of the car parking spaces.

The recommended design is attached to this report. AutoTrack swept path software was used to model the movements of B99 and B85 vehicles as required by AS/NZS 2890.1:2004.

Pursuant to the provisions of Clause A5G3 of BCA 2022, I hereby certify that the amended car park design is in accordance with normal engineering practice and meets the requirements of relevant Australian Standards in terms of traffic and parking components. In particular, the design is in accordance with the following:

AS/NZS 2890.1:2004: Parking Facilities - Off-street car parking

AS 2890.6:2022: Parking Facilities - Off-street parking for people with disabilities

I am an appropriately qualified and competent person in traffic and parking engineering and as such can certify that the design and performance of the design systems, which are detailed in the attached drawings, comply with the above Standards.

I possess Professional Indemnity Insurance to the satisfaction of the building owner or my principal.

Full Name of Certifier: Oleg I. Sannikov

Qualifications and professional affiliations:

- MEngSc (Traffic Engineering)
- Member, Engineers Australia (MIEAust, PEng)
- Fellow & Past President, NSW & ACT AITPM
- Member, CE-001 Committee (development of parking Standards), Standards Australia
- Member, Road Safety Panel, IPWEA

Address of Certifier: 36/150 Forbes St, Woolloomooloo NSW 2011

Business Telephone No: (02) 9332 2024 Fax No: (02) 9332 2024

Name of Employer: TEF Consulting

Yours faithfully,

Oleg I. Sannikov

Note: Under the Environmental Planning and Assessment Regulation 2000, Clause 283 False or misleading statements - A person is guilty of an offence if the person makes any statement, knowing it to be false or misleading in an important respect, in or in connection with any document lodged with the Director-General or a consent authority or certifying authority for the purposes of the Act or this Regulation.

TRAFFIC & PARKING STUDIES
AND MANAGEMENT

TRAFFIC IMPACT ASSESSMENTS

INTERSECTION AND NETWORK
MODELLING

ENVIRONMENTAL IMPACT
ASSESSMENT OF ROADS,
TRAFFIC AND TRANSPORT
OPERATIONS

ROAD AND TRAFFIC NOISE

ROAD SAFETY STUDIES

TRAFFIC & PARKING SURVEYS

CAR PARK DESIGN

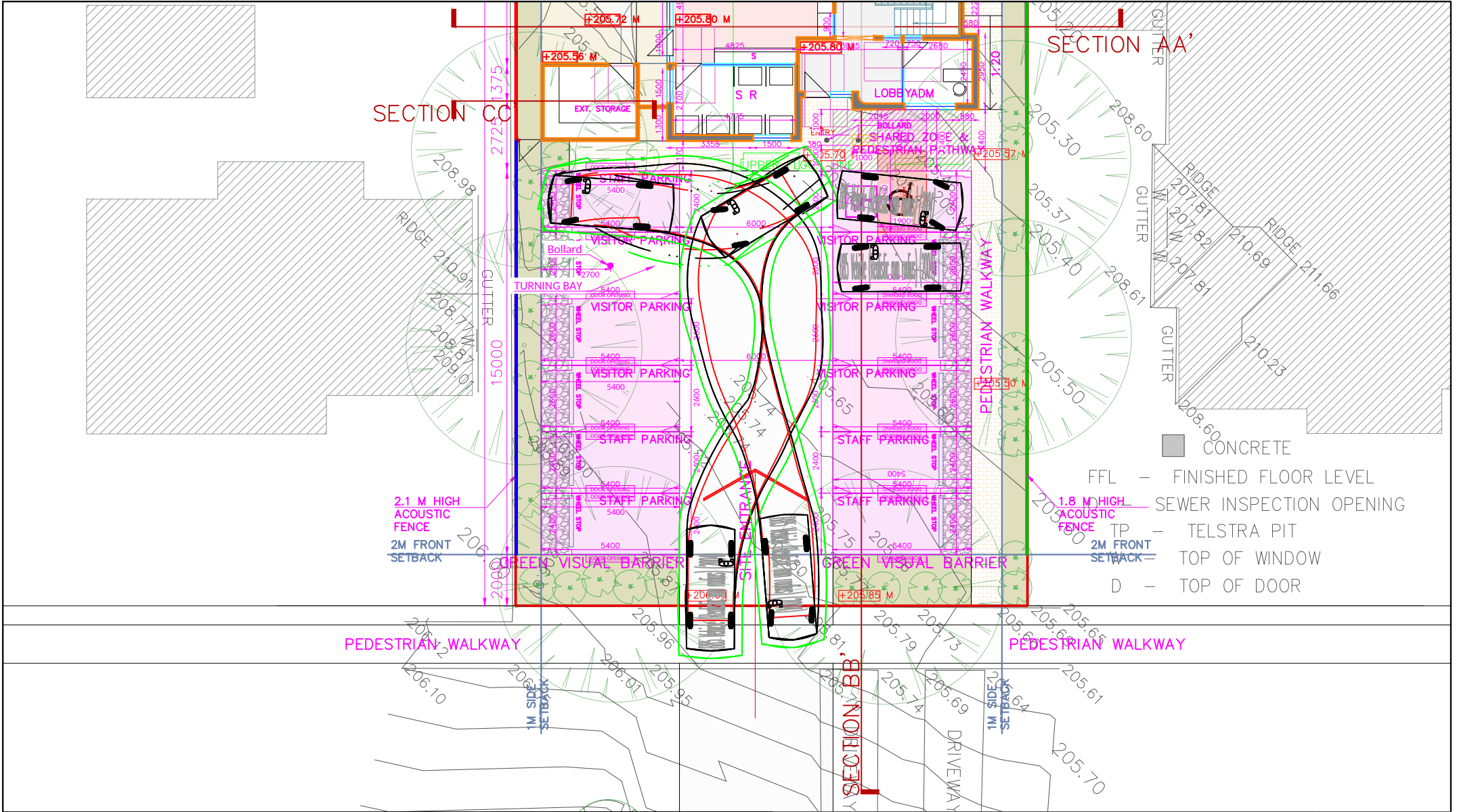
INTERSECTION DESIGN

TRAFFIC ACCIDENT
INVESTIGATION

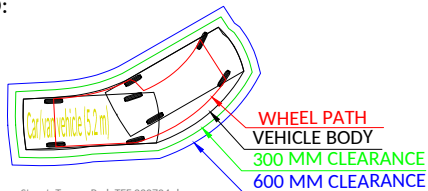
TRAFFIC ACCIDENT
RECONSTRUCTION

RESEARCH AND DEVELOPMENT

EXPERT WITNESSES



LEGEND:

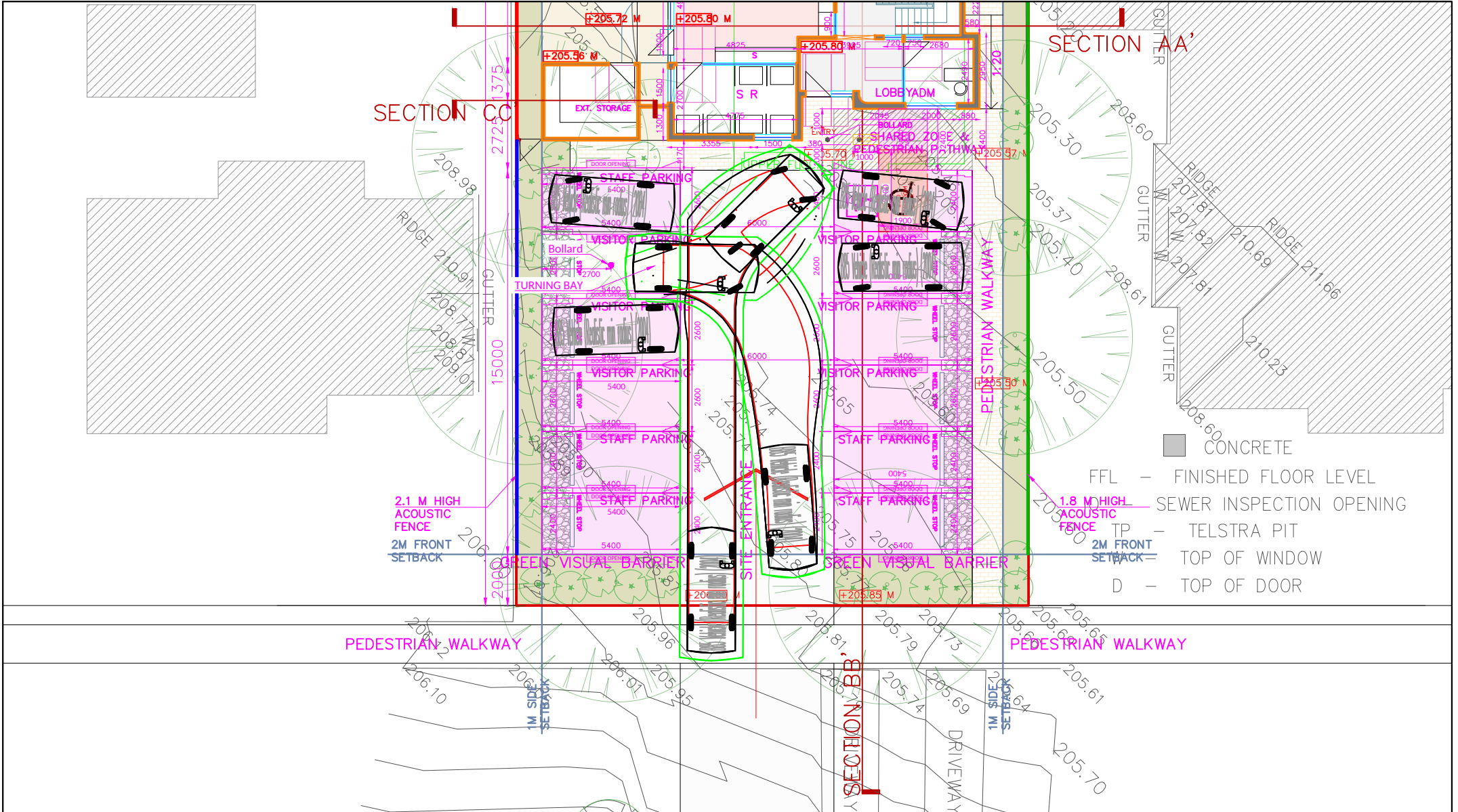


Dwg No 2027/01 | Rev. D | 11/08/2023
 Client: Archidrome

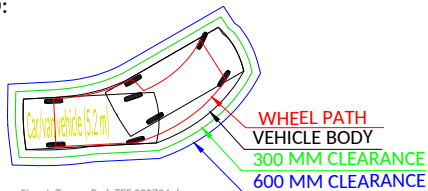
32 Halloran Street, Turvey Park NSW 2650

