PO Box 215 Bondi NSW 2026 | ph.: +61 2 9332 2024 | fax.: +61 2 9332 2022 | mob.: +61 (0)4 1497 8067 | email: o.s@tefconsult.com.au | www.tefconsult.com.au

TRAFFIC AND PARKING IMPACTS REPORT
FOR A DEVELOPMENT APPLICATION
FOR A CHANGE OF USE FROM A WAREHOUSE TO A GYM
AT UNIT 12, 14 INMAN ROAD, CROMER NSW 2099

Property address	Unit 12, 14 Inman Road, Cromer NSW 2099
Client	Mr Thomas Brideson
Prepared by	O. Sannikov, MEngSc (Traffic Engineering), MIEAust, PEng, FAITPM
Date	01/02/22
Job No.	21082
Report No.	21082 Rep 01

Item	Report
Site location	• Refer to **Figure 1.**
Existing land use	• A two (2) storey warehouse • GFA 225 m² • Three (3) off-street car parking spaces
Proposed land use	• A gymnasium • A maximum of four (4) staff members on site at any given time • Absolute maximum of 10 customers/clients at any given time • GFA 225 m² (no change from existing) • Three (3) off-street car parking spaces (no change from existing)

Figure 1. Site location.

Item	Report
	Existing traffic and parking situation
Street characteristics	• Refer to **Figure 2.**
	• The key roads around the proposed development are described below.
	◦ Middleton Road
	▪ Local road
	▪ 2 travel lanes and parking opportunities on both sides
	◦ Parkes Road
	▪ Local road
	▪ 2 travel lanes and parking opportunities on both sides
	◦ Orlando Road
	▪ Local road
	▪ 2 travel lanes and parking opportunities on both sides
	◦ Inman Road
	▪ Local road
	▪ 2 travel lanes and parking opportunities on both sides
	◦ S Creek Road
	▪ Local road
	▪ 2 travel lanes and parking opportunities on both sides
	Public Transport
	• Refer to **Figure 3** and the **Appendix.**
Bus	• There are three (3) bus stops within short walking distance (approximately 400m, 450m and 600m from the site). The Closest bus stop is Located On Parkes Road (approximately 400m from the site). Refer to **Figure 3.**
	• There are 2 bus routes within walking range.
	◦ Bus route 180
	▪ Warringah Mall to Collaroy Plateau
	• 9 services operates During the morning peak hours.
	• 1 service operates During the afternoon peak hours.
	▪ Collaroy Plateau to Warringah Mall
	• 2 services operates During the morning peak hours.
	• 8 services operates During the afternoon peak hours.
	◦ Bus route 180X
	▪ City Wynyard to Collaroy Plateau (Express Service)
	• No services operates During the morning peak hours.
	• 14 services operates During the afternoon peak hours.
	▪ Collaroy Plateau to City Wynyard (Express Service)
	• 16 services operates During the morning peak hours.
	• No services operates During the afternoon peak hours.
	• 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.