SCALE 1:200@A4

Proposed car park layout
 Design checks as per AS/NZS 2890 series



LEGEND:



Dwg No 2027/02 | Rev. D | 11/08/2023
 Client: Archidrome

32 Halloran Street, Turvey Park NSW 2650

SCALE 1:200@A4

Proposed car park layout
 Design checks as per AS/NZS 2890 series



**A TRAFFIC AND PARKING IMPACTS REPORT
FOR A DEVELOPMENT APPLICATION
FOR A PROPOSED DEVELOPMENT OF A CHILD CARE CENTRE
AT No. 32 HALLORAN ST, TURVEY PARK NSW 2650**

Property address	32 Halloran Street, Turvey Park NSW 2650
Client	Archidrome
Prepared by	O. Sannikov, MEngSc (Traffic Engineering), MIEAust, PEng, MAITPM
Date	10/07/22
Job No.	22027
Report No.	22027 Rep 01

Item	Report
Site location	<ul style="list-style-type: none">• Refer to Figure 1
Existing land use	<ul style="list-style-type: none">• Two (2) single storey residential dwellings
Proposed development	<ul style="list-style-type: none">• Child care centre<ul style="list-style-type: none">◦ 46 children places◦ Approximately 10 staff• Ground level car parking area<ul style="list-style-type: none">◦ 12 parking spaces including<ul style="list-style-type: none">▪ including 1 parking space for people with disabilities



Figure 1. Site location.

Item	Report
	<p>Existing traffic and parking situation</p> <ul style="list-style-type: none"> • Refer to Figure 2 • The key roads surrounding the proposed development are described below. <ul style="list-style-type: none"> ◦ Halloran Street <ul style="list-style-type: none"> ▪ Local road ▪ 2 travel lanes and parking opportunities on both sides of the road ◦ Dalton Street <ul style="list-style-type: none"> ▪ Local road ▪ 2 travel lanes and parking opportunities on both sides of the road ◦ Blamey Street <ul style="list-style-type: none"> ▪ Local Road ▪ 2 travel lanes and parking opportunities on both sides of the road ◦ Bourke Street <ul style="list-style-type: none"> ▪ Regional Road (Collector Road 0211) ▪ 4 travel lanes and parking opportunities on both sides of the road ◦ Bluett Crescent <ul style="list-style-type: none"> ▪ Local Road ▪ 2 travel lanes and parking opportunities on both sides of the road ◦ Urana Street <ul style="list-style-type: none"> ▪ Local Road ▪ 2 travel lanes and parking opportunities on both sides of the road ◦ Other streets in the surrounding area are local/local collector roads. Street conditions are typical for a residential area, with low to moderate traffic volumes. <ul style="list-style-type: none"> ▪ General speed limit is 50 km/h on local streets around the site. There is a 40 km/h school zone nearby.
<p>Public Transport</p> <p>Bus</p>	<ul style="list-style-type: none"> • There are (5) public bus stops within short walking distance (approximately 300 m and 550 m). Refer to Figure 3. <ul style="list-style-type: none"> ◦ Bus route 921 <ul style="list-style-type: none"> ▪ Wagga Wagga to Junee via Wallacetown & Harefield <ul style="list-style-type: none"> • No services operate during the morning and afternoon peak. ▪ Junee to Wagga Wagga via Harefield & Wallacetown <ul style="list-style-type: none"> • 1 service operate during the morning peak. • No services operate during the afternoon peak. ◦ Bus route 931 <ul style="list-style-type: none"> ▪ Wagga Wagga to Coolaman <ul style="list-style-type: none"> • 1 service operate during the morning peak. • No services operate during the afternoon peak. ▪ Coolaman to Wagga Wagga <ul style="list-style-type: none"> • 1 service operate during the morning peak. • No services operate during the afternoon peak. ◦ Bus route 961 <ul style="list-style-type: none"> ▪ Wagga Wagga-Bourkelands-Wagga Wagga <ul style="list-style-type: none"> • No services operate during the morning peak. • 4 services operate during the afternoon peak.

Item	Report
	<ul style="list-style-type: none"> Bus route 962 <ul style="list-style-type: none"> Glenfield Park to Wagga Wagga via Ashmont <ul style="list-style-type: none"> 1 service operate during the morning peak. 5 services operate during the afternoon peak.
	<ul style="list-style-type: none"> Bus route 963 <ul style="list-style-type: none"> Glenfield Park to Wagga Wagga via Bruce St & Turvey Park <ul style="list-style-type: none"> 1 service operate during the morning peak. 4 services operate during the afternoon peak.
School buses	<ul style="list-style-type: none"> The morning peak was considered to be between 6:30 a.m. and 9:30 a.m. and the afternoon peak was considered to be between 3:30 p.m. and 6:30 p.m. A school bus zone for three buses is located on the eastern side of Halloran Street opposite the proposed child care centre site. Another school bus zone, for one bus, is located on the northern side of Blamey Street, on the corner of Halloran Street. This bus stop is indented. Refer to Figure 4.

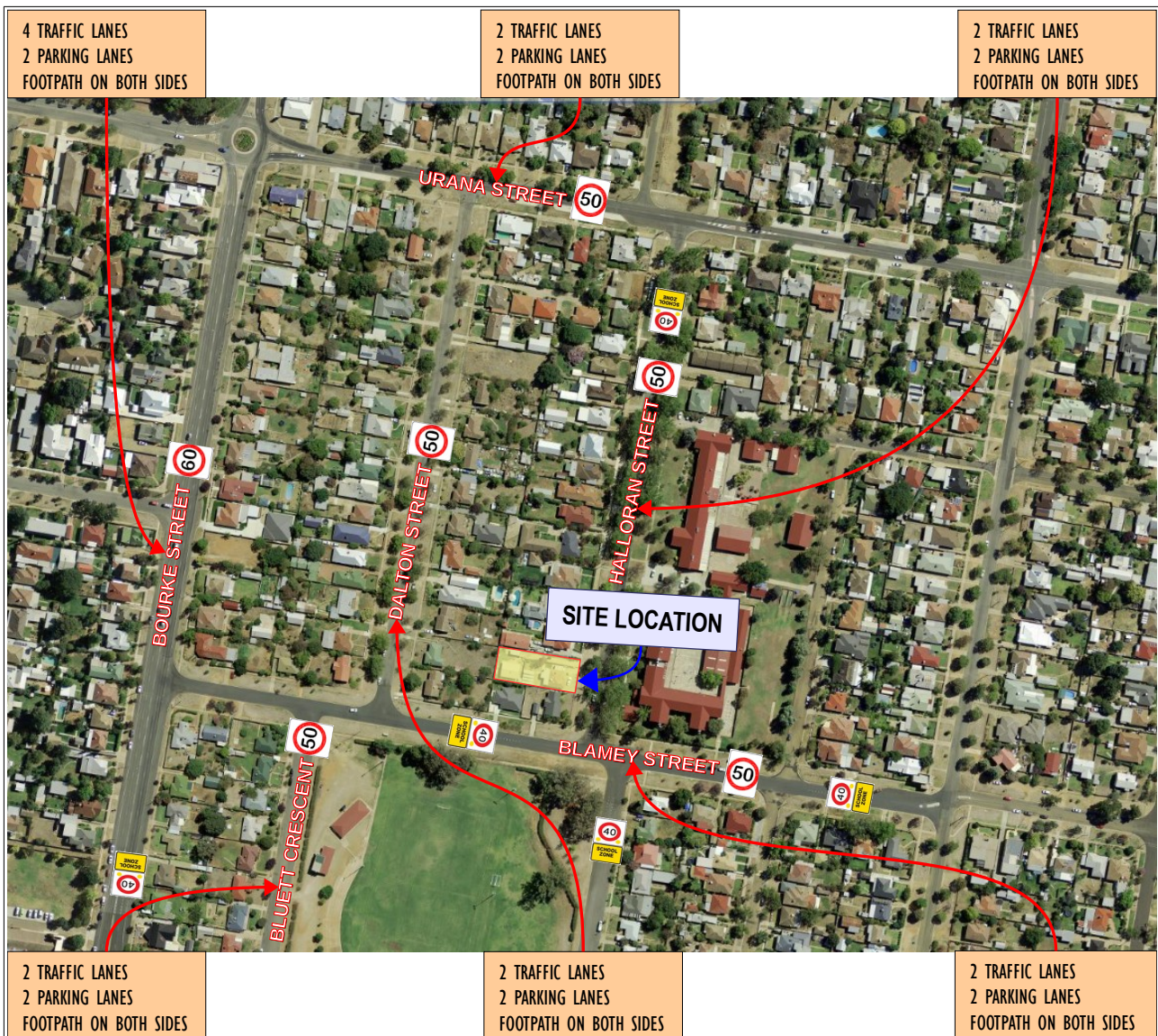


Figure 2. Street characteristics.

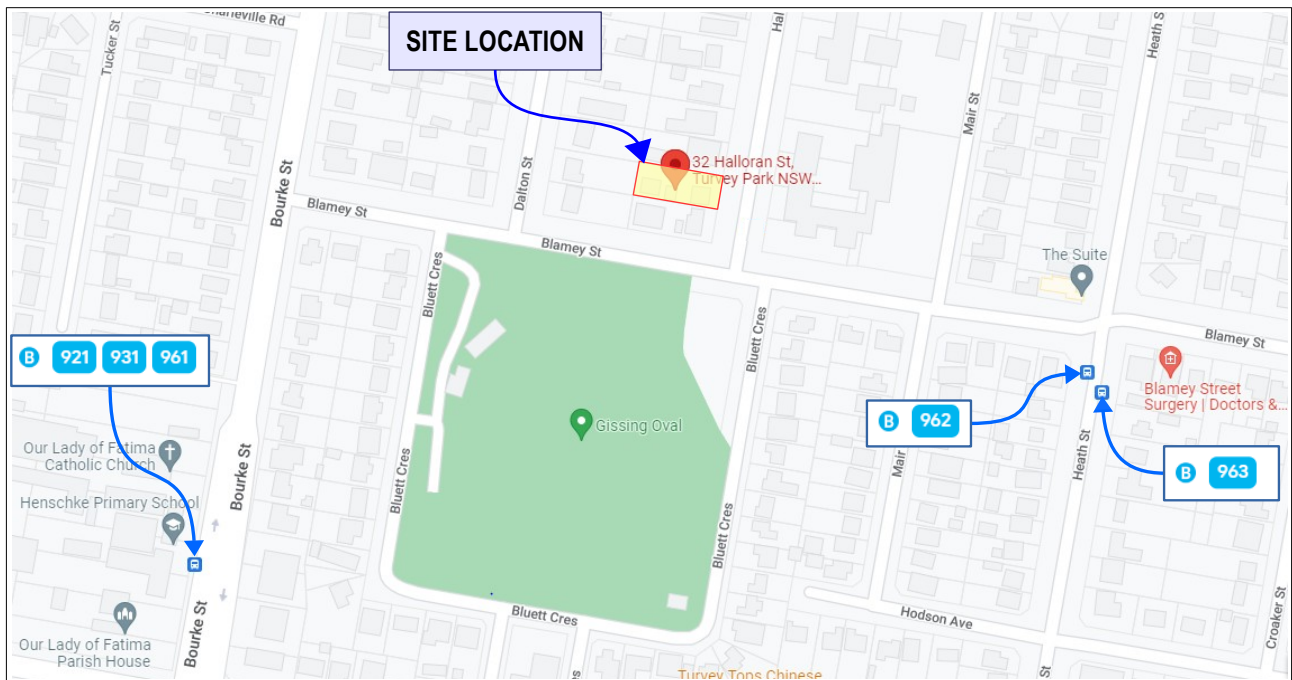


Figure 3. Public transport.



Figure 4. School bus zones and No Parking restrictions.

Item	Report
<p>Surveys and survey results</p>	
<p>Parking survey</p>	<ul style="list-style-type: none"> • A parking demand survey was conducted on Thursday 28th of April 2022 (afternoon) and Friday 29th of April 2022 (morning) during the typical periods of children drop-off and pick-up for both the proposed child care centre and a school on the opposite side of Halloran Street.. ◦ The morning survey was between 6:30 and 10:00 ◦ The afternoon survey was between 14:30 and 18:00 • Refer to Figure 5 for survey locations ◦ Areas in red represent a walking distance of up to 150 metres from the site location ◦ Areas in blue represent a walking distance within 250 metres from the site location
<p>Survey results</p>	<ul style="list-style-type: none"> • Refer to Table 1 for survey results. • Areas 1-5 (within 150 metres walking distance). <ul style="list-style-type: none"> ◦ The morning peak occurred at 09:15 ◦ The afternoon peak occurred at 15:20 ◦ The survey results indicated that there were at least 39 spaces vacant throughout the day (to a maximum of 95) in the survey area during the times of operation of the proposed child care centre. • Areas 6-8 (between 150 to 250 metres walking distance). <ul style="list-style-type: none"> ◦ The morning peak occurred at 09:10 ◦ The afternoon peak occurred at 15:20 ◦ The survey results indicated that there were at least 20 spaces vacant throughout the day (to a maximum of 43) in the survey area during the times of operation of the proposed child care centre. • There are ample parking opportunities within walking distance from the site.



Figure 5. Parking demand survey locations.

Table 1. Parking demand survey results.

29/04/2022		Number of parked cars															
Friday		Parking Location															
Time	1	1a	1b	1c	2a	2b	3	4	5	6	7	8	1 to 5	6 to 8	Total		
6:30	0	1	1	1	0	0	0	1	0	1	0	2	4	3	7		
6:45	0	1	1	1	0	0	0	1	0	1	0	2	4	3	7		
7:00	0	1	1	1	0	0	0	1	0	1	0	2	4	3	7		
7:30	0	1	1	1	0	0	0	1	0	1	0	2	4	3	7		
8:00	0	2	1	1	0	0	0	1	0	1	0	2	5	3	8		
8:30	0	2	1	4	0	0	0	0	0	1	0	2	7	3	10		
8:45	1	2	2	3	0	0	0	5	0	2	0	2	13	4	17		
8:55	0	2	2	5	0	0	0	6	0	1	0	2	15	3	18		
9:00	2	2	2	6	0	0	1	7	1	4	0	2	21	6	27		
9:10	2	2	2	7	0	0	1	8	4	3	0	4	26	7	33		
9:15	2	2	3	7	0	0	1	9	3	2	0	4	27	6	33		
9:30	2	2	1	4	0	0	1	7	3	2	0	4	20	6	26		
10:00	2	1	1	3	1	0	1	6	4	4	0	2	19	6	25		
No of spaces	2	2	2	8	6	10	31	20	17	31	4	9	98	44	142		

29/04/2022		Number of vacant parking spaces															
Friday		Parking Location															
Time	1	1a	1b	1c	2a	2b	3	4	5	6	7	8	1 to 5	6 to 8	Total		
6:30	2	1	1	7	6	0	31	19	17	30	4	7	84	41	125		
6:45	2	1	1	7	6	0	31	19	17	30	4	7	84	41	125		
7:00	2	1	1	7	6	0	31	19	17	30	4	7	84	41	125		
7:30	2	1	1	7	6	0	31	19	17	30	4	7	84	41	125		
8:00	2	0	1	7	6	0	31	19	17	30	4	7	83	41	124		
8:30	2	0	1	4	6	10	31	20	17	30	4	7	91	41	132		
8:45	1	0	0	5	6	10	31	15	17	29	4	7	85	40	125		
8:55	2	0	0	3	6	10	31	14	17	30	4	7	83	41	124		
9:00	0	0	0	2	6	10	30	13	16	27	4	7	77	38	115		
9:10	0	0	0	1	6	10	30	12	13	28	4	5	72	37	109		
9:15	0	0	-1	1	6	10	30	11	14	29	4	5	71	38	109		
9:30	0	0	1	4	6	10	30	13	14	29	4	5	78	38	116		
10:00	0	1	1	5	5	10	30	14	13	27	4	7	79	38	117		

Notes: 1 - negative numbers indicate vehicles parked illegally
2 - No Parking in Area 2b between 08:00 and 16:00

28/04/2022		Number of parked cars															
Thursday		Parking Location															
Time	1	1a	1b	1c	2a	2b	3	4	5	6	7	8	1 to 5	6 to 8	Total		
14:30	3	2	1	7	0	0	1	7	4	4	0	2	25	6	31		
15:00	3	2	1	8	0	0	1	10	5	7	0	3	30	10	40		
15:20	3	2	1	8	0	2	8	16	9	21	0	3	49	24	73		
15:30	1	2	1	5	0	1	9	10	12	11	1	2	41	14	55		
16:00	0	1	1	2	0	0	0	4	0	1	0	0	8	1	9		
16:30	0	1	1	2	0	0	0	2	0	1	0	2	6	3	9		
16:45	0	1	1	2	0	0	0	1	0	2	0	3	5	5	10		
17:00	0	1	1	1	0	0	0	0	0	2	0	3	3	5	8		
17:15	0	1	1	1	0	0	0	0	0	2	0	3	3	5	8		
17:30	0	1	1	1	0	0	0	0	0	2	0	3	3	5	8		
17:45	0	1	1	1	0	0	0	1	0	3	0	3	4	6	10		
18:00	0	1	1	1	0	0	0	1	0	3	0	3	4	6	10		
No of spaces	2	2	2	8	6	10	31	20	17	31	4	9	98	44	142		

28/04/2022		Number of vacant parking spaces															
Thursday		Parking Location															
Time	1	1a	1b	1c	2a	2b	3	4	5	6	7	8	1 to 5	6 to 8	Total		
14:30	-1	0	1	1	6	0	30	13	13	27	4	7	63	38	101		
15:00	-1	0	1	0	6	0	30	10	12	24	4	6	58	34	92		
15:20	-1	0	1	0	6	-2	23	4	8	10	4	6	39	20	59		
15:30	1	0	1	3	6	-1	22	10	5	20	3	7	47	30	77		
16:00	2	1	1	6	6	0	31	16	17	30	4	9	80	43	123		
16:30	2	1	1	6	6	10	31	18	17	30	4	7	92	41	133		
16:45	2	1	1	6	6	10	31	19	17	29	4	6	93	39	132		
17:00	2	1	1	7	6	10	31	20	17	29	4	6	95	39	134		
17:15	2	1	1	7	6	10	31	20	17	29	4	6	95	39	134		
17:30	2	1	1	7	6	10	31	20	17	29	4	6	95	39	134		
17:45	2	1	1	7	6	10	31	19	17	28	4	6	94	38	132		
18:00	2	1	1	7	6	10	31	19	17	28	4	6	94	38	132		