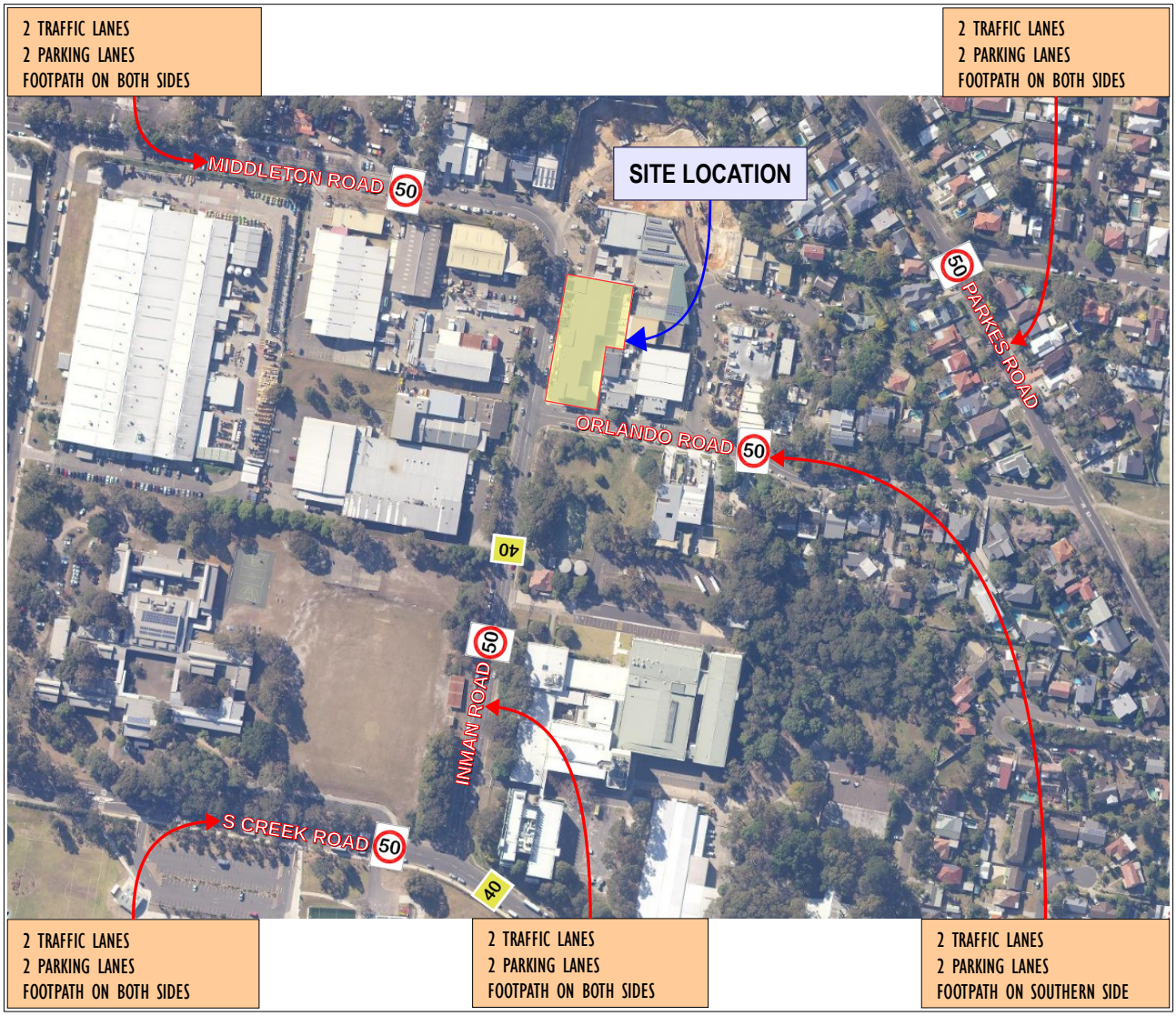


Figure 2. Street characteristics.