Notes: 1 - negative numbers indicate vehicles parked illegally
2 - No Parking in Area 2b between 08:00 and 16:00

Item	Report	
Traffic counts		
Intersection traffic volume counts	Location / type of control	Intersection of Halloran Street / Blamey Street / Bluett Crescent Two staggered T-intersections, -statutory Give Way control
	Date / Day of the week	Wednesday 29/04/2022
	Time period (morning)	06:30 to 10:00; peak hour occurred between 08:30 and 09:30
	Time period (afternoon)	14:30 to 18:30; peak hour occurred between 15:00 and 16:00
Intersection operation	<ul style="list-style-type: none"> The existing traffic volumes are very low and as such the intersection operates at a very good level of service with practically no delays at any of the approaches. Refer to Figure Some schoolchildren walk to the school, whilst others get delivered/picked up by cars or buses (16 buses using two stops in Halloran Street and Blamey Street on the day of the survey for each peak period). Pick-up times for buses ranged between 20 and 60 seconds. <ul style="list-style-type: none"> No congestion due to bus movements nor their parking was observed. There was no double parking or blocking of intersections nor driveways. In Halloran Street, buses took advantage of the No Parking zone (2b in Figure 5) on the approach to the bus zone, as necessary (only observed once). Not more than one bus stopped at the Blamey Street stop at any one time. It was observed that when a second bus was approaching the occupied bus stop from the west, it stopped for about 25 seconds near Dalton Street and proceeded to the bus stop only when it was vacated. In the morning, schoolchildren were dropped off very efficiently, resulting in a very low parking demand on street. In the afternoon, although the overall parking demand was greater, the peak period of pick-up lasted only approximately 15 minutes, with parents mostly parking in Blamey Street and Bluett Crescent (about 50%) and away from the proposed centre's site in Halloran Street (parking area 6, about 30%). Activities near the proposed site, on the western side of Halloran Street, were low to moderate due to the majority of vehicles parked in areas 1, 1a, 1b and 1c being long-term users (at least two vehicles were observed to be belonging to the school staff). At the northern end of Halloran Street, at the junction with Urana Street, traffic volumes were similarly low and much less affected by the school traffic. 	

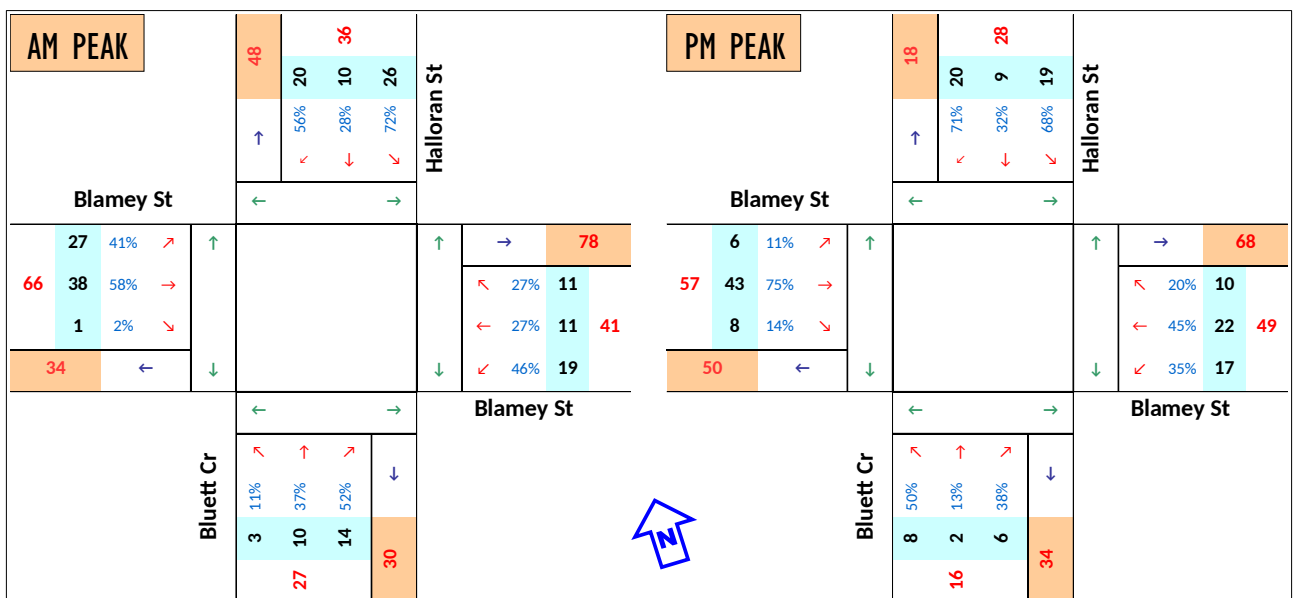


Figure 6. Existing peak hour traffic volumes.

Item	Report
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- | | |
|------------------------------------|---|
| Planning control document 1 | <ul style="list-style-type: none"> • Wagga Wagga City Council <ul style="list-style-type: none"> ◦ Wagga Wagga Development Control Plan 2010 <ul style="list-style-type: none"> ▪ Part D – Specific Uses and Developments ▪ Part A – Controls that apply to all Development |
|------------------------------------|---|

Requirement	Compliance
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Part D – Specific Uses and Developments

12.5 Childcare Centres

Objectives

- | | |
|---|---|
| <ul style="list-style-type: none"> • Encourage child care centres to be located on corner sites and sites parking and access to the centre can be easily managed. | Satisfactory, the site is near the corner |
| <ul style="list-style-type: none"> • Protect the amenity of adjoining land uses through good site planning, landscaping and layout. | Complies |
| <ul style="list-style-type: none"> • Enhance the streetscape and provide a visually attractive buffer between the street and building/ car park. | To be addressed by others |
| <ul style="list-style-type: none"> • Provide children with learning and educational opportunities through landscaping initiatives such as flower beds and vegetable gardens. | To be addressed by others |

Controls

- | | |
|--|---------------------------|
| C1. Provide adequate space to allow for drop off and parking requirements within the development site. | Complies |
| C2. Design and locate set down, pick up and parking areas to be visible from the road but to maintain the amenity of adjoining properties. | Complies |
| C3. to C10 | To be addressed by others |

Section 2 Controls that apply to all development

2.1 Vehicle access and movements

Controls

- | | |
|--|---|
| C1. Access should be from an alternative secondary frontage or other non-arterial road where possible. | Complies |
| C2. A Traffic Impact Study may be required where adverse local traffic impacts may result from the development. The traffic impact study is to include the suitability of the proposal in terms of the design and location of the proposed access, and the likely nature, volume or frequency of traffic to be generated by the development. | Complies |
| C3. Vehicles are to enter and leave in a forward direction unless it can be demonstrated that site conditions prevent it. | Complies |
| C4. Provide adequate areas for loading and unloading of goods on site. The loading space and facilities are to be appropriate to the scale of development. | Not applicable to a child care centre of the proposed size. |

Item	Report
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Requirement	Compliance
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C5. Access driveways are to be located in accordance with the relevant Australian Standard at the time of lodgement of an application. Complies with AS/NZS 2890.1:2004

C6. Ensure adequate sight lines for proposed driveways. Complies

2.2 Off-street parking

C1. Parking is to be provided in accordance with the table below. For uses not listed, similar land uses should be used as a guide in assessing car parking requirements.

LAND USE	CAR PARKING REQUIREMENT
Preschools and childcare centres	1 space/ 4 children in attendance

1 space per 4 children

- $46/4 = 11.5$, say **12 spaces**

12 car parking spaces are provided.

Complies

Mo reliance on street parking is proposed.

C2. The design and layout of parking is to be in accordance with the relevant Australian Standard at the time of lodgement of an application.

Complies

Refer to the design assessment and vehicle swept path analysis in the **Appendix**.

C3. Parking spaces are to be provided for disabled persons. Accessible parking spaces to comply with the relevant Australian Standard at the time of lodgement of an application.

Complies

C4. For mixed use developments, [...]

Not applicable

C5. In the case of redevelopment or change of use (other than in the B3 zone) [...]

Not applicable

C6. In the case of redevelopment or change of use within the B3 zone where there is no increase in gross floor area, [...]

Not applicable

C7. Variations to the parking requirements may be considered where minor alterations and additions are proposed and the changes do not encroach or reduce the current off-street parking spaces.

Not applicable

Not sought

C8. A traffic and parking study may be required for certain proposals, including but not limited to proposals for schools and other education uses including child care centres, business parks, hospitals, cinemas and gyms.

Complies

C9. Provide trees within the parking area [...]

Not applicable

C10. Planting beds located within a car park

Not applicable

C11. To ensure sightlines are maintained for drivers and pedestrians, trees used within or adjacent to car parking areas

Capable of compliance at the Construction Certificate stage

Item	Report	
	Requirement	Compliance
	shall have a minimum clear trunk height of 2.5m, with shrubs and ground covers not to exceed 500mm in height.	

Item	Report
	Traffic impacts
Traffic generation	<ul style="list-style-type: none"> • Base traffic generation rates <ul style="list-style-type: none"> ◦ From RMS (2002) Guide to Traffic Generating Developments <ul style="list-style-type: none"> ▪ Updated statistics from TDT 2013 / 04a • Existing traffic generation <ul style="list-style-type: none"> ◦ two dwelling houses (Peak hour vehicle trips = 0.95 to 0.99 per dwelling) <ul style="list-style-type: none"> • $0.95 \text{ to } 0.99 \times 2 = 1.9 \text{ to } 1.92$, say 2 trip (exiting in the morning peak hour and entering in the afternoon peak hour) • Traffic generated by the proposed development <ul style="list-style-type: none"> ◦ Child care centres (long-day care) <ul style="list-style-type: none"> ▪ Morning peak hour <ul style="list-style-type: none"> • 0.8 vehicle trips / child <ul style="list-style-type: none"> ◦ $0.8 \times 46 = 36.8$ trips say 37 trips (in and out) <ul style="list-style-type: none"> ▪ Assume 80% of staff driving (with 80% of staff arriving in the morning peak) <ul style="list-style-type: none"> • $10 \times 0.8 \times 0.8 = 6.4$, say 7 trips in ▪ Equal parent trips in and out <ul style="list-style-type: none"> • $(37-7)/2 = 15$ trips in and 15 trips out • 22 trips in and 15 trips out ▪ Afternoon peak hour <ul style="list-style-type: none"> • 0.7 vehicle trips per child <ul style="list-style-type: none"> ◦ $0.7 \times 38 = 32.2$ trips say 32 trips (in and out) <ul style="list-style-type: none"> ▪ Assume 80% of staff driving (with 70% of staff departing in the afternoon peak) <ul style="list-style-type: none"> • $10 \times 0.8 \times 0.7 = 5.6$, say 6 trips out ▪ Equal parent trips in and out <ul style="list-style-type: none"> • $(32-6)/2 = 13$ trips in and 13 trips out • 13 trips in and 19 trips out • Additional traffic generated by proposed development <ul style="list-style-type: none"> ◦ Morning peak hour <ul style="list-style-type: none"> ▪ $22 - 0 = 22$ additional trips in ▪ $15 - 2 = 13$ additional trips out ◦ Afternoon peak hour <ul style="list-style-type: none"> ▪ $13 - 2 = 11$ additional trips in ▪ $19 - 0 = 19$ additional trips out
Traffic distribution	<ul style="list-style-type: none"> • Trip generation and attraction is assumed to be equal in all directions, with trip distribution taking into account the surrounding street network, connections and turn restrictions.
Traffic impacts	<ul style="list-style-type: none"> • The results of the traffic flow surveys indicated that the peak school traffic occurred between 08:30 and 09:15 in the morning and between 15:00 and 15:45 in the afternoon. • A recent study of child care centres, conducted by TEF Consulting on behalf of TfNSW¹ indicated that the morning traffic generation peak at child care centres mostly occurred earlier than the observed morning peak at the school. In most cases the afternoon pick-up peak at the child care centres occurred earlier than the observed peak at the school (and earlier than at the school in one case). <ul style="list-style-type: none"> ◦ Refer to Table 2 overleaf.

1 TfNW (2015) Trip Generation Surveys—Child Care Centres

- Highlighted peak times are within the peak morning school drop-off period. There is no overlap of the peak trip generation nor parking demand for the afternoon pick-up between the school and the sites in the TfNSW study.
- It must be emphasised that:
 - In the morning, schoolchildren were dropped off very efficiently resulting in a very low parking demand on street.
 - In the afternoon, although the overall parking demand was greater, the peak period of pick-up lasted only approximately 15 minutes, with parents mostly parking in Blamey Street and Bluett Crescent (about 50%) and away from the proposed centre's site (parking area 6, about 30%). Activities near the proposed child care centre site, on the western side of Halloran Street, were low to moderate due to the majority of vehicles parked in areas 1, 1a, 1b and 1c being long-term users (at least two vehicles were observed to be belonging to the school staff).
 - The proposed centre's off-street car parking provision is fully compliant with the requirements of the DCP, TfNSW and DPIE Child care planning guideline². All car parking demand will be contained within the site, with no competition for the street space between the centre and the school.
- The additional traffic volumes presented in **Figure 7** represent the child car centre peaks. If superimposed on the school traffic peaks, such an assumption would represent the worst case scenario. Even then, as may be observed from **Figure 7**, the additional turning traffic volumes will be very low, superimposed on the low existing traffic.
- The school pick-up and drop-off activities are not likely to create any capacity nor safety issues for the proposed child care centre, nor vice versa.

Table 2. Peak drop-off and pick-up times at long day child care centres (TfNSW study).

Drop-off peak	Pick-up peak
07:45 to 08:00	16:00 to 16:15
07:45 to 08:00	17:00 to 17:15
08:15 to 08:30	17:00 to 17:15
08:00 to 08:15	16:45 to 17:00
09:15 to 09:30	17:00 to 17:15
08:45 to 09:00	16:45 to 17:00
08:45 to 09:00	17:15 to 17:30
08:30 to 08:45	17:30 to 17:45
08:15 to 08:30	17:45 to 18:00
08:45 to 09:00	14:45 to 15:00
08:30 to 08:45	

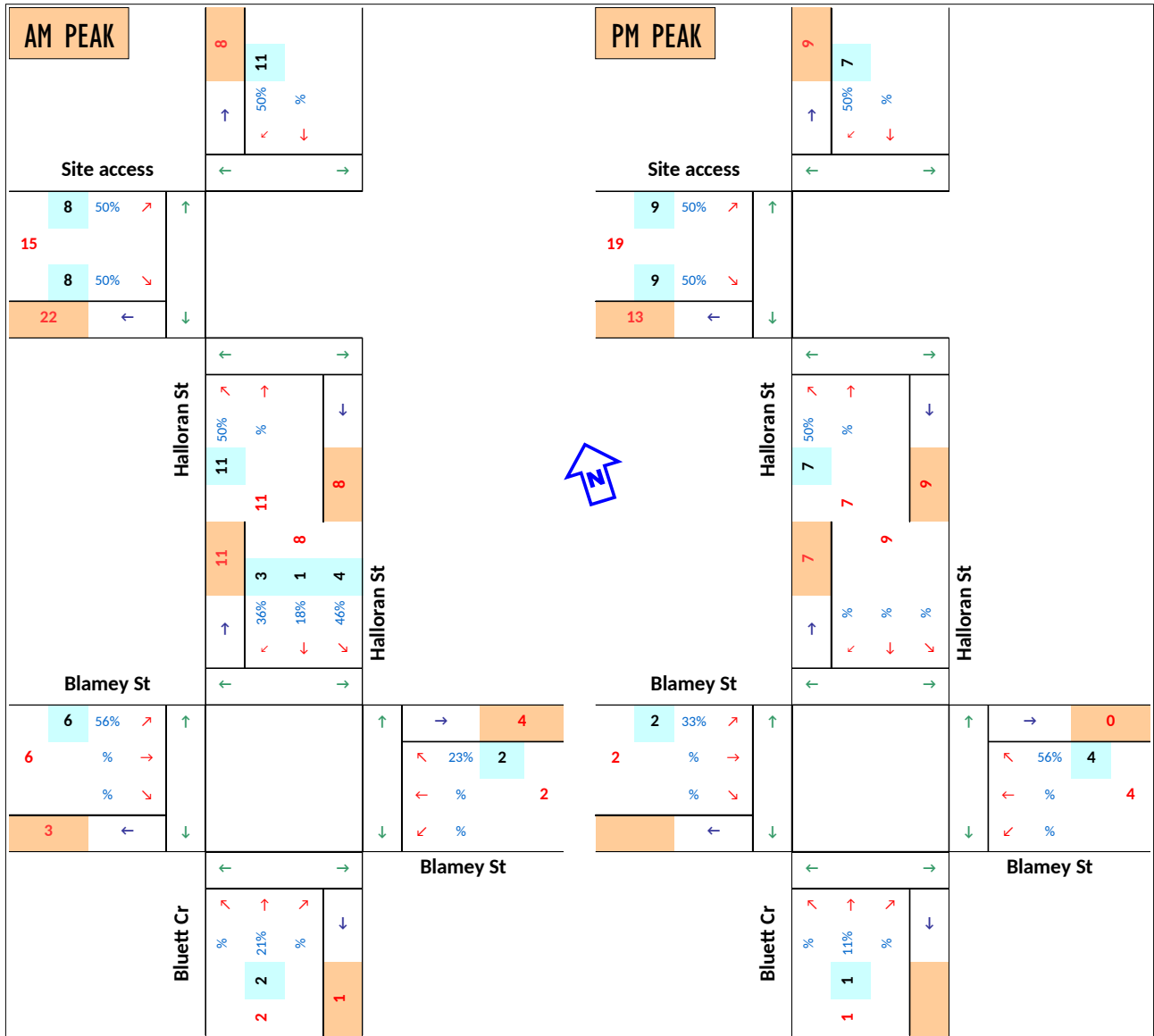


Figure 7. Additional peak hour traffic volumes.

Conclusions

- Proposed parking provision
 - Complies with Development Control Plan requirements.
- Traffic impacts
 - There will be no negative impacts on street network operation.
- Design of access, car parking and servicing facilities
 - Complies with the relevant Standards.
- The proposed development is supportable on traffic and parking grounds.



Oleg I. Sannikov
Director
MEngSc (Traffic Engineering)
MIEAust, PEng
MAITPM

References:

Wagga Wagga Development Control Plan 2010

Guide to Traffic Generating Developments RMS (2002)

TfNW (2015) Trip Generation Surveys—Child Care Centres. Data report.