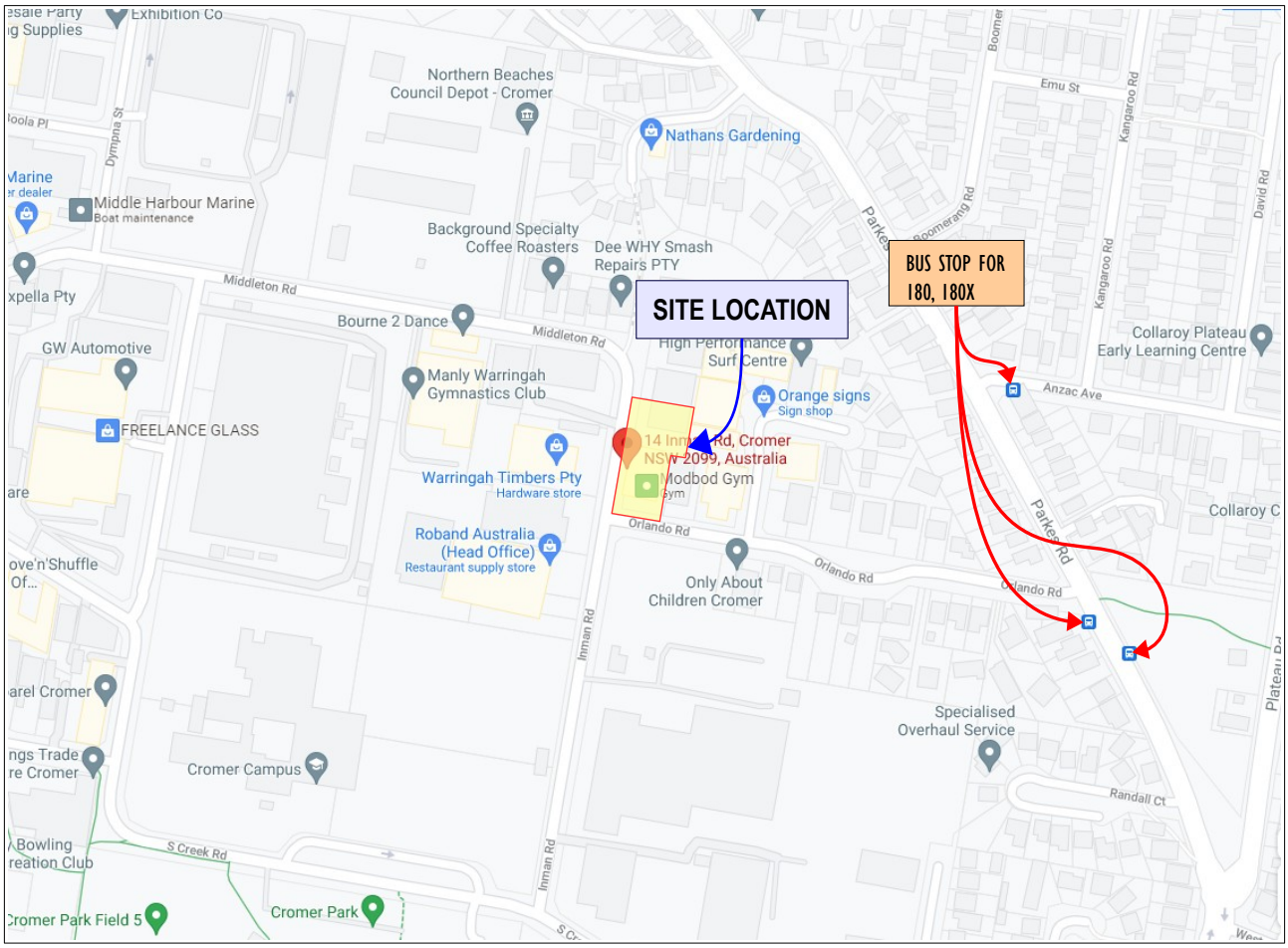


Figure 3. Public transport.

Item	Report
	Surveys and survey results
Context	• The proposed gymnasium currently operates without an approval. • The surveys described below were conducted on two typical busy days of the gymnasium operation. The survey time periods were chosen in consultation with the operator. • The observed existing parking situation includes vehicles associated with the gymnasium and, therefore, the results of the surveys include the actual impacts of the gymnasium on parking demand.
Parking accumulation survey	• Off-street and on-street parking demand surveys ◦ Thursday 13/01/2022 between 09:00 and 21:00 ◦ Saturday 15/01/2022 between 08:00 and 14:30 • Refer to **Figure 4** for survey locations ◦ Area 1 is the off-street car parking area within the building, allocated to the gymnasium ◦ Areas in red represent a convenient walking distance of up to 150 metres from the site. ◦ Areas in blue represent a close walking distance of 150 – 250 metres from the site.
Survey results	• Thursday (refer to **Table 1**) ◦ Areas 1-2b (within 150 metre walking distance) ◦ The peak occurred at 09:00 and 10:30. ◦ The survey results indicated that there were at least 17 spaces vacant throughout the day (to a maximum of 67) in the survey area. ◦ All areas (within 250 metre walking distance) ◦ The peak occurred at 10:30. ◦ The survey results indicated that there were at least 65 spaces vacant throughout the day (to a maximum of 164) in the survey area. • Saturday (refer to **Table 2**) ◦ Areas 1-2b (within 150 metre walking distance) ◦ The peak occurred between 10:30 and 11:00. ◦ The survey results indicated that there were at least 53 spaces vacant throughout the day (to a maximum of 69) in the survey area. ◦ All areas (within 250 metre walking distance) ◦ The peak occurred between 10:30 and 11:00. ◦ The survey results indicated that there were at least 91 spaces vacant throughout the day (to a maximum of 167) in the survey area. • It was noted that the average on-site car park utilisation was 1.74 cars on Thursday and 1.54 cars on Saturday.
Travel mode survey of staff and users	A questionnaire survey of the gymnasium staff and users was carried out to determine the current travel modes. The survey results indicated the following travel mode splits. • 23.3% walk • 3.3% bicycle • 3.3% motorcycle • 0% bus • 70.0% car driver

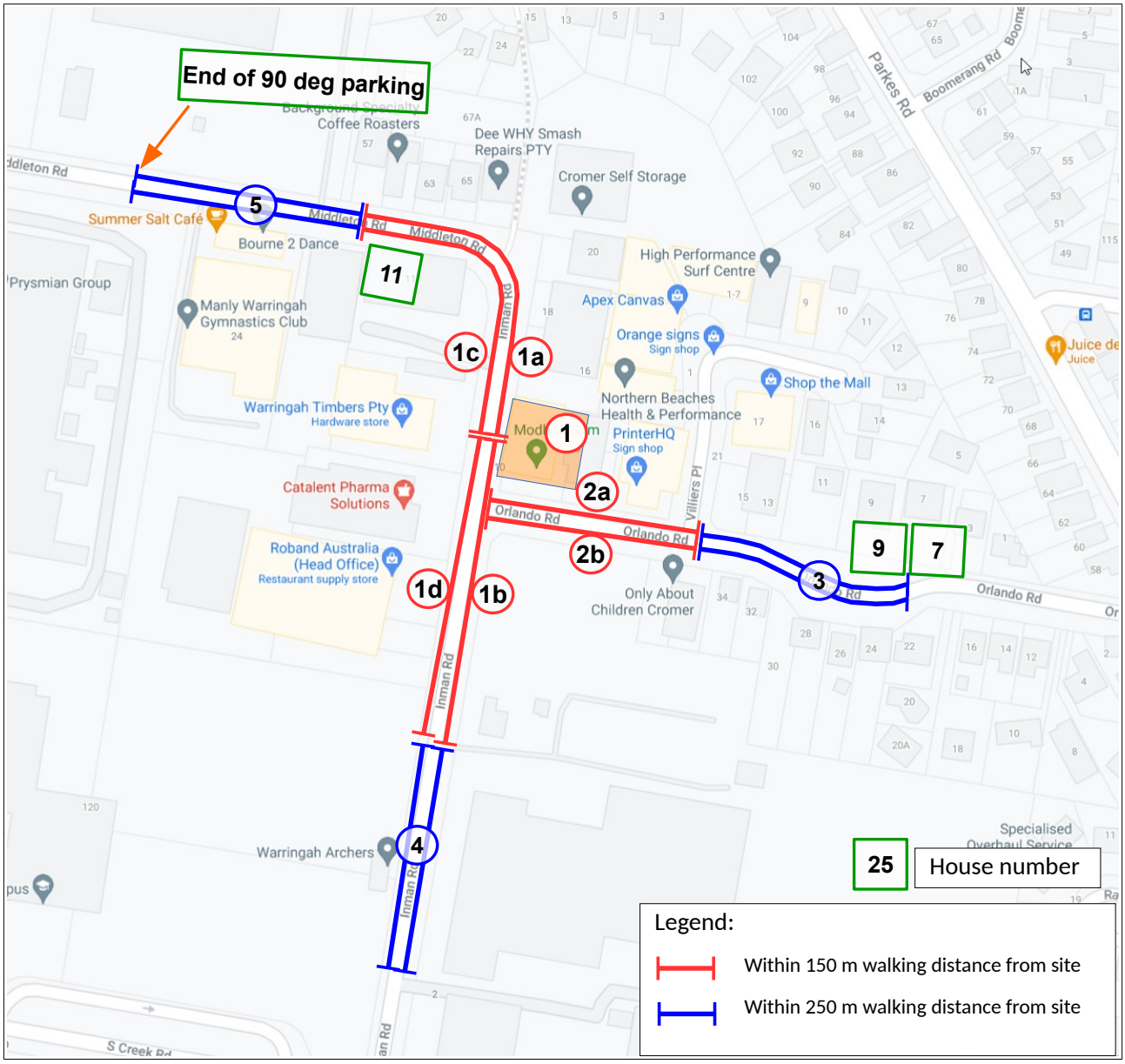


Figure 4. Parking survey locations.

Table 1. Parking survey results - Thursday.

13/1/2022	Number of parked cars												
Thursday	Parking Location												
Time	**1**	**1a**	**1b**	**1c**	**1d**	**2a**	**2b**	3	4	5	**1 to 2b**	**3 to 5**	**Total**
9:00	1	14	6	15	15	8	10	11	3	51	69	65	**133**
9:30	1	14	6	14	15	8	10	11	3	53	67	67	**134**
10:00	1	14	7	14	15	8	10	11	4	55	68	70	**138**
10:30	1	15	7	14	15	8	10	11	5	58	69	74	**143**
11:00	2	14	8	12	16	7	10	11	6	58	67	75	**142**
11:30	1	12	6	12	16	8	10	11	8	58	64	77	**141**
12:00	1	12	6	11	15	8	10	10	9	57	62	76	**138**
12:30	2	12	6	12	15	7	10	10	8	56	62	74	**136**
13:00	3	11	7	11	15	7	10	10	7	55	61	72	**133**
13:30	3	11	7	11	16	7	10	10	6	55	62	71	**133**
14:00	3	11	7	11	16	7	10	10	7	41	62	58	**120**
14:30	2	11	7	10	17	7	10	10	8	41	62	59	**121**
15:00	2	11	7	10	17	7	10	10	9	32	62	51	**113**
15:30	2	10	7	10	17	5	10	10	10	33	59	53	**112**
16:00	3	9	6	10	17	4	9	10	11	32	55	53	**108**
16:30	3	9	6	10	17	3	8	9	12	31	53	52	**105**
17:00	2	9	3	10	10	3	6	8	7	20	41	35	**76**
17:30	1	8	2	6	8	4	6	8	6	18	34	32	**66**
18:00	1	6	1	5	3	4	6	8	6	17	25	31	**56**
18:30	1	6	1	6	2	4	8	8	5	16	27	29	**56**
19:00	2	6	1	6	2	4	8	8	4	14	27	26	**53**
19:30	2	6	0	6	1	2	5	7	6	13	20	26	**46**
20:00	0	6	0	6	1	1	5	7	7	11	19	25	**44**
No of spaces	**3**	**15**	**18**	**16**	**18**	**8**	**11**	**15**	**38**	**69**	86	122	**208**