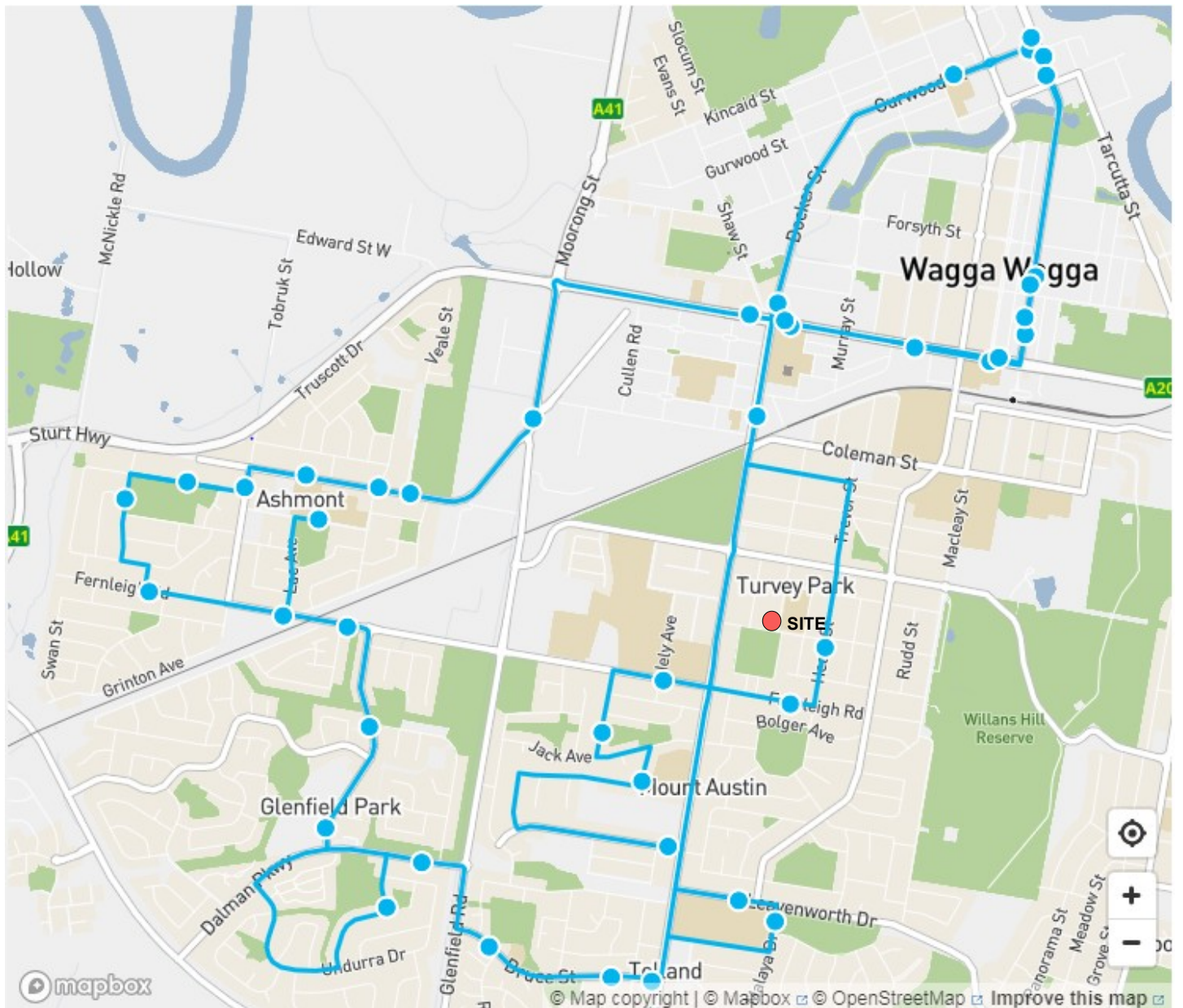
Department of Planning, Industry and Environment (2021) Child care planning guideline

Australian Standard AS/NZS 2890.1: 2004: Parking Facilities Part 1: Off Street Car Parking

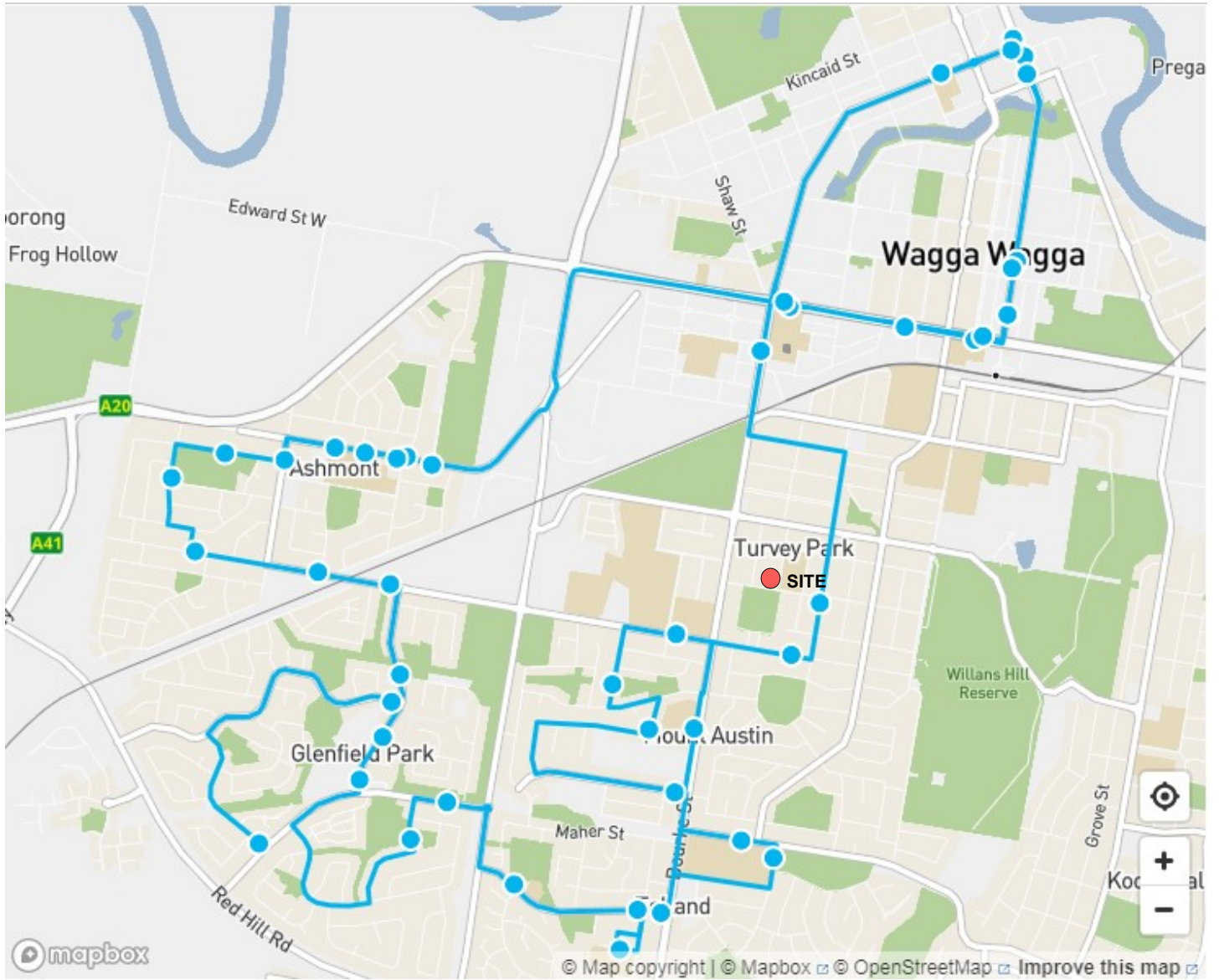
Australian Standard AS/NZS 2890.6:2009: Parking Facilities - Off-street parking for people with disabilities

Appendix
Public transport routes
Car park design checks and vehicle turning diagrams