13/1/2022	Number of vacant parking spaces												
Thursday	Parking Location												
Time	**1**	**1a**	**1b**	**1c**	**1d**	**2a**	**2b**	**3**	**4**	**5**	**1 to 2b**	**3 to 5**	**Total**
9:00	2	1	12	1	3	0	1	4	35	18	20	57	**75**
9:30	2	1	12	2	3	0	1	4	35	16	19	55	**74**
10:00	2	1	11	2	3	0	1	4	34	14	18	52	**70**
10:30	2	0	11	2	3	0	1	4	33	11	17	48	**65**
11:00	1	1	10	4	2	1	1	4	32	11	19	47	**66**
11:30	2	3	12	4	2	0	1	4	30	11	22	45	**67**
12:00	2	3	12	5	3	0	1	5	29	12	24	46	**70**
12:30	1	3	12	4	3	1	1	5	30	13	24	48	**72**
13:00	0	4	11	5	3	1	1	5	31	14	25	50	**75**
13:30	0	4	11	5	2	1	1	5	32	14	24	51	**75**
14:00	0	4	11	5	2	1	1	5	31	28	24	64	**88**
14:30	1	4	11	6	1	1	1	5	30	28	24	63	**87**
15:00	1	4	11	6	1	1	1	5	29	37	24	71	**95**
15:30	1	5	11	6	1	3	1	5	28	36	27	69	**96**
16:00	0	6	12	6	1	4	2	5	27	37	31	69	**100**
16:30	0	6	12	6	1	5	3	6	26	38	33	70	**103**
17:00	1	6	15	6	8	5	5	7	31	49	45	87	**132**
17:30	2	7	16	10	10	4	5	7	32	51	52	90	**142**
18:00	2	9	17	11	15	4	5	7	32	52	61	91	**152**
18:30	2	9	17	10	16	4	3	7	33	53	59	93	**152**
19:00	1	9	17	10	16	4	3	7	34	55	59	96	**155**
19:30	1	9	18	10	17	6	6	8	32	56	66	96	**162**
20:00	3	9	18	10	17	7	6	8	31	58	67	97	**164**

Table 2. Parking survey results – Saturday.

15/1/2022	Number of parked cars												
Saturday	Parking Location												
Time	**1**	**1a**	**1b**	**1c**	**1d**	**2a**	**2b**	**3**	**4**	**5**	**1 to 2b**	**3 to 5**	**Total**
8:00	2	8	2	5	2	3	7	7	8	15	29	30	**57**
9:00	2	8	2	5	2	4	6	9	10	16	29	35	**62**
9:30	2	8	2	5	2	4	6	8	10	15	27	33	**60**
10:00	3	8	2	7	2	5	6	8	10	15	30	33	**63**
10:30	2	8	3	8	3	5	6	7	10	14	33	31	**64**
11:00	2	8	3	8	3	5	6	7	10	14	33	31	**64**
11:30	2	7	3	7	3	3	6	6	7	13	29	26	**55**
12:00	2	7	1	6	2	2	5	6	7	13	23	26	**49**
12:30	2	7	0	6	1	2	5	6	7	13	21	26	**47**
13:00	0	6	0	6	1	2	5	6	6	12	20	24	**44**
13:30	0	5	0	6	0	2	4	6	6	12	17	24	**41**
14:00	0	5	0	6	0	1	4	7	6	11	16	24	**40**
14:30	1	6	0	6	0	1	4	7	6	11	17	24	**41**
No of spaces	**3**	**15**	**18**	**16**	**18**	**8**	**11**	**15**	**38**	**69**	86	122	**208**

15/1/2022	Number of vacant parking spaces												
Saturday	Parking Location												
Time	**1**	**1a**	**1b**	**1c**	**1d**	**2a**	**2b**	**3**	**4**	**5**	**1 to 2b**	**3 to 5**	**Total**
8:00	1	7	16	11	16	5	4	8	30	54	60	92	**151**
9:00	1	7	16	11	16	4	5	6	28	53	60	87	**146**
9:30	1	7	16	11	16	4	5	7	28	54	59	89	**148**
10:00	0	7	16	9	16	3	5	7	28	54	56	89	**145**
10:30	1	7	15	8	15	3	5	8	28	55	53	91	**144**
11:00	1	7	15	8	15	3	5	8	28	55	53	91	**144**
11:30	1	8	15	9	15	5	5	9	31	56	57	96	**153**
12:00	1	8	17	10	16	6	6	9	31	56	63	96	**159**
12:30	1	8	18	10	17	6	6	9	31	56	65	96	**161**
13:00	3	9	18	10	17	6	6	9	32	57	66	98	**164**
13:30	3	10	18	10	18	6	7	9	32	57	69	98	**167**
14:00	3	10	18	10	18	7	7	8	32	58	70	98	**168**
14:30	2	9	18	10	18	7	7	8	32	58	69	98	**167**

Item	Report
Person accumulation surveys	• The numbers of patrons and staff on site were counted simultaneously with the parking accumulation surveys on Thursday 13/01/22 and Saturday 15/01/22. The results of these surveys are presented in **Table 3**.
	• The number of cars parked either on site or on street was calculated using 70% car driver travel mode split obtained from the questionnaire survey. These cars are included in the overall number of cars in **Table 1** and **2**.
	• It may be seen from the survey results that the operation of the gymnasium has very little effect on the overall car parking situation in the area (four(4) cars maximum, of which only up to two (2) cars are parked on street typically.
	• The average parking demand was 2.4 and 2.6 cars on Thursday and Saturday respectively.

Table 3. Patronage survey results .

	Thursday				Saturday			
Time	**Patrons**	**Staff**	**Total**	**Cars**	**Patrons**	**Staff**	**Total**	**Cars**
8:00					5	1	6	4
9:00	0	0	0	0	5	1	6	4
9:30	0	0	0	0	5	1	6	4
10:00	0	1	1	1	4	1	5	4
10:30	0	1	1	1	3	1	4	3
11:00	2	1	3	2	3	1	4	3
11:30	0	1	1	1	3	1	4	3
12:00	1	1	2	1	2	1	3	2
12:30	2	1	3	2	2	1	3	2
13:00	3	1	4	3	1	1	2	1
13:30	4	1	5	4	1	1	2	1
14:00	4	1	5	4	1	1	2	1
14:30	4	1	5	4	2	1	3	2
15:00	4	1	5	4				
15:30	4	1	5	4				
16:00	5	1	6	4				
16:30	4	1	5	4				
17:00	3	1	4	3				
17:30	3	1	4	3				
18:00	3	1	4	3				
18:30	3	1	4	3				
19:00	2	1	3	2				
19:30	1	1	2	1				
20:00	0	1	1	1				

Item	Report
Planning control document	• Northern Beaches Council ◦ Warringah Development Control Plan 2011 ▪ Part C Sitting Factors

Requirement	Compliance
C2 Traffic, Access and Safety	
Applicants shall demonstrate that the location of vehicular and pedestrian access meets the objectives. To minimise: • traffic hazards; • vehicles queuing on public roads; • the number of vehicle crossings in a street; • traffic, pedestrian and cyclist conflict; • interference with public transport facilities; and • the loss of "on street" kerbside parking.	Complies Approved previously
Vehicle access is to be obtained from minor streets and lanes where available and practical.	Complies Approved previously
There will be no direct vehicle access to properties in the B7 zone from Mona Vale Road or Forest Way.	Not applicable
Vehicle crossing approvals on public roads are to be in accordance with Council's Vehicle Crossing Policy (Special Crossings) LAP-PL413 and Vehicle Access to Roadside Development LAP-PL 315.	Not applicable
Vehicle crossing construction and design is to be in accordance with Council's Minor works specification.	Complies Approved previously
Facilities for the loading and unloading of service, delivery and emergency vehicles are to be: • appropriate to the size and nature of the development; • screened from public view; and • designed so that vehicles may enter and leave in a forward direction.	Complies Approved previously
C3 Parking Facilities	
Garage doors and carports are to be integrated into the house design and to not dominate the facade. Parking is to be located within buildings or on site.	Not applicable
Laneways are to be used to provide rear access to carparking areas where possible.	Complies Approved previously
Carparking is to be provided partly or fully underground for apartment buildings and other large scale developments.	Approved previously
Parking is to be located so that views of the street from front windows are not obscured.	Not applicable
Where garages and carports face the street, ensure that the garage or carport opening does not exceed 6 metres or 50% of the building width, whichever is the lesser.	Not applicable