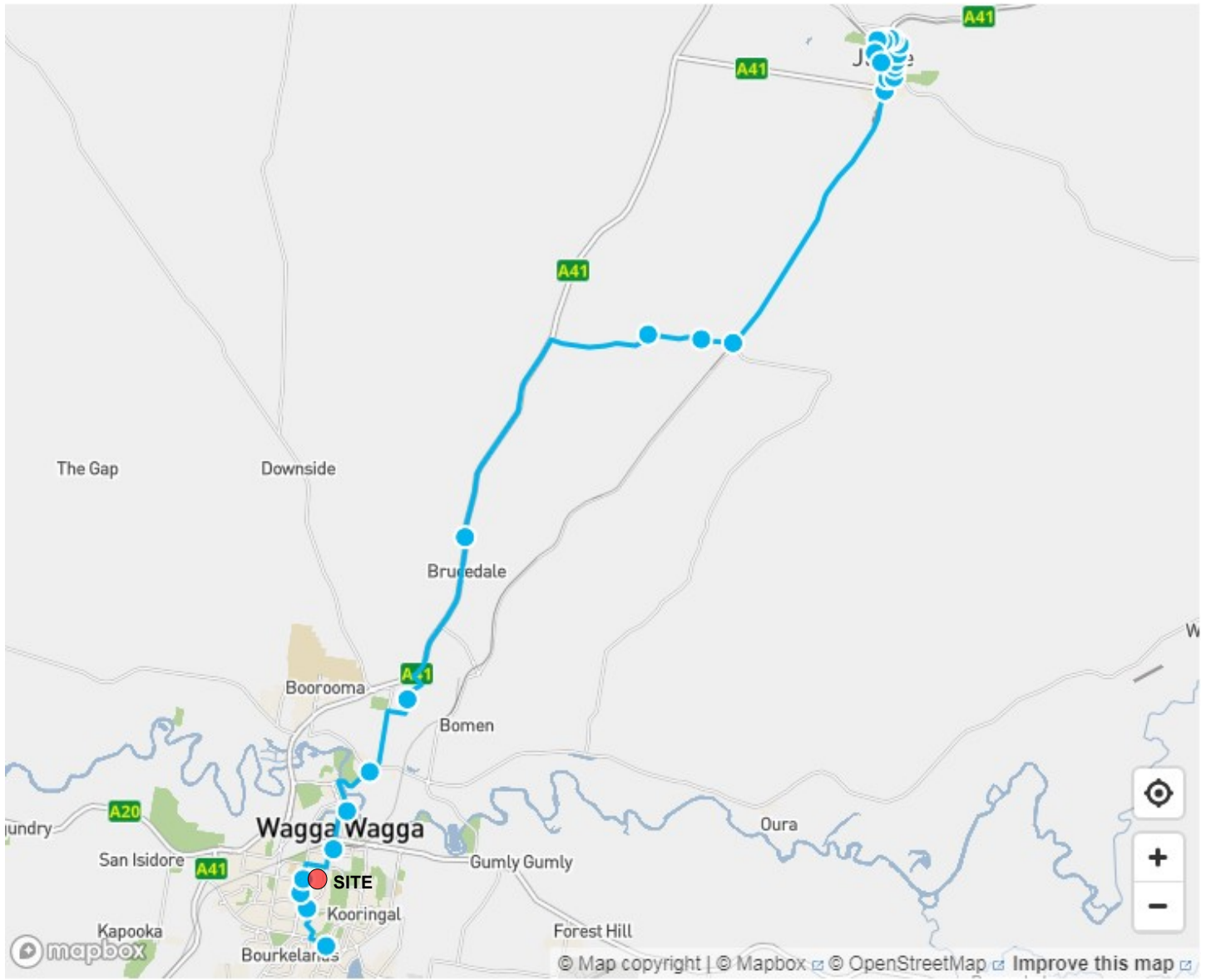
Bus Route 963



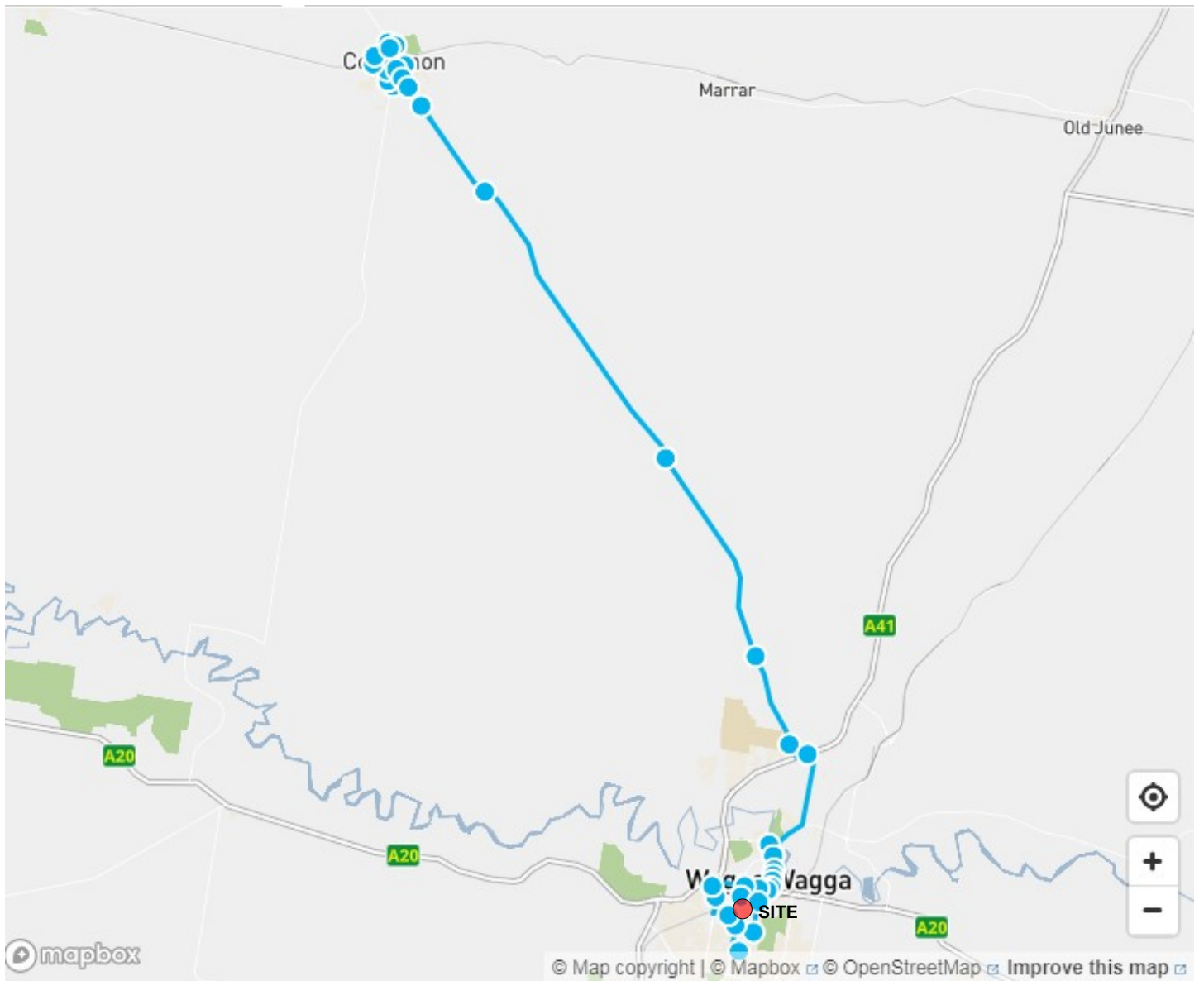
Bus Route 962



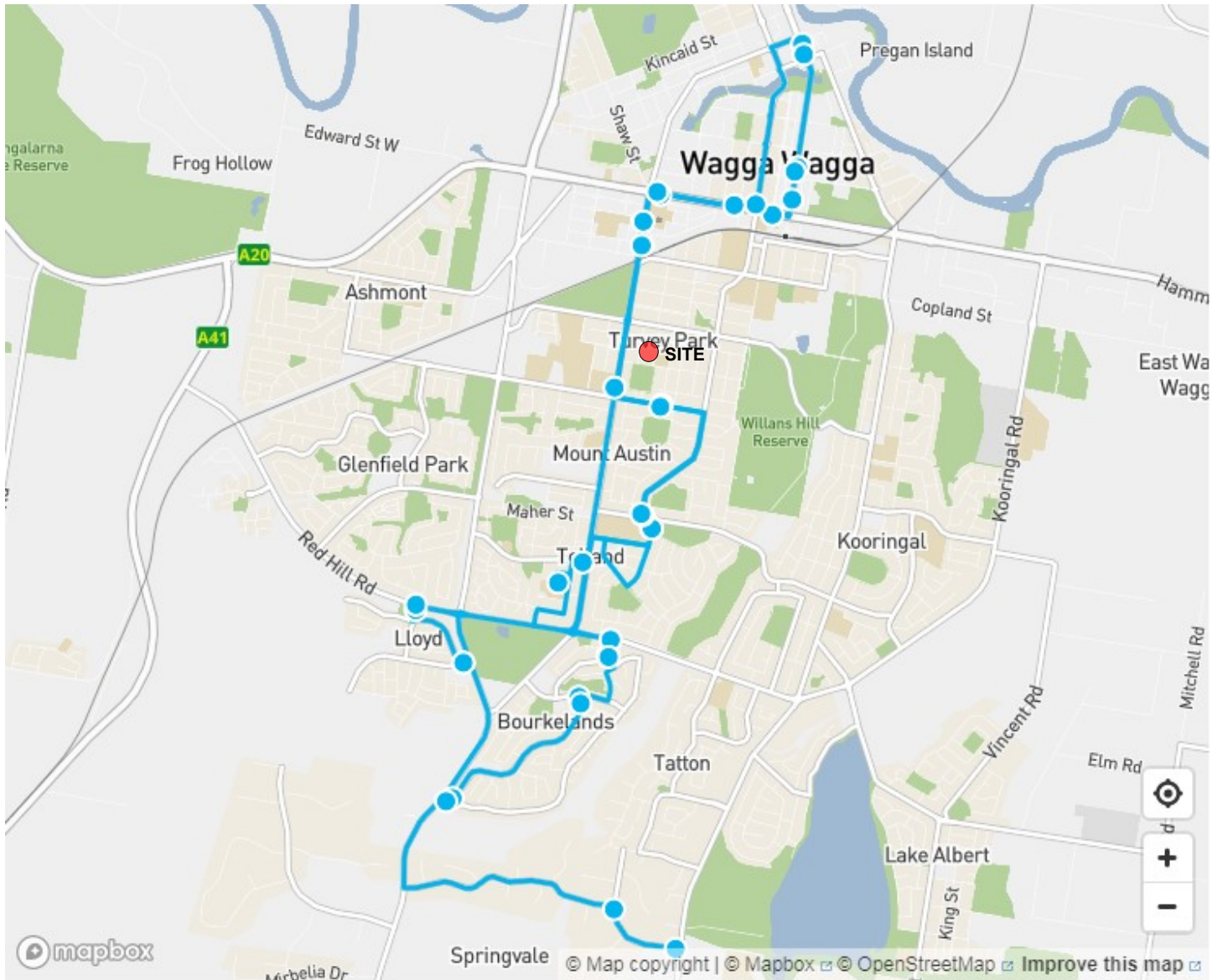
Bus Route 921



Bus Route 931



Bus Route 961





21 December 2022

General Manager
Wagga Wagga City Council
PO Box 20
Wagga Wagga NSW 2650

Attn: Ms Emma Molloy, Town Planner

Dear Sir/Madam,

32 Halloran Street, Turvey Park NSW 2650, DA 22/0460

I refer to the above development application for a 46-place child care centre. I act in the capacity of a traffic and parking engineering consultant on behalf of the proponent. I have been requested to provide a review of and respond to the issues raised in residents' submissions. The results of my review are presented below.