Item	Report	
	Requirement	**Compliance**
	Off street parking is to be provided within the property demonstrating that the following matters have been taken into account: • the land use; • the hours of operation; • the availability of public transport; • the availability of alternative car parking; and • the need for parking facilities for courier vehicles, delivery / service vehicles and bicycles.	Complies
	Carparking, other than for individual dwellings, shall: • Avoid the use of mechanical car stacking spaces; • Not be readily apparent from public spaces; • Provide safe and convenient pedestrian and traffic movement; • Include adequate provision for manoeuvring and convenient access to individual spaces; • Enable vehicles to enter and leave the site in a forward direction; • Incorporate unobstructed access to visitor parking spaces; • Be landscaped to shade parked vehicles, screen them from public view, assist in micro-climate management and create attractive and pleasant places; • Minimum car parking dimensions are to be in accordance with AS/NZS 2890.1	Approved previously
	Carparking, other than for individual dwellings, shall: Provide on site detention of stormwater, where appropriate.	Approved previously
	Carparking is to be provided in accordance with Appendix 1 which details the rate of car parking for various land uses. Where the carparking rate is not specified in Appendix 1 or the WLEP, carparking must be adequate for the development having regard to the objectives and requirements of this clause. The rates specified in the Roads and Traffic Authority's Guide to Traffic Generating Development should be used as a guide where relevant.	

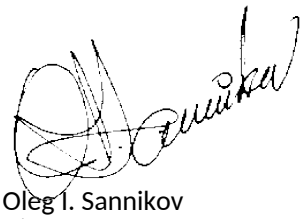
Recreational and tourist facilities	
Use	**Requirement**
Gymnasium	4.5 spaces per 100 m² GFA.

Car Parking Required:	**Car Parking Proposed:**
The total warehouse area is 225 m². • 225 / 100 x 4.5 = 10.1, rounded to **10 car parking spaces**	Three (3) existing spaces are provided, resulting in a deficiency of 7 spaces. This non-compliance is regarded as acceptable in view of abundance of vacant parking spaces on street during the proposed times of operation of the gymnasium (P.T.O.).

Item	Report	
	Requirement	**Compliance**
		As demonstrated by car parking and patronage surveys, on typical busy days the gymnasium generates parking demand not exceeding four (4) cars. Although 3 car spaces are available on site, they are not fully used at all times and, typically, two (2) cars would park on site and one (1) or two (2) cars on street (noting that the average observed parking demand was 2.4 and 2.6 cars on Thursday and Saturday respectively).
		Parking surveys on street demonstrated that during the busiest times of general on-street parking demand (on a weekday during business hours), there are still in the order of 65 to 75 vacant car parking spaces within close walking distance from the site. After business hours on and on weekends these numbers are substantially higher, in the order of 140 to 170.
		The existing parking availability was observed with the gymnasium operating as usual. In this regard, no further impacts are expected if the approval is granted.
		The proposed Plan of Management indicates that the maximum possible numbers of people are four (4) staff and 10 patrons. It must be emphasised that the actual number of staff is typically less in practice.
		Considering 14 people in as the worst case scenario and using the survey data as a basis for calculations, the maximum possible parking demand can be estimated as 14 people x 70% car drivers = 10 cars.
		The observed maximum demand is four (4) cars, therefore the worst case scenario would result in 6 additional cars, 5 of them on street and one (1) in the car park.
		The above additional number of cars will have no noticeable impact on the existing parking situation.
	Adequate provision for staff, customer and courier parking, and parking and turning of vehicles with trailers must be provided if appropriate to the land use.	Complies
	For bulky goods premises adequate on-site parking spaces for service/delivery vehicles at a convenient location, separated from customer parking must be provided.	Not applicable
	Where appropriate, car parking which meets the needs of people with physical disabilities must be provided in accordance with the relevant Australian Standard.	Not applicable
	C3(A) Bicycle Parking and End of Trip Facilities	
	Bicycle parking facilities must be provided for new buildings and for alterations or additions to existing buildings. In the case of alterations or additions to existing buildings bicycle parking facilities are required for the additional floor area only.	No additional floor areas are proposed. Not applicable

Item	Report
	Traffic impacts
Traffic generation	• Base traffic generation rates ◦ From RMS (2002) Guide to Traffic Generating Developments ▪ Updated report by PeopleTrans Pty Ltd (2014) Trip Generation and Parking Demand Surveys of Gymnasiums. Data and Analysis Report.
	• **Traffic generated by proposed development** ◦ Average peak hour vehicle trips = 3.6 trips per 100 m^2 GFA ▪ 3.6 × 225 /100 = 8.1, say 8 trips per hour during commuter peak hours
Conclusion	• **Additional traffic generated by proposed development** • Additional traffic generation is very minor and will have no noticeable impact on the existing road network.

Conclusions	• Proposed parking provision ◦ Does not comply with the Council's DCP, providing three (3) spaces instead of 10 required. ◦ Deemed acceptable on merit due to high levels of vacant parking on street within close walking distance from the site. • Traffic impacts ◦ The additional traffic from the proposed development will be minimal and will have no noticeable 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
FAITPM

References:

Warringah Development Control Plan 2011

Guide to Traffic Generating Developments RMS (2002)

PeopleTrans Pty Ltd (2014) Trip Generation and Parking Demand Surveys of Gymnasiums. Data and Analysis Report.

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

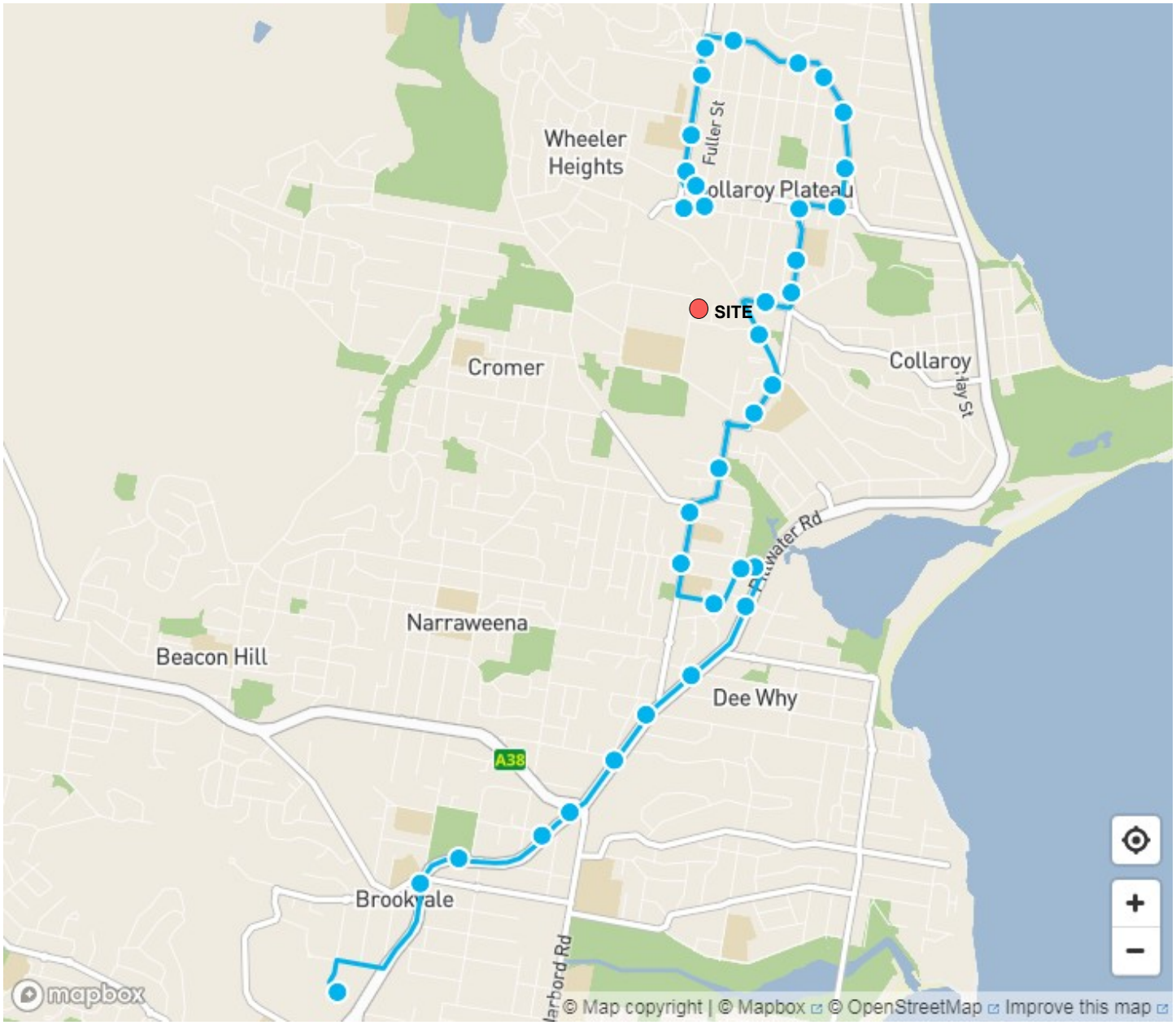
AS/NZS 2890.6:2009: Parking Facilities – Off-street parking for people with disabilities

AS 2890.3 – Bicycle Parking Facilities

Appendix

Bus routes

Bus Route 180



Bus Route 180X