1. Most of the traffic and parking related issues are repeated in different submissions. In my review, I refer to a summary of issues compiled by Archidrome (the project architect). The matrix of the submissions, prepared by Archidrome and attached to this letter, includes references to specific correspondence items.
2. Where needed, I make references to a Traffic and Parking Impacts Assessment report (TPIA) prepared by this firm as part of the development application package.
3. Issue
 - 3.1. Primary School and the bus stop located directly across the road (bus issue)
4. Response
 - 4.1. There are only a few buses using this bus stop during the peak periods of school drop-off and pick-up. Each bus stays at the bus stop for less than a minute on average. At most times (with the exception of a few minutes in total when buses drop off and pick up school students) the bus stop and the No Parking zone to the north of it create a de-facto unimpeded southbound traffic lane and safe and efficient two-way traffic conditions. Since the bus stop is across the road from the proposed child care centre, not on the same side, it does not impede the child care centre access or vice versa.
5. Issue
 - 5.1. School already impacts the street's traffic (extra at school events); street already has traffic problems
6. Response
 - 6.1. This is a misleading overstatement. Both streets on the school frontages, Halloran Street in particular, carry very low traffic, well below their environmental capacity, let alone their traffic capacity. Even during the peak hours of school drop-offs and pick-ups, counted traffic volumes did not exceed 90 veh/h in Halloran Street. This is very low traffic by the definitions of the TfNSW (2002) Guide to Traffic Generating Developments (GTGD), well below both traffic and environmental capacity of the street. The afternoon pick-up period is busier for the school, however it is not at the same time as the child care centre peak period (as explained in detail the TPIA). Events are rare by definition and should be managed by the school.
7. Issue
 - 7.1. Congested during drop off & pick up (+ crossing streets)
8. Response

TRAFFIC & PARKING STUDIES
AND MANAGEMENT

TRAFFIC IMPACT
ASSESSMENTS

INTERSECTION AND NETWORK
MODELLING

ENVIRONMENTAL IMPACT
ASSESSMENT OF ROADS,
TRAFFIC AND TRANSPORT
OPERATIONS

ROAD AND TRAFFIC NOISE

ROAD SAFETY STUDIES

TRAFFIC & PARKING SURVEYS

CAR PARK DESIGN

INTERSECTION DESIGN

TRAFFIC ACCIDENT
INVESTIGATION

TRAFFIC ACCIDENT
RECONSTRUCTION

RESEARCH AND DEVELOPMENT

EXPERT WITNESSES

- 8.1. Some congestion (without blockages) occurs only in the afternoon and for a very short period of time, outside the child care centre peak times.
9. Issue
- 9.1. Inadequate street car parking/ no capacity for more on-street parking
10. Response
- 10.1. This is simply not true, as is evident from the results of the parking surveys included in the TPIA. Even during the peak school periods (that is only for a small part of the day) parking is available, let alone outside the school peaks. Also, the proposed development provides of-street parking in full compliance with the DCP rates, as well as with those recommended by TfNSW (GTGD) and Child Care Guidelines (SEPP). The proposal does not rely on street parking at all.
11. Issue
- 11.1. Inadequate proposed parking space number
12. Response
- 12.1. The proposed development provides of-street parking in full compliance with the DCP rates, as well as with those recommended by TfNSW (GTGD) and Child Care Guidelines (SEPP).
13. Issue
- 13.1. Already difficult access/ Narrow 9m wide street
- 13.2. Increase in Traffic
14. Response
- 14.1. I acknowledge that the TPIA should have described the street as having two parking lanes and providing for two-way traffic, rather than having two traffic lanes. However, at most times (with the exception of a few minutes in total when buses drop off and pick up school students) the bus stop and the No Parking zone to the north of the bus stop create a de-facto unimpeded southbound traffic lane and safe and efficient two-way traffic conditions.
- 14.2. A report prepared by Regional Transport Planning (RTPR, Letter 18) suggested that the author of the TPIA and the current letter may not understand Wagga conventions, seemingly implying that 9 m wide streets are somewhat special. The 9 m wide streets are very common and not only in Wagga Wagga. Recent research¹ into the capacity of narrow streets, where vehicles have to veer into the gaps in kerb parking, created by driveways and between parked cars, to give way to vehicles in the opposite direction, indicates that such streets have capacity of about 200-250 veh/h. The total traffic in Halloran Street with the proposed child care centre is not likely to exceed 120-130 veh/h, well below the above capacity threshold. The street width and the increase in traffic are a non-issue.
- a) The author of the TPIA is well familiar with the conditions in Wagga Wagga, having had conducted traffic and parking studies for the Wagga Wagga Base Hospital redevelopment, Calgary Riverina medical centre and Wagga Wagga CSU and a study of trip generation of a 550 dwelling area in Glenfield Park (for a major research study on low density residential trip generation for TfNSW).
- 14.3. I must emphasise that RTPR reports on “congestion” near the bus stop, making an impression as if this is happening at most times. In fact, buses stop a dozen times **per day** for one minute on average and do not create any prolonged issues. At other times, on the contrary, the bus zone creates a de-facto second traffic lane, improving the traffic conditions opposite the proposed driveway.
- 14.4. The author of the RTPR acknowledges on the last page as follows:
- Concluding Statement**
 To be fair to the developer, the traffic generation from the Child Care Centre may be fairly small and often “staggered” in arrival and departure when compared to the Public School. Also, most of the vehicular and pedestrian safety issues result from the management of students at the primary school. Over many years, this has been difficult to improve and many attempts have been made. The situation that I observed represents many of the worst aspects of school safety at peak up time.
- 14.5. The above clarification, however, comes after a lengthy discussion about various issues, making an impression that they were critical, permanently occurring and likely to be exacerbated by the proposed child care centre.

¹ Capacity of narrow residential streets (2019) Research paper presented by TEF Consulting at 2019 AITPM Technical Seminar “Back to Basics”.

14.6. It is important to note that that the RTPR acknowledges that any issues are due to the school and that the proposed child care centre will have low traffic generation and staggered when compared with the school arrivals and departures. The issues with the behaviour of school students and parents have nothing to do with the proposed development. These issues, if not resolved, will continue to exist regardless of the proposed development approval outcome.

15. Issue

15.1. Proposed driveway location is not suitable/ Opposite the bus stop

16. Response

16.1. The bus stop is only used for a total of approximately 10 minutes per day. At other times the bus zone creates a de-facto second traffic lane, improving the traffic conditions opposite the proposed driveway.

17. Issue

17.1. Intersection operation is blocked

18. Response

18.1. This is not what was observed during the surveys. Please refer to video records available via the DropBox link https://www.dropbox.com/sh/zhawwlb105s389e/AADF6h_6ES1YFEwgsaVctbyda?dl=0.

19. Issue

19.1. Suggestion of childcare peak hour morning and afternoon is earlier than school is challenged

20. Response

20.1. No research basis provided for this challenge, whereas TPIA report provided the actual survey data. As noted in 14.6 above, the RTPR, prepared by a local traffic engineer and referred to in many submissions, acknowledges that the proposed child care centre will have low traffic generation and staggered when compared with the school arrivals and departures.

21. Issue

21.1. Failed traffic impact study/ Not a true report.

22. Response

22.1. The TPIA was prepared by a very experienced traffic engineer. The TPIA was based on detailed surveys conducted during the critical traffic and parking demand periods in full compliance with relevant guidelines.

23. Issue

23.1. Loading zone concern

23.2. Garbage truck or delivery vehicle consideration/ cannot turn on site

24. Response

24.1. This a relatively small centre, it does not require a loading zone due to a very small number of deliveries. The deliveries are not likely to be carried out by larger trucks.

25. Issue

25.1. Parking space is not practical

26. Response

26.1. The design of car parking spaces fully complies with relevant Standards; staff spaces at front and rear provide a buffer for safety of pedestrians.

27. Issue

27.1. Childcare vehicles not able to turn around within the centres car park

28. Response

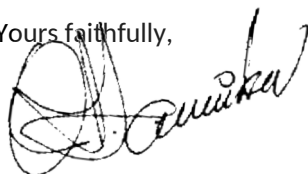
28.1. There is no need for a dedicated turning area. This is a small car park and drivers will be able to see from the street if it is full (the latter is very unlikely).

29. Issue

- 29.1. No zebra crossing/ designated crossing
30. Response
- 30.1. The small scale of the development does not warrant this measure.
31. Issue
- 31.1. Illegal parking
32. Response
- 32.1. The proposed development provides of-street parking in full compliance with the DCP rates, as well as with those recommended by TfNSW (GTGD) and Child Care Guidelines (SEPP). There is no need for the users to park illegally.
33. Issue
- 33.1. Demolition and construction will bring a great deal
- 33.2. Demolition and construction phase bring danger to students
34. Response
- 34.1. Construction will be managed in accordance with the relevant guidelines, ensuring that the safety is not compromised.
35. Issue
- 35.1. Influx of Vehicle on wet day/ parking lost space because of the Council rubbish collection
36. Response
- 36.1. The objector presents a very rare situation as something occurring at all times. This is a non-issue.
37. Issue
- 37.1. Driveway itself will take away two existing parking spaces
38. Response
- 38.1. The site has an existing driveway, which is going to be relocated and widened by 3 m; possibly a loss of one space but there are plenty of vacant spaces in the street.
39. Issue
- 39.1. 6m wide proposed driveway is narrow
40. Response
- 40.1. The driveway width fully complies with the Standards and is sufficient for as demonstrated by swept path diagrams
41. Based on the above review, I maintain my professional opinion that the proposed development is supportable on traffic and parking grounds.

Please do not hesitate to contact the undersigned should you have questions or require more information.

Yours faithfully,



Oleg I. Sannikov
Director, TEF Consulting
MEngSc (Traffic Engineering)
Fellow & Past President, NSW & ACT AITPM
MIEAust, PEng
Member, CE-001 Committee (development of parking Standards (2890 series)), Standards Australia
Member, Road Safety Panel, IPWEA